

Las Positas College
Curriculum Committee Meeting
11/03/2025
5.0 First Reading Packet

5.1. New Courses

- NAUT A9 Light Vehicle Diesel Engines
- NAUT CL1 Advanced Engine Performance Concepts
- NAUT CL3 Light Duty Hybrid/Electric Vehicles Concepts
- NAUT CP1 Powertrains: Modifications for Performance Concepts
- NAUT INTL Introduction to Automotive Hands-On Lab
- NAUT L1 Advanced Engine Performance
- NAUT L3 Light Duty Hybrid/Electric Vehicles
- NAUT P1 Powertrains: Modifications for Performance
- NFRN 201 Beginning French for Older Adults
- NFRN 202 Elementary French for Older Adults
- NKIN YOOA Yoga for the Older Adult

Admin Outline for Noncredit Automotive Technology A9 Light Vehicle Diesel Engines

Effective: Fall 2026

Catalog Description:

NAUT A9 - Light Vehicle Diesel Engines 216 Hours

An in depth study of diesel engines: mechanical, measurement, and assembly. A study of the above mentioned components including theory, teardown, evaluate, qualifying, and rebuilding. Diesel engine performance including emissions, turbos, exhaust and intake systems. This class's emphasis is on diesel engines and diesel engine performance/emissions. Students are encouraged to enroll in Automotive Laboratory concurrently.

Prerequisite: NAUT INTL with a minimum grade of C and NAUT INT with a minimum grade of C, or AUTO INTL with a minimum grade of C and AUTO INT with a minimum grade of C, INT and INTL may be taken concurrently

Course Grading: Optional

Total Lecture Hours	36
Total Lab Hours	108
Total Inside of Class Hours	144
Total Outside of Class Hours	72
Total Noncredit Hours	216

Justification for course proposal

Non-credit shadow of AUTO A9. It is one of the few AUTO classes without one. This has caused students who wish to take NC an issue.

Discipline:

Automotive Technology

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Demonstrate the basic safety procedures of handling hazardous waste materials.
- B. Explain the history of diesel powertrain evolution.
- C. Operate a wide variety of precision measurement equipment.
- D. Explain four cycle engine theory and identify key components involved.
- E. Teardown typical diesel engine assembly.
- F. Take measurements of engine components and compare to specifications.
- G. Qualify new and used engine components.
- H. Rebuild engine to manufacturer specifications.
 - I. Identify and explain the function of diesel emission components
 - J. Identify and explain the function of diesel turbo and intake components
 - K. Identify and explain the function of diesel emission exhaust components

Course Content:

Lab:

1. Measurement Useage and reading
 1. Micrometer
 1. Vernier
 2. Caliper
 3. Dial bore gauge
 4. Snap gauges
 5. Straight edge
 6. Feeler gauges
 7. Hole gauges
2. Engine Teardown
 1. Removal and identification of external components
 1. Special procedures
 1. Loosening sequence
 2. Removal and identification of internal components
 1. Special Procedures
 1. Loosening sequence
3. Component measurement
 1. Specification lookup
 2. Comparison
 1. Component diagnosis
 1. Failure analysis
4. Evaluation of replacement components
 1. Correct component?

2. New and used part comparison
5. Engine rebuilding
 1. Manufacturer Procedures
 1. Component sequence
 2. Torque specifications
 3. Tightening sequences
 2. Proper engine timing
 1. Camshaft to crankshaft
 2. Crankshaft to balance shaft
6. Different types of fuel delivery systems diagnosis.
 1. Mechanical Injection
 2. Direct Injection
 3. HEIU
7. Fuel systems testing
 1. Perform pressure test
 2. Evaluate volume test and fuel composition
 3. Electronic pulse with modulation evaluation
8. Diagnose various Engine Performance concerns
9. Emission system diagnostics and testing
10. Diagnostic service information
11. Exhaust system evaluation
12. Turbos
13. Valve adjustments
14. Professionalism

Lecture:

1. Safety
 1. Tool usage and nomenclature
 2. Proper disposal procedures
 3. Environmentally conscious decisions
2. Powertrain evolution
 1. The first four cycle diesel engines
 2. Current engines
 3. Horsepower and emission tradeoffs
 4. Environmental decisions driving design
3. Measurement
 1. Micrometer
 1. Vernier
 2. Caliper
 3. Dial bore gauge
 4. Snap gauges
 5. Straight edge
 6. Feeler gauges
 7. Hole gauges
4. Four cycle engine theory
 1. Intake, compression, power, exhaust
 1. 360 degrees in one degree intervals
 2. Valve overlap
 3. Timing concerns and tricks
 4. Street vs. racing
 2. DOHV vs. OHV vs. Valve in block design
 1. Pros and cons of each
 2. Current technology
 3. Key Valve train components
 4. Key bottom end components
 5. Camshaft timing
 1. Static camshaft
 2. Dynamic camshaft
 3. Electronic valves
 6. Crankshaft design and balance
 7. Cylinder head design
 1. Single valve
 2. Multiple valve
5. Engine Teardown
 1. Removal and identification of external components
 1. Special procedures
 1. Loosening sequence
 2. Removal and identification of internal components
 1. Special Procedures
 1. Loosening sequence
6. Component measurement
 1. Specification lookup
 2. Comparison
 1. Component diagnosis

1. Failure analysis
7. Evaluation of replacement components
 1. Correct component?
 2. New and used part comparison
8. Engine rebuilding
 1. Manufacturer Procedures
 1. Component sequence
 2. Torque specifications
 3. Tightening sequences
 4. Special concerns
 1. Assembly lube
 2. Gaskets and sealers
 2. Dynamic engine torque
 3. Proper engine timing
 1. Camshaft to crankshaft
 2. Crankshaft to balance shaft
9. Different types of fuel delivery systems.
 1. Mechanical Injection
 2. Direct Injection
 3. HEIU
10. Fuel systems testing
 1. Perform pressure test
 2. Evaluate volume test and fuel composition
 3. Electronic pulse with modulation evaluation
11. Diagnose various Engine Performance concerns
12. Emission system diagnostics and testing
13. Diagnostic service information
14. Exhaust system evaluation
15. Turbos
16. Valve adjustments
17. Professionalism
 1. Safety glasses
 2. Working shop expectations
 3. Attitude
 4. Cleanliness
 5. Maintenance of work areas and tools

Methods of Instruction:

1. Lab - Group and individual laboratory activities
2. Lecture - Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Typical Outside-of-Class Assignments

- A. Reading:
 - Read Chapter One in text
- B. Research:
 - Engine Construction research for a personal vehicle

Methods of Evaluating Student Progress

- A. Exams/Tests
 1. One midterm and one final exam
- B. Home Work
 1. Weekly
- C. Lab Activities
 1. Bi-weekly
- D. Quizzes
 1. Weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. Diagnose and repair diesel engine mechanical systems.
- B. Diagnose and repair diesel turbo systems.
- C. Apply safety in all lab conditions.

Textbooks (Typical):

Textbook:

1. James Duffy *2025 ASE Automotive Suite.*, Goodheart Wilcox, 2027.
2. Halderman *Automotive Engines: Theory and Servicing.* 10 ed., Prentice Hall, 2023.
3. Halderman and Ward *Light Vehicle Diesel Engines.* 1 ed., Pearson, 2021.

Other Materials Required of Students

Other Materials Required of Students:

1. Safety Glasses.

Equity Based Curriculum

- Measurable Objectives

Address

Industry-Standard evaluations will be used for lab work. Students being able to acquire industry certificates which are not held in high quantities by minorities. This will help them get a job.

- Methods of Instruction

Address

The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

- Methods of Evaluation

Address

The course materials and evaluations are based on industry standards.

- Typical Texts

Address

The course materials and evaluations are based on industry standards.

Requisite Skills

Before entering this course, it is required that a student be able to:

A. NAUT INTL

1. Utilize and apply hazardous waste handling;
2. Identify and describe uses of automotive related tools;
3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
4. Discuss four stroke engine cycle and identify engine parts;
5. Perform basic engine teardown and reassembly;
6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
7. Identify emissions components, understand 5 gas theory;
8. Theorize on the future of the automotive industry.

B. NAUT INT

1. Identify and describe uses of automotive related tools;
2. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
3. Discuss four stroke engine cycle and identify engine parts;
4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
5. Identify emissions components, understand 5 gas theory;
6. Theorize on the future of the automotive industry.

C. AUTO INTL

1. Utilize and apply hazardous waste handling;
2. Identify and describe uses of automotive related tools;
3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
4. Discuss four stroke engine cycle and identify engine parts;
5. Perform basic engine teardown and reassembly;
6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
7. Identify emissions components, understand 5 gas theory;
8. Theorize on the future of the automotive industry.

D. AUTO INT

1. Identify and describe uses of automotive related tools;
2. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
3. Discuss four stroke engine cycle and identify engine parts;
4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
5. Identify emissions components, understand 5 gas theory;
6. Theorize on the future of the automotive industry.

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. There are exceptions to this as we learned in C-19.

Explain how the decision was made to offer this course in a Distance Education mode.

California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.

- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly lab sessions
- **Other:**
Frequency: Student interaction, fulfillment of SLO's and measurable objectives will be done weekly.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: At least once every other week.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: Minimum weekly
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Minimum weekly
- **Other:**
Frequency: Minimum weekly

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: Minimum weekly
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Quizzes: at least one quiz per section/chapter. Weekly. Exams: at least two per semester.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: Minimum weekly
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: Minimum weekly
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: Minimum weekly
- **Other:**
Frequency: Homework assigned weekly

Codes and Dates

Course CB Codes

CB00: State ID

CCC000584345

CB03: TOP Code

094800 - Automotive Technology

CIP Code

47.0604 - Automobile/Automotive Mechanics Technology/Technician.

CB04: Credit Status

N - Non Credit

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

I - Short-term Vocational: Includes programs with high employment potential

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

Credit for Prior Learning

Credit for Prior Learning Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam Yes

Credit-by-Portfolio No

Credit-by-Military-JST No

Credit-by-Industry-Recognized-Training No

Additional Detail (List articulated courses, etc.) No

Admin Outline for Noncredit Automotive Technology CL1 Advanced Engine Performance Concepts

Effective: Fall 2026

Catalog Description:

NAUT CL1 - Advanced Engine Performance Concepts 108 Hours

This class is lecture only and non-credit. Continuation of Automotive Technology A6 and A8 with an emphasis on diagnosis of electronic problems including computer controlled circuits/systems using schematics, diagnostic procedures and equipment. Students are strongly recommended to enroll in Automotive Lab concurrently.

Course Grading: Optional

Total Lecture Hours	36
Total Inside of Class Hours	36
Total Outside of Class Hours	72
Total Noncredit Hours	108

Justification for course proposal

Non credit mirror for AUTO

Discipline:

Automotive Technology

Course Objectives:

Upon completion of this course, the student should be able to:

- Obtain and interpret scan tool data, retrieve and record stored On Board Diagnostics (OBD) diagnostic trouble codes, and other On Board controllers;
- Diagnose the causes of electrical failures or concerns resulting from malfunctions in the computerized control systems with or without diagnostic trouble codes;
- Chart, inspect and test computerized engine control system sensors, Powertrain control module (PCM), actuators, and circuits using a graphing multi-meter (DMM)/digital storage oscilloscope (DSO), and perform necessary action;
- Access and use service information to perform step-by-step diagnosis;
- Evaluate complex electrical system problems;
- Develop diagnostic paths using wiring schematics;
- Diagnose malfunctions of electronic control systems causing vehicle performance problems, and determine necessary action;
- Outline hazardous waste handling
- Maintain a clean professional environment.

Course Content:

- On Board computer scan data
 - Retrieval of codes and data
 - Flash codes
 - Scanner codes
 - Interpretation of information
 - Factory set procedures
 - Develop own diagnostic procedures
- Emission system diagnostics and testing
 - Perform flow chart testing, with codes, and without codes
 - Evaluate exhaust gas emission smog test results
 - Electronic pulse with modulation evaluation
- Diagnostic patterns, and analyze scope readings
 - Digital storage oscilloscope usage
 - Scope connection
 - Pattern interpretation
- Diagnostic service information
 - Access service information (electronic)
 - Application of information
 - Access service information (paper)
 - Application of information
 - Research labor time guides for work determined in diagnostics
- Ignition timing
 - Inspection of adjustable systems
 - Proper operation of timing light
 - Follow factory procedures
 - Set timing to specifications
- Explain theory and functionality of "OPEN/CLOSED loop systems
 - List theory of fuel flow delivery system in open loop status
 - Sensor contribution at operating temperatures

7. Exhaust system evaluation
 1. Back pressure
 1. Testing and diagnosis
 2. Installation inspection
8. Emissions and performance
 1. Explain impact of emissions system on vehicle performance
 1. Diagnoses of power systems
9. Valve adjustments
 1. Adjustment of hydraulic and solid lifters
10. Dynamometer
 1. Set up and use of dynamometer
 2. Safety procedures
 3. List dynamic information obtained from testing (loaded mode)
11. Handling of hazardous waste materials
 1. Storage and handling of gasoline
 2. Storage and handling of diesel fuel
12. Professional environment
 1. Safety glasses (clear lens) worn in all Laboratory areas
 2. No loose clothing (coveralls strongly recommended)
 3. Long Hair secured
 4. No open toe shoes (safety shoes recommended)
 5. Work areas maintained: clean free of debris and spills

Methods of Instruction:

1. Lecture - Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Typical Outside-of-Class Assignments

- A. Reading:
 - Read Chapter One in text
- B. Research:
 - Engine Construction research for a personal vehicle

Methods of Evaluating Student Progress

- A. Exams/Tests
 1. Minimum 1 midterm and 1 final exam
- B. Home Work
 1. Weekly
- C. Lab Activities
 1. Weekly
- D. Quizzes
 1. At the instructors discretion

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. Apply emissions safety precautions.
- B. Diagnose engine driveability problems using a scanner and multimeter.
- C. Use service information to research a repair.

Textbooks (Typical):

Textbook:

1. James D Halderman *Automotive Technology*. 7 ed., Pearson, 2024.
2. James Duffy *2025 ASE Automotive Suite.*, Goodheart Wilcox, 2025.
3. Tim Giles *Automotive Service: Inspection, Maintenance, Repair*. 6 ed., Cengage, 2020.

Other Materials Required of Students

Other Materials Required of Students:

1. A computer with internet access..

Equity Based Curriculum

- Methods of Instruction

Address

The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
- Methods of Evaluation

Address

The course materials and evaluations are based on industry standards.
- Typical Texts

Address

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Delivery Methods

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- Student rights and responsibilities.
- Student behavior in a DE course.
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Frequency: Weekly, as assignments or labs are turned in
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly lab sessions
- **Other:**
Frequency: Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: At least once every other week.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: Minimum weekly
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: once every other week
- **Other:**
Frequency: Students will interact during on-campus weekly labs

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: weekly
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Quizzes: at least one quiz per section/chapter. Weekly. Exams: at least two per semester.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: At least once per week
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: Weekly

- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: Weekly
- **Other:**
Frequency: Homework, assigned weekly

Codes and Dates

Course CB Codes

CB00: State ID

CCC000584391

CB03: TOP Code

094800 - Automotive Technology

CIP Code

47.0604 - Automobile/Automotive Mechanics Technology/Technician.

CB04: Credit Status

N - Non Credit

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

D - Possibly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

Admin Outline for Noncredit Automotive Technology CL3 Light Duty Hybrid/Electric Vehicles Concepts

Effective: Fall 2026

Catalog Description:

NAUT CL3 - Light Duty Hybrid/Electric Vehicles Concepts 108 Hours

This class is lecture-only and non-credit. A study in the history, current and future of alternative fuels, hybrids and electric vehicles in the automotive industry. Emphasis in shop safety, hazardous waste handling, high-voltage electrical precautions, basic engine construction of hybrids, battery storage systems, fuel storage systems, compressed natural gas, liquid propane gas, bio-diesel and hydrogen cell technology.

Course Grading: Optional

Total Lecture Hours	36
Total Inside of Class Hours	36
Total Outside of Class Hours	72
Total Noncredit Hours	108

Justification for course proposal

This course is online and lecture-only. It is one of the few auto courses that does not have a noncredit lecture-only mirror. These lecture-only classes are made so that people who do not want to "get their hands dirty" but still gain automotive knowledge can learn and grow. These classes take no FTEF and are cross-listed with the AUTO class.

Discipline:

Automotive Technology

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Describe the importance of shop safety relating to different alternative fuels
- B. Explain the importance of implementation of alternative fuels
- C. Identify and perform safety procedures in regards to the handling of alternative fuels and battery disposal
- D. Access and research service information stored on computer
- E. Specify and list the differences in alternative fuels
- F. Distinguish and compare the different Hybrid fuel systems
- G. Use critical thinking skills to explore the future of alternative fuels
- H. Maintain a clean and professional environment

Course Content:

1. Shop safety when dealing with alternative fuels.
 1. Proper attire.
 1. Manufacturer and Government
 2. Fire Hazards, what to do and how to respond.
 3. Cautionary Colors
 1. Under 50 Volts
 2. 50 to 100 Volts
 3. Over 100 Volts.
2. Alternative Fuel Government regulations and implementation.
 1. History and future of Alternative Fuel regulations.
 2. Laws, domestic and international governing alternative fuels.
 3. Gasoline supply and pricing.
 1. How much is left?
 2. Middle east Stability
 3. OPEC
 4. Fueling station availability.
 1. Gasoline
 2. Bio-Diesel
 3. CNG
 4. LPG
 5. Propane
3. Safety and Handling of alternative fuels and battery systems.
 1. Occupational Safety Health Administration (OSHA) Shop standards applied.
 2. Flash points of different fuels.
 3. Hazardous material handling; CNG, LPG, Bio-Diesel, Batteries, Hydrogen cell, as well as other chemicals related to the automobile and alternative fuels.
4. Service information.
 1. Access Computer based service information; Alldata, Mitchell on demand as well as Manufacturer information systems as available.
5. Automotive Alternative Fuels Systems.
 1. Ethanol systems and blends.

1. Major Manufacturing Changes
2. Effects on internal engine components
3. Effects on fueling systems
2. CNG systems and blends.
 1. Major Manufacturing Changes
 2. Effects on internal engine components
 3. Effects on fueling systems
3. LPG systems and blends.
 1. Major Manufacturing Changes
 2. Effects on internal engine components
 3. Effects on fueling systems
4. Bio-Diesel systems and blends.
 1. Major Manufacturing Changes
 2. Effects on internal engine components
 3. Effects on fueling systems
5. Electrical motor and solar systems.
 1. Motor Technology Challenges
 2. Solar Technology Challenges
 3. Battery Technology Challenges
 1. Lead acid
 2. Ni-Cd
 3. Ni-Mh
 4. Lit-Ion
 5. Lit-Ion gel
 6. Coming Technology
6. Hydrogen Cell systems
 1. Hydrogen Technology Challenges
 2. Hydrogen Supply and rendering
6. Hybrid Fuel Systems.
 1. Gasoline-Electric systems.
 2. Gasoline-CNG systems.
 3. Gasoline-LPG systems.
7. Future of Alternative Fuels systems.
 1. Advances in Technology.
 2. What's next?
 3. Challenges new fuels have.
8. Professional environment
 1. Safety glasses (Clear lenses) worn in all Laboratory areas.
 2. No loose clothing (Coveralls strongly recommended).
 3. Long Hair secured.
 4. No open toe shoes (safety shoes recommended).
 5. Work areas maintained; clean free of debris and spills.

Methods of Instruction:

1. Lecture - Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
2. Discussion - Group discussions.
3. Audio-visual Activity - 1. PowerPoint presentations. 2. Mockup parts from automobile.

Typical Outside-of-Class Assignments

- A. Reading:
 - Read Chapter One of text
- B. Research:
 - Engine Construction research for a personal vehicle

Methods of Evaluating Student Progress

- A. Class Participation
 1. Daily
- B. Exams/Tests
 1. At lest twice per semester
- C. Home Work
 1. Weekly
- D. Quizzes
 1. Weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. Perform hybrid safety precautions with 100% accuracy.
- B. Perform the hybrid battery disconnect procedure.
- C. Use service information to research a repair.

Textbooks (Typical):

Textbook:

1. James Duffy *2025 ASE Automotive Suite.*, Goodheart Wilcox, 2025.
2. James D Halderman *Automotive Technology: 7 ed.*, Pearson, 2024.

Other Learning Materials:

1. No Textbook

Other Materials Required of Students

Other Materials Required of Students:

1. Computer with internet access..

Equity Based Curriculum

- Methods of Instruction

Address

The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

- Methods of Evaluation

Address

The course materials and evaluations are based on industry standards.

DE Proposal

Delivery Methods

- **Fully Online (FO)**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. There are exceptions to this as we learned in C-19.

Explain how the decision was made to offer this course in a Distance Education mode.

California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum Once per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Minimum Once per week

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: At least once every other week.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: Minimum Once per week
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Minimum Once per week

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: Weekly
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Quizzes: at least one quiz per section/chapter. Weekly. Exams: at least two per semester.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: At least once per week
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: At least once per week
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: At least once per week
- **Other:**
Frequency: Homework, assigned weekly

Codes and Dates

Course CB Codes

CB00: State ID

CCC000503387

CB03: TOP Code

094840 - Alternative Fuels and Advanced Transportation Technology

CIP Code

47.0614 - Alternative Fuel Vehicle Technology/Technician.

CB04: Credit Status

N - Non Credit

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

D - Possibly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

Admin Outline for Noncredit Automotive Technology CP1 Powertrains: Modifications for Performance Concepts

Effective: Fall 2026

Catalog Description:

NAUT CP1 - Powertrains: Modifications for Performance Concepts 162 Hours

This class is lecture-only and non-credit. An in-depth study of engine and transmission modifications made in order to improve performance. This class will explain the differences in laws governing vehicles in all fifty states including those registered in California; how to improve performance legally; and the penalties of breaking the law. Students will learn to calculate the benefit versus cost of bolt-on performance products and major engine or transmission modifications. NOTE: Some modifications are intended for off-road applications only.

Course Grading: Optional

Total Lecture Hours	54
Total Inside of Class Hours	54
Total Outside of Class Hours	108
Total Noncredit Hours	162

Justification for course proposal

This course is online and lecture-only. It is one of the few auto courses that does not have a noncredit lecture-only mirror. These lecture-only classes are made so that people who do not want to "get their hands dirty" but still gain automotive knowledge can learn and grow. These classes take no FTEF and are cross-listed with the AUTO class.

Discipline:

Automotive Technology

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Demonstrate the basic safety procedures of handling hazardous waste materials.
- B. Operate a wide variety of precision measurement equipment.
- C. Explain four cycle engine theory and identify key components involved.
- D. Teardown typical engine assembly.
- E. Make measurements of engine components and compare to specifications.
- F. Explain the difference between 49 and 50 state legal.
- G. Interpret the Law as it applies to a personal vehicle and modification.
- H. Theorize possible horsepower outcomes for modifications.
 - I. Compare and Contrast Bolt-on Modifications.
 - J. Perform Major Powertrain Modifications.
 - K. Demonstrate Professionalism.

Course Content:

1. Safety
 1. Tool usage and nomenclature
 2. Proper disposal procedures
 3. Environmentally conscious decisions
2. Measurement tools
 1. Micrometer
 1. Vernier
 2. Caliper
 2. Dial bore gauge
 3. Snap gauges
 4. Straight edge
 5. Feeler gauges
 6. Hole gauges
3. Four cycle engine theory
 1. Intake, compression, power, exhaust
 1. 360 degrees in one degree intervals
 2. Valve overlap
 3. Timing concerns and tricks
 4. Street vs. racing
 2. DOHV vs. OHV vs. Valve in block design
 1. Pros and cons of each
 2. Current technology
 3. Key Valve train components
 4. Key bottom end components
 5. Camshaft timing

1. Static camshaft
2. Dynamic camshaft
3. Electronic valves
6. Crankshaft design and balance
7. Cylinder head design
 1. Single valve
 2. Multiple valve
4. Engine Teardown
 1. Removal and identification of external components
 1. Special procedures
 2. Loosening sequence
 2. Removal and identification of internal components
 1. Special Procedures
 1. Loosening sequence
5. Component measurement
 1. Specification lookup
 2. Comparison
 1. Component diagnosis
 1. Failure analysis
6. Modification Laws
 1. Federal Standards
 2. California Standards
7. Federal and California Statues regarding punishment
 1. Fines and Jail time
 2. Environmental impact
8. Horsepower and Torque
 1. Horse Power calculations
 1. Curve Maps
 2. Slope versus Incline
 2. Torque Calculations
 1. Curve Maps
 2. Slope versus Incline
 3. Changes from modifications
9. Bolt on Modifications
 1. Removal and identification of factory parts
 1. Special procedures
 2. Specific design flaws and challenges
 2. Installation and identification of modification parts
 1. Special procedures
 2. Specific design and challenges
10. Major Powertrain modifications
 1. Cost versus gain
 2. Comparison
 1. Component diagnosis
 2. Manufacturing Process
11. Professionalism
 1. Safety glasses
 2. Working shop expectations
 3. Attitude
 4. Cleanliness
 5. Maintenance of work areas and tools

Methods of Instruction:

1. Discussion - Group and individual laboratory activities
2. Guest Lecturers - Group and individual laboratory activities
3. Lecture - Group and individual activities. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
4. Student Presentations - Group and individual activities

Typical Outside-of-Class Assignments

- A. Reading:
 - Read Chapter One of text
- B. Research:
 - Engine Construction research for a personal vehicle

Methods of Evaluating Student Progress

- A. Exams/Tests
 1. twice a semester
- B. Quizzes
 1. Weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. Use powertrain data gathered from a dyno test to determine fuel mixture.
- B. Determine the proper way to modify an exhaust system and stay within the legal limits of emissions and noise.
- C. Use service information to research a repair.

Textbooks (Typical):

Textbook:

1. James Duffy *2025 ASE Automotive Suite.*, Goodheart Wilcox, 2025.
2. James D Halderman *Automotive Technology*, 7 ed., Pearson, 2024.

Software:

1. [HP Tuners](#). HP Tuners, (Online/e).
2. [Alldata](#). Alldata, (Current/Online/e).
3. [Shopkeypro](#). Snapon, (Current/Online/e).

Other Materials Required of Students

Other Materials Required of Students:

1. Computer with internet access.

Equity Based Curriculum

- Methods of Instruction

Address

The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

- Methods of Evaluation

Address

The course materials and evaluations are based on industry standards.

- Typical Texts

Address

The course materials and evaluations are based on industry standards.

DE Proposal

Delivery Methods

- **Fully Online (FO)**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.

Explain how the decision was made to offer this course in a Distance Education mode.

California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in.
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week.
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week.
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly lab sessions.
- **Other:**
Frequency: FO: Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: FO: At least once every other week.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: Fully online only: Minimum weekly.
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Fully online only: once every other week.

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: Fully online only: weekly.
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Quizzes: at least one quiz per section/chapter. Weekly. Exams: at least two per semester.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: FO: At least once per week.
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: FO: Weekly.
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: FO: Weekly recorded by student and completed using online software.
- **Other:**
Frequency: Homework assigned weekly.

Codes and Dates

Course CB Codes

CB00: State ID

CCC000599275

CB03: TOP Code

094800 - Automotive Technology

CIP Code

47.0604 - Automobile/Automotive Mechanics Technology/Technician.

CB04: Credit Status

N - Non Credit

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

Admin Outline for Noncredit Automotive Technology INTL Introduction to Automotive Hands-On Lab

Effective: Fall 2026

Catalog Description:

NAUT INTL - Introduction to Automotive Hands-On Lab 108 Hours

This is the Lab section that can only be taken if you are also taking INT. Bumper-to-Bumper Automotive Knowledge. Starting with hazardous waste handling, tool identification, maintenance, and lubrication, moving into engine mechanical, emissions controls, suspension systems, air conditioning, airbags and safety, transmissions, axles, and finishing off with the future of the automotive industry. This is an introductory class for people who want to know more about their vehicle or who are planning an automotive career. This class is preparation for ASE G1.

Corequisite: NAUT INT This is the lab section and must be taken at the same time

Course Grading: Optional

Total Lab Hours	108
Total Inside of Class Hours	108
Total Outside of Class Hours	0
Total Noncredit Hours	108

Justification for course proposal

Non-credit mirror for Auto INTL. Replace INTR

Discipline:

Automotive Technology

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Utilize and apply hazardous waste handling;
- B. Identify and describe uses of automotive related tools;
- C. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
- D. Discuss four stroke engine cycle and identify engine parts;
- E. Perform basic engine teardown and reassembly;
- F. Apply Ohm's law, read basic schematics, test automotive electrical systems;
- G. Identify emissions components, understand 5 gas theory;
- H. Discuss heating and cooling systems, perform basic cooling systems tests;
- I. Identify air conditioning systems, understand cycles of refrigerant;
- J. Discuss braking systems, perform a brake inspection, identify parts;
- K. Differentiate between suspension and steering system types, inspect and qualify components;
- L. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
- M. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
- N. Theorize on the future of the automotive industry.

Course Content:

1. Safety and Handling of Hazardous Waste Materials
2. Tool Identification
3. Maintenance and inspection
4. Four-Stroke Engine Cycle
5. Gasoline Engine Component Identification and Teardown
6. Electrical Systems
7. Emissions Systems
8. Heating and Cooling
9. Air Conditioning Systems
10. Braking systems
11. Steering and Suspension Systems
12. Transmissions and Axles
13. Safety Restraints

Methods of Instruction:

1. Lab - Student Hands-on laboratory activities and assignments should incorporate real-life experiences of diverse automotive technicians and encourage participation and universal learning.
2. Mockup parts from automobiles

Typical Outside-of-Class Assignments

- A. Laboratory:

1. Apply lecture in lab by evaluating vehicles in lab setting
2. Evaluate and discuss Fluke 87 readings with class
3. Repair and confirm basic automotive maintenance issues

Methods of Evaluating Student Progress

- A. Class Participation
 1. Daily
- B. Class Work
 1. Daily
- C. Group Projects
 1. Weekly
- D. Lab Activities
 1. Weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. Perform an oil change with 100% accuracy.
- B. Recognize and apply shop safety precautions.
- C. Test engine coolant.

Textbooks (Typical):

Textbook:

1. Tim Giles *Automotive Service: Inspection, Maintenance, Repair*. 6 ed., Cengage, 2020.
2. James D Halderman *Automotive Technology*. 7 ed., Pearson, 2024.
3. James Duffy *2025 ASE Automotive Suite.*, Goodheart-Wilcox Publishing, 2025.

Other Materials Required of Students

Other Materials Required of Students:

1. Safety glasses.

Equity Based Curriculum

- Methods of Instruction
 - Address**
 - Laboratory activities and assignments should incorporate real-life experiences of diverse automotive technicians and encourage participation and universal learning.
- Methods of Evaluation
 - Address**
 - The course materials and evaluations are based on industry standards.
- Typical Texts
 - Address**
 - The course materials and evaluations are based on industry standards.

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. There are exceptions to this as we learned in C-19.

Explain how the decision was made to offer this course in a Distance Education mode.

California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
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- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum Once per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Minimum Once per week
- **Other:**
Frequency: Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: At least once every other week.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: At least once every other week.
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: At least once every other week.
- **Other:**
Frequency: Students will interact during on-campus weekly labs

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: weekly
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Exams: at least two per semester. Quizzes: at least one quiz per section/chapter. Weekly.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: Weekly
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: Weekly
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: Weekly
- **Other:**
Frequency: Homework, assigned weekly

Codes and Dates

Course CB Codes

CB00: State ID

CCC000621876

CB03: TOP Code

094800 - Automotive Technology

CIP Code

47.0604 - Automobile/Automotive Mechanics Technology/Technician.

CB04: Credit Status

N - Non Credit

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

Credit for Prior Learning

Credit for Prior Learning Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam Yes

Credit-by-Portfolio Yes

Please list the requirements/criteria/possible materials for a student to submit in their portfolio.

Two years of hands-on automotive work besides an oil change or tire establishment.

Credit-by-Military-JST No

Credit-by-Industry-Recognized-Training Yes

Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses (including this one) for which a student will earn credit.

ASE G1 Test passed within the last 5 years.

Additional Detail (List articulated courses, etc.) No

Admin Outline for Noncredit Automotive Technology L1

Advanced Engine Performance

Effective: Fall 2026

Catalog Description:

NAUT L1 - Advanced Engine Performance

54108162108 Hours

May be repeated time(s)

Continuation of Automotive Technology A6 and A8 with an emphasis on diagnosis of electronic problems including computer controlled circuits/systems using schematics, diagnostic procedures and equipment. Students are strongly recommended to enroll in Automotive Lab concurrently.

Prerequisite: NAUT A6 with a minimum grade of C, or AUTO A6 with a minimum grade of C

Course Grading: Optional

Lecture Hours	54
Lab Hours	108
Inside of Class Hours	162
Outside of Class Hours	108

Justification for course proposal

This course is online and lecture-only. It is one of the few auto courses that does not have a noncredit lecture-only mirror. These lecture-only classes are made so that people who do not want to "get their hands dirty" but still gain automotive knowledge can learn and grow. These classes take no FTEF and are cross-listed with the AUTO class.

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

Noncredit courses can be taken any number of times

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Obtain and interpret scan tool data, retrieve and record stored On Board Diagnostics (OBD) diagnostic trouble codes, and other On Board controllers;
- B. Diagnose the causes of electrical failures or concerns resulting from malfunctions in the computerized control systems with or without diagnostic trouble codes;
- C. Chart, inspect and test computerized engine control system sensors, Powertrain control module (PCM), actuators, and circuits using a graphing multi-meter (DMM)/digital storage oscilloscope (DSO), and perform necessary action;
- D. Access and use service information to perform step-by-step diagnosis;
- E. Evaluate complex electrical system problems;
- F. Develop diagnostic paths using wiring schematics;
- G. Diagnose malfunctions of electronic control systems causing vehicle performance problems, and determine necessary action;
- H. Outline hazardous waste handling
- I. Maintain a clean professional environment.

Methods of Instruction:

1. Lab - Student Hands-on laboratory activities and assignments
2. Lecture - Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Typical Outside-of-Class Assignments

- A. Reading:
Read Chapter One in text
- B. Reading:
Engine Construction research for a personal vehicle

Methods of Evaluating Student Progress

- A. Exams/Tests
 1. Minimum 1 midterm and 1 final exam
- B. Home Work
 1. Weekly
- C. Lab Activities
 1. Weekly
- D. Quizzes
 1. At the instructors discretion

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. Apply emissions safety precautions.
- B. Diagnose engine driveability problems using a scanner and multimeter.
- C. Apply service manual procedures to the vehicle.

Textbooks (Typical):

Textbook:

1. James D Halderman *Automotive Technology*. 7 ed., Pearson, 2024.
2. James Duffy *2025 ASE Automotive Suite.*, Goodheart Wilcox, 2025.
3. Tim Giles *Automotive Service: Inspection, Maintenance, Repair*. 6 ed., Cengage, 2020.

Other Materials Required of Students

Other Materials Required of Students:

1. Safety glasses.

Equity Based Curriculum

- Methods of Instruction

Address

The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

- Methods of Evaluation

Address

The course materials and evaluations are based on industry standards.

- Typical Texts

Address

The course materials and evaluations are based on industry standards.

Requisite Skills

Before entering this course, it is required that a student be able to:

A. NAUT A6

1. Diagnose and repair basic automotive battery, starting, charging systems;
2. Use electrical test equipment for accurate diagnosis of electrical systems and sub-systems;
3. Use problem-solving skills to categorize systems faults in automotive circuits and make needed repairs;
4. Identify types of ignition systems;
5. Describe and evaluate fuel control circuits for proper operation;
6. Explain the fundamentals of electronic and electrical theories;
7. Conduct circuit and wire repairs;
8. Demonstrate safe and appropriate hazardous material handling;
9. Maintain a clean and professional environment.

B. AUTO A6

1. Diagnose and repair basic automotive battery, starting, charging systems;
2. Use electrical test equipment for accurate diagnosis of electrical systems and sub-systems;
3. Use problem-solving skills to categorize systems faults in automotive circuits and make needed repairs;
4. Identify types of ignition systems;
5. Describe and evaluate fuel control circuits for proper operation;
6. Explain the fundamentals of electronic and electrical theories;
7. Conduct circuit and wire repairs;
8. Demonstrate safe and appropriate hazardous material handling;
9. Maintain a clean and professional environment.

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. There are exceptions to this as we learned in C-19.

Explain how the decision was made to offer this course in a Distance Education mode.

California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.

- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly lab sessions
- **Other:**
Frequency: Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: At least once every other week.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: Minimum weekly
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: once every other week
- **Other:**
Frequency: Students will interact during on-campus weekly labs

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: weekly
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Quizzes: at least one quiz per section/chapter. Weekly. Exams: at least two per semester.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: At least once per week
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: Weekly
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: Weekly
- **Other:**
Frequency: Homework, assigned weekly

Codes and Dates

Course CB Codes

CB00: State ID

CCC000584391

CB03: TOP Code

094800 - Automotive Technology

CIP Code

47.0604 - Automobile/Automotive Mechanics Technology/Technician.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

B - Advanced Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College
Y - Not applicable

CB22: Non Credit Course Category
J - Workforce Preparation

CB23: Funding Agency Category
Y - Not Applicable (funding not used to develop course)

CB24: Program Status
1 - Program Applicable

CB25: Course General Education Status
Y. Not Applicable

CB26: Course Support Course Status
N - Course is not a support course

Credit for Prior Learning

Credit for Prior Learning Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam Yes

Credit-by-Portfolio No

Credit-by-Military-JST No

Credit-by-Industry-Recognized-Training No

Additional Detail (List articulated courses, etc.) No

Admin Outline for Noncredit Automotive Technology L3 Light Duty Hybrid/Electric Vehicles

Effective: Fall 2026

Catalog Description:

NAUT L3 - Light Duty Hybrid/Electric Vehicles 216 Hours

A study in the history, current and future of alternative fuels, hybrids and electric vehicles in the automotive industry. Emphasis in shop safety, hazardous waste handling, high voltage electrical precautions, basic engine construction of hybrids, battery storage systems, fuel storage systems, compressed natural gas, liquid propane gas, bio-diesel and hydrogen cell technology. Students are strongly recommended to enroll in Automotive Lab concurrently.

Prerequisite: NAUT INTL with a minimum grade of C and NAUT INT with a minimum grade of C, or AUTO INTL with a minimum grade of C and NAUT INT with a minimum grade of C, INT and INT may be taken concurrently

Course Grading: Optional

Total Lecture Hours	36
Total Lab Hours	108
Total Inside of Class Hours	144
Total Outside of Class Hours	72
Total Noncredit Hours	216

Justification for course proposal

It is one of the few auto courses that does not have a noncredit lecture-only mirror. These classes take no FTEF and are cross-listed with the AUTO class.

Discipline:

Automotive Technology

Course Objectives:

Upon completion of this course, the student should be able to:

- Describe the importance of shop safety relating to different alternative fuels
- Explain the importance of implementation of alternative fuels
- Identify and perform safety procedures in regards to the handling of alternative fuels and battery disposal
- Access and research service information stored on computer
- Specify and list the differences in alternative fuels
- Distinguish and compare the different Hybrid fuel systems
- Use critical thinking skills to explore the future of alternative fuels
- Maintain a clean and professional environment

Course Content:

Lab:

- Shop safety when dealing with alternative fuels.
- Safety and Handling of alternative fuels and battery systems. Lab demonstration and Hands on competency
- Service information Lab use of Service Information
 - Access Computer based service information; Alldata, Mitchell on demand as well as Manufacturer information systems as available.
- Automotive Alternative Fuels Systems. Lab: Proper handling, demonstrations, and lab sheets
 - Ethanol systems and blends.
 - CNG systems and blends.
 - LPG systems and blends.
 - Bio-Diesel systems and blends.
 - Electrical motor and solar systems.
 - Lead acid
 - Ni-Cd
 - Ni-Mh
 - Lit-Ion
 - Lit-Ion gel
 - Hydrogen Cell systems
- Hybrid Fuel Systems.
 - On car and Simulator labs
- Professional environment

Lecture:

- Shop safety when dealing with alternative fuels.
 - Proper attire.
 - Manufacturer and Government
 - Fire Hazards, what to do and how to respond.
 - Cautionary Colors

1. Under 50 Volts
2. 50 to 100 Volts
3. Over 100 Volts.
2. Alternative Fuel Government regulations and implementation.
 1. History and future of Alternative Fuel regulations.
 2. Laws, domestic and international governing alternative fuels.
 3. Gasoline supply and pricing.
 1. How much is left?
 2. Middle east Stability
 3. OPEC
 4. Fueling station availability.
 1. Gasoline
 2. Bio-Diesel
 3. CNG
 4. LPG
 5. Propane
3. Safety and Handling of alternative fuels and battery systems.
 1. Occupational Safety Health Administration (OSHA) Shop standards applied.
 2. Flash points of different fuels.
 3. Hazardous material handling; CNG, LPG, Bio-Diesel, Batteries, Hydrogen cell, as well as other chemicals related to the automobile and alternative fuels.
4. Service information.
 1. Access Computer based service information; Alldata, Mitchell on demand as well as Manufacturer information systems as available.
5. Automotive Alternative Fuels Systems.
 1. Ethanol systems and blends.
 1. Major Manufacturing Changes
 2. Effects on internal engine components
 3. Effects on fueling systems
 2. CNG systems and blends.
 1. Major Manufacturing Changes
 2. Effects on internal engine components
 3. Effects on fueling systems
 3. LPG systems and blends.
 1. Major Manufacturing Changes
 2. Effects on internal engine components
 3. Effects on fueling systems
 4. Bio-Diesel systems and blends.
 1. Major Manufacturing Changes
 2. Effects on internal engine components
 3. Effects on fueling systems
 5. Electrical motor and solar systems.
 1. Motor Technology Challenges
 2. Solar Technology Challenges
 3. Battery Technology Challenges
 1. Lead acid
 2. Ni-Cd
 3. Ni-Mh
 4. Lit-Ion
 5. Lit-Ion gel
 6. Coming Technology
 6. Hydrogen Cell systems
 1. Hydrogen Technology Challenges
 2. Hydrogen Supply and rendering
6. Hybrid Fuel Systems.
 1. Gasoline-Electric systems.
 2. Gasoline-CNG systems.
 3. Gasoline-LPG systems.
7. Future of Alternative Fuels systems.
 1. Advances in Technology.
 2. What's next?
 3. Challenges new fuels have.
8. Professional environment
 1. Safety glasses (Clear lenses) worn in all Laboratory areas.
 2. No loose clothing (Coveralls strongly recommended).
 3. Long Hair secured.
 4. No open toe shoes (safety shoes recommended).
 5. Work areas maintained; clean free of debris and spills.

Methods of Instruction:

1. Lecture - Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
2. Discussion - Group discussions.
3. Lab - Student Hands-on laboratory activities and assignments.
4. Audio-visual Activity - 1. PowerPoint presentations. 2. Mockup parts from automobile.

Typical Outside-of-Class Assignments

- A. Reading:
 - Read Chapter One in text
- B. Research:
 - Engine Construction research for a personal vehicle

Methods of Evaluating Student Progress

- A. Class Participation
 - 1. Daily
- B. Exams/Tests
 - 1. At least twice per semester
- C. Home Work
 - 1. Weekly
- D. Quizzes
 - 1. Weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. Perform hybrid safety precautions with 100% accuracy.
- B. Perform the hybrid battery disconnect procedure.
- C. Use service information to perform a HV battery disconnect.

Textbooks (Typical):

Textbook:

- 1. Tom Denton and Hayley Pells *Electric and Hybrid Vehicles*. 3 ed., Routledge, 2024.
- 2. Tim Giles *Automotive Service: Inspection, Maintenance, Repair*. 6 ed., Cengage, 2020.
- 3. James D Halderman *Automotive Technology*. 7 ed., Pearson, 2024.
- 4. James Duffy *2025 ASE Automotive Suite.*, Goodheart Wilcox, 2025.

Other Materials Required of Students

Other Materials Required of Students:

- 1. Safety glasses.

Equity Based Curriculum

- Methods of Instruction
 - Address**
The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
- Methods of Evaluation
 - Address**
The course materials and evaluations are based on industry standards.

Requisite Skills

Before entering this course, it is required that a student be able to:

- A. NAUT INTL
 - 1. Utilize and apply hazardous waste handling;
 - 2. Identify and describe uses of automotive related tools;
 - 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 4. Discuss four stroke engine cycle and identify engine parts;
 - 5. Perform basic engine teardown and reassembly;
 - 6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 7. Identify emissions components, understand 5 gas theory;
 - 8. Discuss heating and cooling systems, perform basic cooling systems tests;
 - 9. Identify air conditioning systems, understand cycles of refrigerant;
 - 10. Discuss braking systems, perform a brake inspection, identify parts;
 - 11. Differentiate between suspension and steering system types, inspect and qualify components;
 - 12. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
 - 13. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
 - 14. Theorize on the future of the automotive industry.
- B. NAUT INT
 - 1. Identify and describe uses of automotive related tools;
 - 2. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 3. Discuss four stroke engine cycle and identify engine parts;
 - 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 5. Identify emissions components, understand 5 gas theory;
 - 6. Discuss heating and cooling systems, perform basic cooling systems tests;
 - 7. Identify air conditioning systems, understand cycles of refrigerant;
 - 8. Discuss braking systems, perform a brake inspection, identify parts;
 - 9. Differentiate between suspension and steering system types, inspect and qualify components;

10. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
11. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
12. Theorize on the future of the automotive industry.

C. AUTO INTL

1. Utilize and apply hazardous waste handling;
2. Identify and describe uses of automotive related tools;
3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
4. Discuss four stroke engine cycle and identify engine parts;
5. Perform basic engine teardown and reassembly;
6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
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12. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
13. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
14. Theorize on the future of the automotive industry.

D. NAUT INT

1. Identify and describe uses of automotive related tools;
2. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
3. Discuss four stroke engine cycle and identify engine parts;
4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
5. Identify emissions components, understand 5 gas theory;
6. Discuss heating and cooling systems, perform basic cooling systems tests;
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8. Discuss braking systems, perform a brake inspection, identify parts;
9. Differentiate between suspension and steering system types, inspect and qualify components;
10. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
11. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
12. Theorize on the future of the automotive industry.

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. There are exceptions to this as we learned in C-19.

Explain how the decision was made to offer this course in a Distance Education mode.

California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum Once per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Minimum Once per week

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: At least once every other week.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: Minimum Once per week
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Minimum Once per week
- **Other:**
Frequency: Students will interact during on-campus weekly labs and online in chat.

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: Weekly
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Quizzes: at least one quiz per section/chapter. Weekly. Exams: at least two per semester.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: At least once per week
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: At least once per week
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: At least once per week
- **Other:**
Frequency: Homework, assigned weekly

Codes and Dates

Course CB Codes

CB00: State ID

CCC000503387

CB03: TOP Code

094840 - Alternative Fuels and Advanced Transportation Technology

CIP Code

47.0614 - Alternative Fuel Vehicle Technology/Technician.

CB04: Credit Status

N - Non Credit

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

B - Advanced Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

Credit for Prior Learning

Credit for Prior Learning Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam Yes

Credit-by-Portfolio No

Credit-by-Military-JST No
Credit-by-Industry-Recognized-Training No
Additional Detail (List articulated courses, etc.) No

Admin Outline for Noncredit Automotive Technology P1 Powertrains: Modifications for Performance

Effective: Fall 2026

Catalog Description:

NAUT P1 - Powertrains: Modifications for Performance 216 Hours

An in-depth study of engine and transmission modifications made in order to improve performance. This class will explain the differences in laws governing vehicles in all fifty states including those registered in California; how to improve performance legally; and the penalties of breaking the law. Students will learn to calculate the benefit versus cost of bolt-on performance products and major engine or transmission modifications. NOTE: Some modifications are intended for off-road applications only. Students are encouraged to enroll in Automotive Lab concurrently.

with a minimum grade of **cPrerequisite:** NAUT INTL with a minimum grade of C and NAUT INT with a minimum grade of C, or with a minimum grade of cAUTO INTL with a minimum grade of C and AUTO INT with a minimum grade of C, INT and INTL may be taken concurrently

Course Grading: Optional

Total Lecture Hours	54
Total Lab Hours	54
Total Inside of Class Hours	108
Total Outside of Class Hours	108
Total Noncredit Hours	216

Justification for course proposal

This course is online and lecture-only. It is one of the few auto courses that does not have a noncredit lecture-only mirror. These lecture-only classes are made so that people who do not want to "get their hands dirty" but still gain automotive knowledge can learn and grow. These classes take no FTEF and are cross-listed with the AUTO class.

Discipline:

Automotive Technology

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Demonstrate the basic safety procedures of handling hazardous waste materials.
- B. Operate a wide variety of precision measurement equipment.
- C. Explain four cycle engine theory and identify key components involved.
- D. Teardown typical engine assembly.
- E. Make measurements of engine components and compare to specifications.
- F. Explain the difference between 49 and 50 state legal.
- G. Interpret the Law as it applies to a personal vehicle and modification.
- H. Theorize possible horsepower outcomes for modifications.
- I. Compare and Contrast Bolt-on Modifications.
- J. Perform Major Powertrain Modifications.
- K. Demonstrate Professionalism.

Course Content:

Lab:

1. Measurement tool usage
2. Engine Teardown and rebuilding
3. Horsepower and Torque Measurement with Dynamometer
4. Bolt on Modifications
5. Major Powertrain modifications lab performance
6. Professionalism

Lecture:

1. Safety
 1. Tool usage and nomenclature
 2. Proper disposal procedures
 3. Environmentally conscious decisions
2. Measurement tools
 1. Micrometer
 1. Vernier
 2. Caliper
 2. Dial bore gauge
 3. Snap gauges
 4. Straight edge
 5. Feeler gauges
 6. Hole gauges

3. Four cycle engine theory
 1. Intake, compression, power, exhaust
 1. 360 degrees in one degree intervals
 2. Valve overlap
 3. Timing concerns and tricks
 4. Street vs. racing
 2. DOHV vs. OHV vs. Valve in block design
 1. Pros and cons of each
 2. Current technology
 3. Key Valve train components
 4. Key bottom end components
 5. Camshaft timing
 1. Static camshaft
 2. Dynamic camshaft
 3. Electronic valves
 6. Crankshaft design and balance
 7. Cylinder head design
 1. Single valve
 2. Multiple valve
4. Engine Teardown
 1. Removal and identification of external components
 1. Special procedures
 2. Loosening sequence
 2. Removal and identification of internal components
 1. Special Procedures
 1. Loosening sequence
5. Component measurement
 1. Specification lookup
 2. Comparison
 1. Component diagnosis
 1. Failure analysis
6. Modification Laws
 1. Federal Standards
 2. California Standards
7. Federal and California Statues regarding punishment
 1. Fines and Jail time
 2. Environmental impact
8. Horsepower and Torque
 1. Horse Power calculations
 1. Curve Maps
 2. Slope versus Incline
 2. Torque Calculations
 1. Curve Maps
 2. Slope versus Incline
 3. Changes from modifications
9. Bolt on Modifications
 1. Removal and identification of factory parts
 1. Special procedures
 2. Specific design flaws and challenges
 2. Installation and identification of modification parts
 1. Special procedures
 2. Specific design and challenges
10. Major Powertrain modifications
 1. Cost versus gain
 2. Comparison
 1. Component diagnosis
 2. Manufacturing Process
11. Professionalism
 1. Safety glasses
 2. Working shop expectations
 3. Attitude
 4. Cleanliness
 5. Maintenance of work areas and tools

Methods of Instruction:

1. Demonstration - Group and individual activities
2. Discussion - Group and individual laboratory activities
3. Guest Lecturers - Group and individual laboratory activities
4. Lecture - Group and individual activities. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
5. Lab - Group and individual laboratory activities

Typical Outside-of-Class Assignments

- A. Reading:
Read Chapter One in text
- B. Research:
Engine Construction research for a personal vehicle

Methods of Evaluating Student Progress

- A. Exams/Tests
1. twice a semester
- B. Lab Activities
1. Daily hands on component required. Lab Safety Demonstrated
- C. Quizzes
1. Weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. Use powertrain data gathered from a dyno test to determine fuel mixture.
- B. Determine the proper way to modify an exhaust system and stay within the legal limits of emissions and noise.
- C. Follow proper safety standards in lab.

Textbooks (Typical):

Textbook:

1. Allan Bonnick Routledge *Automotive Powertrain Science and Technology*., Routledge, 2020.
2. Greg Banish *Engine Management: Advanced Tuning* . 1 ed., Cartech, 2007.
3. Mark Warner *Street TurbochargingHP1488: Design, Fabrication, Installation, and Tuning of...* 1 ed., HPBooks, 2007.

Software:

1. [HP Tuners](#). HP Tuners, (Online/e).
2. [Alldata](#). Alldata, (Current/Online/e).
3. [Shopkeypro](#). Snapon, (Current/Online/e).

Other Materials Required of Students

Other Materials Required of Students:

1. 1. Closed Toes Shoes. .
2. 2. Safety Glasses.

Equity Based Curriculum

- Course Content
Address
Group and individual lecture activities. Discuss nomenclature used in the automotive industry and its effects on different groups.
- Methods of Instruction
Address
The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
- Methods of Evaluation
Address
The course materials and evaluations are based on industry standards.
- Typical Texts
Address
The course materials and evaluations are based on industry standards.

Requisite Skills

Before entering this course, it is required that a student be able to:

- A. NAUT INTL
1. Utilize and apply hazardous waste handling;
 2. Identify and describe uses of automotive related tools;
 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 4. Discuss four stroke engine cycle and identify engine parts;
 5. Perform basic engine teardown and reassembly;
 6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 7. Identify emissions components, understand 5 gas theory;
 8. Discuss heating and cooling systems, perform basic cooling systems tests;
 9. Identify air conditioning systems, understand cycles of refrigerant;
 10. Discuss braking systems, perform a brake inspection, identify parts;
 11. Differentiate between suspension and steering system types, inspect and qualify components;
 12. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
 13. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
 14. Theorize on the future of the automotive industry.
- B. NAUT INT
1. Identify and describe uses of automotive related tools;
 2. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;

3. Discuss four stroke engine cycle and identify engine parts;
4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
5. Identify emissions components, understand 5 gas theory;
6. Discuss heating and cooling systems, perform basic cooling systems tests;
7. Identify air conditioning systems, understand cycles of refrigerant;
8. Discuss braking systems, perform a brake inspection, identify parts;
9. Differentiate between suspension and steering system types, inspect and qualify components;
10. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
11. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
12. Theorize on the future of the automotive industry.

C. AUTO INTL

1. Utilize and apply hazardous waste handling;
2. Identify and describe uses of automotive related tools;
3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
4. Discuss four stroke engine cycle and identify engine parts;
5. Perform basic engine teardown and reassembly;
6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
7. Identify emissions components, understand 5 gas theory;
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11. Differentiate between suspension and steering system types, inspect and qualify components;
12. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
13. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
14. Theorize on the future of the automotive industry.

D. AUTO INT

1. Identify and describe uses of automotive related tools;
2. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
3. Discuss four stroke engine cycle and identify engine parts;
4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
5. Identify emissions components, understand 5 gas theory;
6. Discuss heating and cooling systems, perform basic cooling systems tests;
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10. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
11. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
12. Theorize on the future of the automotive industry.

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs.

FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.

Explain how the decision was made to offer this course in a Distance Education mode.

PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

FO: Same as above.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in.
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week.
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week.
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly lab sessions.
- **Other:**
Frequency: PO: Student interaction, fulfillment of SLO's and measurable objectives will be done on campus in the labs, weekly. FO: Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: PO: At least twice per semester. FO: At least once every other week.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: Minimum weekly.
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Fully online only: once every other week.
- **Other:**
Frequency: Students will interact during on-campus weekly labs.

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: Minimum weekly.
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Quizzes: at least one quiz per section/chapter. Weekly. Exams: at least two per semester.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: At least once per week.
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: Weekly.
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: PO: Weekly, in on-campus labs. FO: Weekly recorded by student and completed using online software.
- **Other:**
Frequency: Homework assigned weekly.

Codes and Dates

Course CB Codes

CB00: State ID

CCC000599275

CB03: TOP Code

094800 - Automotive Technology

CIP Code

47.0604 - Automobile/Automotive Mechanics Technology/Technician.

CB04: Credit Status

N - Non Credit

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College
Y - Not applicable

CB22: Non Credit Course Category
J - Workforce Preparation

CB23: Funding Agency Category
Y - Not Applicable (funding not used to develop course)

CB24: Program Status
1 - Program Applicable

CB25: Course General Education Status
Y. Not Applicable

CB26: Course Support Course Status
N - Course is not a support course

Credit for Prior Learning

Credit for Prior Learning Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam Yes

Credit-by-Portfolio No

Credit-by-Military-JST No

Credit-by-Industry-Recognized-Training No

Additional Detail (List articulated courses, etc.) No

Admin Outline for Noncredit French 201 Beginning French for Older Adults

Effective: Fall 2026

Catalog Description:

NFRN 201 - Beginning French for Older Adults 270 Hours

This introductory-level course will enable students to begin speaking, reading, and writing elementary-level French as well as understanding the spoken language. Students are introduced to concepts of grammar, vocabulary, and verb tenses in a variety of auditory, visual, and written contexts. By the end of this course, learners will be able to engage in basic French conversations about daily life, health, family, and travel, with a focus on building confidence, memory, and enjoyment through cultural exploration and social connection.

Recommended Course Preparation: ENGL C1000 with a minimum grade of C

Course Grading: Pass/No Pass

Total Lecture Hours	90
Total Inside of Class Hours	90
Total Outside of Class Hours	180
Total Noncredit Hours	270

Justification for course proposal

This Non-Credit Course is offered primarily for older students.

Discipline:

Foreign Languages

Course Objectives:

Upon completion of this course, the student should be able to:

- Communicate in basic French in common travel situations such as ordering in restaurants, asking for directions, checking into hotels, and introducing themselves.
- Identify basic parts of a sentence in French;
- Use nouns and accompanying adjectives in correct form;
- Use regular and key irregular verbs in the present tense;
- Use the immediate future tense in short sentences;
- Use singular and plural possessive adjectives appropriately;
- Speak in short sentences using simple vocabulary on topics such as clothing, food, family, quantities, time, weather;
- Summarize a video episode in simple French sentences;
- Understand native speakers engaged in simple conversation speaking at a slower than normal pace;
- Use knowledge of English to recognize French cognates as an aid to comprehension;
- Recognize, discuss and compare several aspects of the culture and society of several Francophone countries, in English.
- Ask and answer questions in the present tense.

Course Content:

- Emphasis is placed on practical vocabulary, pronunciation, and cultural tips to help older adult learners feel confident and comfortable while traveling in French-speaking countries
- Exercise cognitive ability through memorization of new vocabulary and learning new grammatical structures
- Review of basic grammatical terminology, parts of speech in English
- Gender and number agreement of nouns and adjectives
- Subject pronouns
- Basic prepositions
- Present tense of regular and irregular verbs
- Possessive adjectives
- Forming and answering questions
- Basic vocabulary on topics such as numbers, foods, clothing, physical description, time, weather, etc.
- Introduction to the use of English cognates to recognize French vocabulary
- Introduction of reading strategies to deduce meaning if it is not apparent. This includes a comparison of English and French syntax
- Using context for clues to meaning
- Introduction to translating by word groups rather than word-for-word
- Introduction to Francophone culture and history through readings and videos: daily life, tourist attractions, geography, social and political structure, educational system, etc.

Methods of Instruction:

- Lecture - Instructor will explain and elaborate on grammar, vocabulary and culture to elucidate the content. Instructor will present additional examples for students from the textbook.
- Classroom Activity - Responding in French to questions posed by the instructor or other students using the structures and vocabulary under study. Reviewing difficult text or workbook assignments, such as true/false, fill-in-the-blank, changing subject, and making any necessary changes in the sentence. Playing games in French (such as guessing games). Interviewing another student and reporting information to the class.
- Audio-visual Activity - Viewing video in French or occasionally in English to introduce cultural materials or stories that promote discussion
- Simulations - Creating sentences and dialogues in pairs or groups

5. Student Presentations - The cumulative final presentation will include most of the relevant structures, vocabulary, and topics covered during the semester. For example, a presentation by the student about their daily life, living situation, likes and dislikes, etc.
6. Written Exercises - Short written assignments covering the topics covered in each learning segment.
7. Learning Management System - Canvas contains information about the course, including the syllabus, details about assignments, announcements, and due dates.
8. Summarizing the content of a video episode or cultural reading
9. Comparing French-speaking countries in terms of pronunciation of French, history of settlement and development of government, cultural and artistic endeavors, economies, etc.
10. Reading cultural materials aloud to practice pronunciation and then carrying on a simple discussion in French, or a more complex analysis in English.

Typical Outside-of-Class Assignments

A. Writing:

1. Homework exercises from an online workbook:
2. Recognition tasks, matching, true/false, fill-in-the-blank
3. Changing the subject of a sentence and making any other necessary changes
4. Reacting to pictures or situations involving comprehension and the use of new structures
5. Creating personal responses using new vocabulary and structures
6. Creating who, what, when, where, and why questions

B. Reading:

Reading comprehension questions that call for evaluation, comparison, and contrast of a short reading in French.

C. Project:

1. Paragraph: 6-8 sentences in present indicative tense.
 1. Write about your life in California.
 2. Describe your family.

Methods of Evaluating Student Progress

A. Class Participation

1. daily

B. Class Work

1. daily

C. Exams/Tests

1. One final exam

D. Home Work

1. daily

E. Oral Presentation

1. One cumulative final presentation

F. Papers

1. Short writing assignments with each learning segment.

G. Quizzes

1. Chapter quizzes about every 2 weeks,

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. Communicate orally at the beginning level.
- B. Comprehend spoken French at the beginning level.
- C. Write at the beginning level.

Textbooks (Typical):

OER:

1. Carl Blyth, Karen Kelton *Tex's French Grammar*, The Center for Open Educational Resources and Language Learning (COERLL), 2025. <https://www.laits.utexas.edu/tex/>.

Textbook:

1. James G. Mitchell, Cheryl Tano *Promenades: a travers le monde francophone*. 5 ed., Vista Higher Learning, 2026.
2. Evelyn Amon *Vis-à-Vis*. 8 ed., McGraw Hill, 2023.

Other Learning Materials:

1. French Workbook for Dummies, by Laura K. Lawless 2022 978-1119982036

Equity Based Curriculum

- Course Content

Address

Varied types of assignments to meet the learning styles and strengths of different learners, including tactile, visual, and auditory learning modalities.

- Methods of Evaluation

Address

Writing and speaking assignments can be used in place of traditional grammar testing. Student work can be evaluated using individual student goals, prior learning opportunities, and measurable improvement from an established baseline.

Requisite Skills

Before entering this course, it is recommended that a student be able to:

- A. ENGL C1000

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Online with the Flexible In-Person Component (OFI)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

In discussing with other Foreign Language educators in the California, we recognize the need for more Distance Education in our field. Students who work full-time, or have other obligations that make it difficult to attend classes on campus need more options so that they are not prolonging their academic careers because of difficulties with scheduling the courses they need for transfer.

Explain how the decision was made to offer this course in a Distance Education mode.

In conjunction with my supervisors, Dr. Stuart McElderry and Amy Mattern, in addition to requests from students.

[Prior note]

1) Increasing difficulty for students to be on campus because of work schedules. Enrollments seem to be increasing for courses that offer a DE component, which indicates their desirability to today's student. I have spoken with the Dean of Arts and Humanities about this need and received approval for this course development.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Each student will be emailed at least once every other week.
- **Discussion board:** *The instructor will regularly participate in discussions that deal with academic content, will consistently provide substantive feedback, and will facilitate all discussions.*
Frequency: 3-4 assigned per semester.
- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Feedback on homework, quizzes, writing assignments, and submitted speaking samples.
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Regular weekly announcements as needed.
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Once weekly office hours.
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly class lectures and office hours.
- **Other:**
Frequency: Recorded feedback in response to student speaking samples in French.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: Weekly.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: Minimum 2 per semester.
- **Group work:** *Students will work in teams to complete group projects. The projects will then be shared with the rest of the class.*
Frequency: 1-2 per semester.
- **Peer-editing/critiquing:** *Students will complete peer-editing assignments.*
Frequency: The final presentation will go through the peer-editing process.
- **Web conferencing:** *Students will interact in real time with each other to discuss coursework and assignments.*

Frequency: Student-led study sessions or chats via Pronto or on TechConnect Zoom.

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: 2 minimum discussion board assignments per semester.
- **Written papers:** *Papers will be written on various topics.*
Frequency: 3-4 per semester.
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Chapter quizzes every two weeks, and a final exam.
- **Practice quizzes, tests/exams:** *Practice quizzes will be given periodically throughout the course so students will be able to gauge their understanding of the content.*
Frequency: Included in weekly assignments.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: Weekly live or recorded lectures.
- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*
Frequency: Weekly videos.
- **Brainstorming:** *Brainstorming will be used to promote creative thinking.*
Frequency: 1-2 times per semester.
- **Student presentations:** *Students will prepare and present on a topic being studied.*
Frequency: In hybrid instruction during face/face class meetings.
- **Other:**
Frequency: Recorded speaking samples on topics in French.

Codes and Dates

Course CB Codes

CB00: State ID

CCC000345995

CB03: TOP Code

110200 - French

CIP Code

16.0901 - French Language and Literature.

CB04: Credit Status

N - Non Credit

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

E - Non-Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

H - Courses for Older Adults: Education programs for older adults

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

2 - Not Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

Admin Outline for Noncredit French 202 Elementary French for Older Adults

Effective: Fall 2026

Catalog Description:

NFRN 202 - Elementary French for Older Adults 270 Hours

This is the second semester of the introductory level course, which will enable students to continue learning to speak, read, and write elementary-level French and understand the spoken language. Students are introduced to concepts of grammar, vocabulary, and verb tenses in a variety of auditory, visual, and written contexts. Designed with older adults in mind, this course offers an encouraging environment for learning and practicing intermediate French. Activities include travel-related scenarios, guided discussions based on French films and readings, and opportunities to share personal experiences and perspectives in French.

Prerequisite: NFRN 201 with a minimum grade of C, or FREN 1A with a minimum grade of C, or appropriate skill level demonstrated through the assessment process.

Course Grading: Pass/No Pass

Total Lecture Hours	90
Total Inside of Class Hours	90
Total Outside of Class Hours	180
Total Noncredit Hours	270

Justification for course proposal

This Non-Credit Course is offered primarily for older students.

Discipline:

Foreign Languages

Course Objectives:

Upon completion of this course, the student should be able to:

- Build confidence in French for travel, conversation, and cultural exploration.
- Encourage lifelong learning through French language, culture, and communication.
- Use regular and key irregular verbs in the passé composé, imperfect, and recent past tenses.
- Recognize and understand the meaning of the future and conditional tenses.
- Create commands in both formal and informal discourse;
- Use correct direct, indirect and reflexive pronouns with comfort;
- Create a variety of types of negative sentences;
- Use and recognize idioms with the verbs avoir, être, faire and other expressions learned.
- Recognize comparative and superlative sentences;
- Use the pronouns y and en in simple sentences;
- Engage in discussion of household chores, travel, quantities, clothing, food, parts of the body, etc., using appropriate vocabulary;
- Recombine learned structures and vocabulary to create simple paragraphs using correct word order;
- Draw and express conclusions about content and story line after viewing videos with native speakers talking at near normal rate;
- Use cognates and context to understand reading passages;
- Use and understand reflexive verbs in sentences.

Course Content:

- Emphasis is placed on practical vocabulary, pronunciation, and cultural knowledge to help older adult learners feel confident and comfortable while traveling in French-speaking countries
- Exercise cognitive ability through memorization of new vocabulary and learning new grammatical structures
- Past tense; contrast of passé composé and imperfect tenses
- Apply knowledge of transitive and pronominal verbs (using être) and other verbs (using avoir) in the passé composé
- Immediate future tense and recent past
- Future and Conditional tenses will be introduced
- Negation including negative adverbs
- Comparative and superlative structures and usage
- Commands: formal and informal
- Direct and indirect object pronouns used in conjunction with the pronouns "y" and "en"
- Activities designed for older learners include travel-related scenarios, guided discussions based on French films and readings, and opportunities to share personal experiences and perspectives in French.
- Parts of the body, additional vocabulary on food, time, weather, clothing, quantities, and other vocabulary as needed to enable discussion
- Practice creating written and oral sentences describing facts or opinions based on videos and cultural and historical readings
- Continued emphasis on using cognates and context for clues to meaning
- Continued emphasis on creating French by word groups or meaning rather than by word-for-word translation

Methods of Instruction:

- Lecture - Instructor will explain and elaborate on grammar, vocabulary and culture to elucidate the content. Instructor will present additional examples for students from the textbook.

2. Simulations - Creating sentences and dialogues in pairs or groups. Interviewing another student and reporting information to the class.
3. Audio-visual Activity - Viewing video clips in French to introduce cultural materials or stories which promote discussion.
4. Classroom Activity - Reviewing more advanced text or workbook assignments which could include true/false, fill-in-the-blank, editing sentence structures for proper agreement of gender and number, as well as short answer or essays to express personal opinions or experience. Responding in complete French sentences to questions posed by the instructor or other students using the structures and vocabulary under study. Reading cultural materials aloud to practice pronunciation and then carrying on a simple discussion in French.
5. Learning Management System - Canvas contains information about the course, including the syllabus, details about assignments, announcements, and due dates.
6. Student Presentations - The final presentation will be on a cultural topic of the student's choice from some aspect of francophone culture. The presentation will be delivered in French, accompanied by visuals to aid comprehension. For example, a slideshow.
7. Written Exercises - Two short papers will be required. One is due at the midterm, and the second is due toward the end of the semester.
8. Summarizing the content of a video episode or cultural reading.
9. Comparing French-speaking countries in terms of pronunciation of French, history of settlement and development of government, cultural and artistic endeavors, economies, etc.

Typical Outside-of-Class Assignments

A. Project:

Oral Presentation: French culture topic of choice. To be delivered in French, 3–5 minutes on a French culture topic of interest to the student. PowerPoint Presentations encouraged.

B. Writing:

1. Homework exercises from on-line workbook:

1. Recognition tasks, matching, true/false, fill-in-the-blank
2. Changing the subject of a sentence and making any other necessary changes
3. Changing the tense of a sentence, active use of the past tenses.
4. Reacting to pictures or situations involving comprehension and use of new structures
5. Creating personal responses using new vocabulary and structures
6. Creating who, what, when, where, why questions in past tense.
7. Reading comprehension questions which call for evaluation, comparison, contrast
8. Instructional software exercises for review of selected topics of grammar as well as to practice vocabulary and comprehension
9. Taking self-tests in preparation for classroom tests

Methods of Evaluating Student Progress

A. Class Participation

1. daily

B. Class Work

1. daily

C. Exams/Tests

1. Bi-weekly chapter exams and one final exam

D. Home Work

1. weekly

E. Oral Presentation

1. one at the end of the term

F. Papers

1. 1 paper due before midterm. 2nd paper due before final exam.

G. Quizzes

1. chapter quizzes (at instructor's discretion)

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. Communicate orally at the advanced-beginning level.
- B. Comprehend spoken French at the advanced-beginning level.
- C. Write at the advanced-beginning level.

Textbooks (Typical):

OER:

1. Carl Blyth, Karen Kelton *Tex's French Grammar*, The Center for Open Educational Resources and Language Learning (COERLL), 2025. <https://www.laits.utexas.edu/tex/>.

Textbook:

1. James Mitchell, Cheryl Tano *Promenades: à travers le monde francophone*. 5 ed., Vista Higher Learning, 2026.
2. Evelyn Amon *Vis-à-Vis*. 8 ed., McGraw Hill, 2023.

Other Learning Materials:

1. French: Short Stories for Beginners Frederic Bibard 978-1519063984
2. French Workbook for Dummies, by Laura K. Lawless 2022 978-1119982036

Equity Based Curriculum

- Course Content

Address

Varied types of assignments to meet the learning styles and strengths of different learners, including tactile, visual, and auditory learning modalities.

- Methods of Evaluation

Address

Writing and speaking assignments can be used in place of traditional grammar testing. Student work can be evaluated using individual student goals, prior learning opportunities, and measurable improvement from an established baseline.

Requisite Skills

Before entering this course, it is required that a student be able to:

- A. NFRN 201
- B. FREN 1A

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Online with the Flexible In-Person Component (OFI)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

In discussing with other Foreign Language educators in the California, we recognize the need for more Distance Education in our field. Students who work full-time, or have other obligations that make it difficult to attend classes on campus need more options so that they are not prolonging their academic careers because of difficulties with scheduling the courses they need for transfer.

Explain how the decision was made to offer this course in a Distance Education mode.

In conjunction with my supervisors, Dr. Stuart McElderry and Amy Mattern, in addition to requests from students.

[Prior note]

The busy lives of adult learners requires more flexible and adaptive teaching methods to allow them to access courses. DE would open up French instruction to more students. I have spoken with the Dean of Arts and Humanities about this need and received approval for this course development.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Each student will be emailed at least once every other week.
- **Discussion board:** *The instructor will regularly participate in discussions that deal with academic content, will consistently provide substantive feedback, and will facilitate all discussions.*
Frequency: 2-4 assigned per semester.
- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Feedback on most homework assignments, and every quiz, writing assignment, and submitted speaking sample.
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: 1-3 announcements per week.
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Once weekly as an open Office Hour, or by appointment.
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly class lectures and office hours.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: Weekly.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: 2 minimum per semester.
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Weekly.
- **Peer-editing/critiquing:** *Students will complete peer-editing assignments.*

Frequency: The final cultural presentation will go through a peer-editing process.

- **Web conferencing:** *Students will interact in real time with each other to discuss coursework and assignments.*

Frequency: Student-led study sessions or chats via Proto.

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*

Frequency: Minimum of 2 discussion board assignments per semester.

- **Written papers:** *Papers will be written on various topics.*

Frequency: 2-4 per semester.

- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*

Frequency: Between 6-8 quizzes per semester. A Final Exam may be used if deemed appropriate.

- **Practice quizzes, tests/exams:** *Practice quizzes will be given periodically throughout the course so students will be able to gauge their understanding of the content.*

Frequency: Included in weekly assignments.

- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*

Frequency: Weekly live or recorded lectures.

- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*

Frequency: Weekly videos.

- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*

Frequency: One final presentation of a cultural topic.

- **Other:**

Frequency: Recorded speaking samples on topics in French.

Codes and Dates

Course CB Codes

CB00: State ID

CCC000373517

CB03: TOP Code

110200 - French

CIP Code

16.0901 - French Language and Literature.

CB04: Credit Status

N - Non Credit

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

E - Non-Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

H - Courses for Older Adults: Education programs for older adults

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

2 - Not Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

Admin Outline for Noncredit Kinesiology YOOA Yoga for the Older Adult

Effective: Fall 2026

Catalog Description:

NKIN YOOA - Yoga for the Older Adult

54 Hours

Designed to teach the principles of yoga and how they apply to improve balance, strength, mobility and wellness for the mature adult. Breathing exercises, relaxation and meditation techniques to lower stress and hypertension will be practiced throughout this course.

Course Grading: Pass/No Pass

Total Lab Hours	54
Total Inside of Class Hours	54
Total Outside of Class Hours	0
Total Noncredit Hours	54

Justification for course proposal

Adding more non-credit options for our students, faculty/staff, and community members.

Discipline:

Kinesiology, or

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Apply and demonstrate the principles of Hatha Yoga to achieve lifetime fitness and overall wellness.
- B. Demonstrate proficient sana positioning, techniques and progressions/regressions.
- C. Prepare a daily personal yoga practice.
- D. Describe and demonstrate various breathing and meditation techniques.
- E. Be able to track their blood pressure and use yoga on a daily basis to relieve stress.

Course Content:

1. Principles of Hatha Yoga
2. Progressive and sequential pose/asana routine.
3. Development of personal yoga practices.
4. Breathing and meditation techniques to relieve stress.
5. Dangers of hypertension and pre-diabetes
6. Tracking Blood pressure

Methods of Instruction:

1. Demonstration - Students will follow along to instructor
2. Observation - Students will observe instructor demonstrations
3. Lecture - Instructor will explain course material

Typical Outside-of-Class Assignments

- A. Reading:
 1. Read an article on blood pressure and be prepared to discuss the modifiable risk factors that influence high or low blood pressure.
 2. Read the course material on daily personal yoga practice and create a program to follow.
- B. Laboratory:
 1. Measure Blood Pressure twice weekly over 6-12 weeks and keep a log of each day's measure.
 2. Discuss the Hatha yoga poses that are beneficial for your own personal practice and perform a sequence of those poses.

Methods of Evaluating Student Progress

- A. Class Participation
 1. Daily
- B. Class Performance
 1. 1-2 times/semester
- C. Exams/Tests
 1. weekly
- D. Papers
 1. 3-4 times/semester

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. Demonstrate improved mobility, balance, and coordination through yoga sequences designed for functional movement and stability.
- B. Apply appropriate modifications and props to adapt poses safely.
- C. Explain and integrate the principles of strength training and joint support to promote overall health and independence in aging.

Textbooks (Typical):

OER:

1. . .

Textbook:

1. Leslie Kamanoff and Amy Matthews *Yoga Anatomy*. 3 ed., Human Kinetics, 2024.
2. Sue Scott *ABLE Bodies Balance Training 2nd Edition With HKPropel Access.*, Human Kinetics, 2026.

Other Learning Materials:

1. Articles, video learning

Equity Based Curriculum

- Course Content
Address
Course content addresses equity in various physical abilities and includes variations, progressions, and/or regressions to ensure all bodies and all abilities, regardless of physical condition, can find ways to increase strength, mobility, and balance.
- Methods of Instruction
Address
Various methods of instruction to include lecture, group activity, student observation, and demonstrations.
- Other Materials Required of Students
Address
No extra materials are necessary to purchase

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Online with the Flexible In-Person Component (OFI)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

This course could benefit students who don't have access to on campus or in person classes.

Explain how the decision was made to offer this course in a Distance Education mode.

The Credit course that mirrors this course (KIN YO 1-4) is offered online and has been successful in offering students the opportunity to practice yoga in an online environment.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Daily
- **Discussion board:** *The instructor will regularly participate in discussions that deal with academic content, will consistently provide substantive feedback, and will facilitate all discussions.*
Frequency: weekly

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*

Frequency: within 48 hours

- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*

Frequency: Bi weekly

Student-Student Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*

Frequency: Weekly

- **Group work:** *Students will work in teams to complete group projects. The projects will then be shared with the rest of the class.*

Frequency: 1-2 times/Semester

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*

Frequency: Weekly

- **Group work:** *Students will collaborate in private groups to solve problems, become experts on certain topics, etc. They will then present their findings to the class.*

Frequency: 1-2 times/semester

- **Written papers:** *Papers will be written on various topics.*

Frequency: 3-4 times/semester

- **Practice quizzes, tests/exams:** *Practice quizzes will be given periodically throughout the course so students will be able to gauge their understanding of the content.*

Frequency: weekly

- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*

Frequency: weekly

Codes and Dates

Course CB Codes

CB03: TOP Code

083500 - Physical Education

CIP Code

31.0501 - Sports, Kinesiology, and Physical Education/Fitness, General.

CB04: Credit Status

N - Non Credit

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

E - Non-Occupational

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

H - Courses for Older Adults: Education programs for older adults

5.2. Course Modifications

- AUTO A5 Brakes
- AUTO A7 Automotive Heating and Air Conditioning
- AUTO A8 Engine Performance
- AUTO A9 Light Vehicle Diesel Engines
- AUTO C1 Automobile Service Consultant
- AUTO INTL Introduction to Automotive Hands-On Lab
- AUTO LABA Beginning Automotive Lab
- AUTO LABB Advanced Automotive Lab
- AUTO LABC Specialized Bench Work Automotive Lab
- AUTO LABD Specialized Electronic Work Automotive Lab
- AUTO L1 Advanced Engine Performance
- AUTO L3 Light Duty Hybrid/Electric Vehicles
- AUTO P1 Powertrains: Modifications for Performance
- AUTO SDR Specified Diagnostic and Repair
- AUTO SMOG Smog Level One and Level Two
- COMM C1004 Interpersonal Communication
- MATH C2220 Calculus II: Early Transcendentals
- MATH C2210 Calculus I: Early Transcendentals
- NAUT A5 Brakes
- NAUT A7 Automotive Heating and Air Conditioning
- NAUT A8 Engine Performance NAUT CA1 Engine Repair Concepts
- NAUT CA2 Automatic Transmission/Transaxle Concepts
- NAUT CA3 Manual Drive Train and Axles Concepts
- NAUT CA4 Suspension and Steering Concepts
- NAUT CA5 Brakes Concepts
- NAUT CA6 Electrical/Electronic Systems Concepts
- NAUT CA7 Automotive Heating and Air Conditioning Concepts
- NAUT CA8 Engine Performance Concepts
- NAUT CSDR Specified Diagnostic and Repair Concepts
- NAUT CSMG Smog Level One and Level Two Concepts
- NAUT LAB Automotive Lab
- NAUT SMOG Smog Level One and Level Two
- NAUT SDR Specified Diagnostic Repair
- NBUS 202 Attitude in the Workplace
- NBUS 203 Decision Making and Problem Solving
- NBUS 205 Team Building
- NBUS 206 Time Management
- NBUS 207 Conflict Resolution
- NBUS 210 Customer Service
- NBUS 211 Design Thinking for the Entrepreneur
- NBUS 212 Developing Your Business Plan

- NBUS 213 Legal Aspects of Small Business
- NBUS 214 Success in the Gig Economy

Course Modification: AUTO A5 - Brakes

Course Modification: AUTO A5 - Brakes (Launched - Implemented 09-24-2025)

compared with

AUTO A5 - Brakes (Active - Implemented 08-15-2021)

Admin Outline for Automotive Technology A5 Brakes
Effective: Fall ~~2021~~ 2026

Catalog Description:
AUTO A5 - Brakes
4.00 Units

Diagnosis, evaluation, inspection, adjustment, and repair of braking, antilock braking systems, traction control and related devices. Class will involve California State law regarding brake and safety inspections. Includes the material on the California Brake Adjuster's Licensing Examination. Students are strongly recommended to enroll in Automotive Lab concurrently.
 2 Units Lecture 2 Units Lab

Prerequisite: ~~AUTO~~ ~~NAUT~~ ~~INTR~~ ~~INTL~~ with a minimum grade of C; ~~or~~ ~~and~~ ~~NAUT~~ ~~INTR~~ ~~INT~~ with a minimum grade of C, or AUTO INTL with a minimum grade of C and AUTO ~~INTZ~~ ~~INT~~ with a minimum grade of C, INT and INTL may be taken concurrently.

Course Grading: Optional

Lecture Hours	36
Lab Hours	108
Inside of Class Hours	144
Outside of Class Hours	72

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- Describe the theory and fundamentals of automotive brake, anti-lock brake electronic traction control, and steering stability systems;
- Use basic testing and diagnostic tools and equipment in the inspection, diagnosis and repair of automotive braking systems;
- Demonstrate the ability to access the vehicle computer and various sensors relating to brakes and suspension systems;
- Demonstrate safe and appropriate handling of hazardous material;
- Accurately investigate and catalogue consumer concerns;
- Maintain a clean and professional environment.

Course Content:
Lab:

- Foundation brake systems
- Anti-Lock systems and sub-systems
- Traction control systems and sub-systems.
- Steering Stability systems and subsystems
- Proper and safe tool use procedures
- Diagnostic safety precautions
- Analysis of test results
- Digital volt, ohm meter reading (DVOM)
- Digital storage oscilloscope hook-up and reading
- Computer access

11. [Access vehicle on board computer](#)
12. [Retrieve codes and refer to diagnostic service information](#)
13. [Evaluate sensor data](#)
14. [Hazardous material handling](#)
15. [Demonstrate proper handling of brake system components](#)
16. [Perform proper fluid disposal](#)
17. [Traction Control](#)
18. [Collision avoidance](#)
19. [Professional environment](#)

Lecture:

1. Automotive brakes.

1. Foundation brake systems

1. Hydraulic servo, dual-servo, advanced leading trailing and leading trailing
2. Caliper and piston front
3. Caliper and piston rear

2. Anti-Lock systems and sub-systems

1. Wheel speed sensors
2. Vehicle speed sensors
3. Hydraulic control units
4. Electrical control units

3. Traction control systems, and sub-systems.

1. Wheel speed sensors
2. Vehicle speed sensors
3. Hydraulic control units
4. Electrical control units

4. Steering Stability systems and subsystems

1. Wheel speed sensors
2. Vehicle speed sensors
3. Hydraulic control units
4. Electrical control units
5. Yaw Sensors
6. Pitch Sensors

7. Decelerometers

8. Steering input sensors

2. Testing and diagnostic tools and equipment

1. Proper and safe tool use procedures
2. Diagnostic safety precautions
3. Analysis of test results
4. Digital volt, ohm meter reading (DVOM)
5. Digital storage oscilloscope hook-up and reading

3. Computer access

1. Access vehicle on board computer
2. Retrieve codes and refer to diagnostic service information
3. Evaluate sensor data

4. Hazardous material handling

1. Demonstrate proper handling of brake system components
2. Perform proper fluid disposal

5. Consumer concerns

1. Research customer concerns, evaluate steps needed to repair concern
2. Catalogue concern
3. Repair Procedures

6. Electrical Concerns

1. Base Brakes
2. ABS
3. Traction Control
4. Collision avoidance

7. Professional environment

1. Safety glasses (clear lens) worn in all laboratory areas
2. No loose clothing (coveralls strongly recommended)

3. Long Hair secured
4. No open toe shoes (safety shoes recommended)
5. Work areas maintained; clean, free of debris and spills

Lecture:

1. -Automotive brakes:
 1. -Foundation brake systems
 1. Hydraulic servo, dual-servo, advanced leading-trailing and leading trailing
 2. Caliper and piston front
 3. Caliper and piston rear
 2. Anti-Lock systems and sub-systems
 1. Wheel speed sensors
 2. Vehicle speed sensors
 3. Hydraulic control units
 4. Electrical control units
 3. -Traction control systems, and sub-systems:
 1. -Wheel speed sensors
 2. -Vehicle speed sensors
 3. -Hydraulic control units
 4. -Electrical control units
 4. -Steering Stability systems and subsystems
 1. -Wheel speed sensors
 2. -Vehicle speed sensors
 3. -Hydraulic control units
 4. -Electrical control units
 5. -Yaw Sensors
 6. -Pitch Sensors
 7. -Decelerometers
 8. -Steering input sensors
2. -Testing and diagnostic tools and equipment
 1. -Proper and safe tool use procedures
 2. -Diagnostic safety precautions
 3. -Analysis of test results
 4. -Digital volt, ohm meter reading (DVOM)
 5. -Digital storage oscilloscope hook-up and reading

3. ~~Computer access~~
 1. ~~Access vehicle on board computer~~
 2. ~~Retrieve codes and refer to diagnostic service information~~
 3. ~~Evaluate sensor data~~
4. ~~Hazardous material handling~~
 1. ~~Demonstrate proper handling of brake system components~~
 2. ~~Perform proper fluid disposal~~
5. ~~Consumer concerns~~
 1. ~~Research customer concerns, evaluate steps needed to repair concern~~
 2. ~~Catalogue concern~~
 3. ~~Repair Procedures~~
6. Electrical Concerns
 1. Base Brakes
 2. ABS
 3. Traction Control
 4. Collision avoidance
7. Professional environment
 1. Safety glasses (clear lens) worn in all laboratory areas
 2. No loose clothing (coveralls strongly recommended)
 3. Long Hair secured
 4. No open toe shoes (safety shoes recommended)
 5. Work areas maintained; clean, free of debris and spills

Methods of Instruction:

1. Lab - Student Hands-on laboratory activities and assignments
2. Lecture - Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Typical Outside-of-Class Assignments

A. ~~Other:~~

~~A. Lecture-based assignments~~

1. ~~Lecture on ABS:~~

~~B. Lab-based assignments~~

1. ~~Test Hall effect WSS~~

Reading:

Read Chapter One in text

B. Research:

Brake Construction research for a personal vehicle

Methods of Evaluating Student Progress

A. Exams/Tests

- 1. monthly
- B. Lab Activities
 - 1. weekly
- C. Quizzes
 - 1. weekly

Student Learning Outcomes

- Upon the completion of this course, the student should be able to:
- A. ~~apply~~ Apply brakes repair safety precautions.
 - B. ~~obtain~~ Obtain and interpret powertrain data related to the brake system .
 - C. Recognize and apply shop safety precautions .

Textbooks (Typical):

- Textbook:
- 1. James Duffy ~~Modern~~ 2025 ASE Automotive ~~Technology Suite~~ . ~~9 ed.~~, Goodheart Wilcox, ~~2020~~.
 - 2. ~~Chris Johanson~~ Auto Brakes: ~~5 ed.~~, Goodheart Wilcox, ~~2021~~ 2025 .
 - 3. ~~California~~ James State D Department ~~Halderman~~ Consumer Automotive ~~Affairs~~ Technology . 7 ed. , - Pearson 2024.
 - 4. Tim Giles . Brake Automotive Service: Inspection . ~~Manual~~ Maintenance Repair . 6 ed. , - ~~Cengage~~ , ~~2003~~ 2020 .

Other Materials Required of Students

- Other Materials Required of Students:
- 1. Safety Glasses.

Equity Based Curriculum

- Methods of Instruction
Address The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Requisite Skills

- Before entering this course, it is required that a student be able to:
- A. ~~AUTO~~ NAUT ~~INTR~~ INTL
 - 1. Utilize and apply hazardous waste handling;
 - 2. Identify and describe uses of automotive related tools;
 - 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 5. Discuss braking systems, perform a brake inspection, identify parts;
 - 6. Differentiate between suspension and steering system types, inspect and qualify components;
 - 7. Theorize on the future of the automotive industry.
 - B. NAUT ~~INTR~~ INT
 - 1. ~~Utilize and apply hazardous waste handling;~~
 - 2. Identify and describe uses of automotive related tools;
 - 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 5. Discuss braking systems, perform a brake inspection, identify parts;
 - 6. Differentiate between suspension and steering system types, inspect and qualify components;
 - 7. Theorize on the future of the automotive industry.
 - C. AUTO INTL
 - 1. Utilize and apply hazardous waste handling;
 - 2. Identify and describe uses of automotive related tools;
 - 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 5. Discuss braking systems, perform a brake inspection, identify parts;
 - 6. Differentiate between suspension and steering system types, inspect and qualify components;
 - 7. Theorize on the future of the automotive industry.
 - D. AUTO ~~INTZ~~ INT
 - 1. Identify and describe uses of automotive related tools;
 - 2. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 3. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 4. Discuss braking systems, perform a brake inspection, identify parts;
 - 5. Differentiate between suspension and steering system types, inspect and qualify components;
 - 6. Theorize on the future of the automotive industry.

DE Proposal

- Delivery Methods
- **Fully Online (FO)**
 - **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

~~PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.~~

Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. There are exceptions to this as we learned in C-19.

Explain how the decision was made to offer this course in a Distance Education mode.

~~PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path. FO: Same as above~~

California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum Once per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly lab sessions
- **- Other: -**
Frequency: - ~~PO: Student interaction, fulfillment of SLO's and measurable objectives will be done on-campus in the labs, weekly. FO: Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.~~

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: ~~PO: At least twice per semester~~ ~~FO: At least once every other week.~~
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: ~~Fully online only:~~ Minimum weekly
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: ~~Fully~~ ~~At online only:~~ ~~least~~ once every other week .
- **Other:**
Frequency: ~~PO:~~ Students will interact during on-campus weekly labs ~~FO: Student will interact~~ and online in chat.

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: ~~Fully online only: weekly~~ Weekly
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: ~~PO and FO:~~ Quizzes: at least one quiz per section/chapter. Weekly. Exams: at least two per semester.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: ~~PO:~~ At least once per week ~~FO: At least once per week~~

- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: ~~FO:~~ Weekly
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: ~~PO:~~ Weekly, in on-campus labs ~~FO: Weekly recorded by student and completed using online software:~~
- **Other:**
Frequency: ~~Both PO and FO:~~ Homework, assigned weekly

General Education/Transfer Request

General Education/Transfer Request

CSU Transfer

- Transfers to CSU

Codes and Dates

Course CB Codes

CB00: State ID

CCC000569954

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

B - Transferable to CSU only.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

B - Advanced Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

[Y - Not Applicable, Credit course](#)

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Credit for Prior Learning

Credit for Prior Learning Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam ~~Yes~~ [No](#)

Credit-by-Portfolio ~~No~~ [Yes](#)

Please list the requirements/criteria/possible materials for a student to submit in their portfolio.

[Has Taken NAUT A with a C or better. P/NP does not qualify.](#)

Curriculum Committee Approval Date

Effective Term

Credit-by-Military-JST ~~No~~ [Yes](#)

Please list the ACE course(s) equivalent to this course

[See Attached](#)

Curriculum Committee Approval Date

Effective Term

Credit-by-Industry-Recognized-Training Yes

Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses (including this one) for which a student will earn credit.

See ~~attached~~ [Attached](#)

Curriculum Committee Approval Date
Additional Detail (List articulated courses, etc.) No
Please list the articulated courses. Also, we ask that you upload any relevant docs (e.g., exams) via Attached Files.
Curriculum Committee Approval Date
Effective Term
Curriculum Committee Approval Date
Effective Term

Course Modification: AUTO A7 - Automotive Heating and Air Conditioning

Course Modification: AUTO A7 - Automotive Heating and Air Conditioning (Launched - Implemented 09-24-2025)

compared with

AUTO A7 - Automotive Heating and Air Conditioning (Active - Implemented 08-15-2021)

**Admin Outline for Automotive Technology A7
Automotive Heating and Air Conditioning**
Effective: Fall ~~2021~~ 2026

Catalog Description:
AUTO A7 - Automotive Heating and Air Conditioning
4.00 Units

Diagnosing, evaluation, testing, adjustment, and repair of heating, ventilation and air conditioning (HVAC). Includes heat and energy, psychometrics, air flow, refrigerant recycling, equipment and controls. Student will be prepared to pass a nationally recognized HVAC certificate program, required by all California HVAC repair shops. Students are strongly recommended to enroll in Automotive Lab concurrently.

2 Units Lecture 2 Units Lab

Prerequisite: ~~AUTO~~ ~~NAUT~~ ~~INTF~~ ~~INTL~~ with a minimum grade of C; ~~or~~ ~~and~~ ~~NAUT~~ ~~INTF~~ ~~INT~~ with a minimum grade of C, or AUTO INTL with a minimum grade of C and AUTO ~~INTF~~ ~~INT~~ with a minimum grade of C, INT and INTL may be taken concurrently.

Course Grading: Optional

Lecture Hours	36
Lab Hours	108
Inside of Class Hours	144
Outside of Class Hours	72

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Obtain and interpret Service Information, Tools, Safety;
- B. Diagnose the causes of HVAC system concerns resulting from malfunctions in the computerized HVAC control system with or without diagnostic trouble codes;
- C. Chart, inspect, and test computerized HVAC control system sensors, HVAC control module, actuators, and circuits using a digital-multi-meter (DMM) on board diagnostic scan tool, and perform necessary action;
- D. Access and use service information to perform step-by-step diagnosis;
- E. Evaluate and adjust HVAC system controls;
- F. Assess cooling system performance;
- G. Outline common repairs to the engine cooling systems;
- H. Perform air conditioning (AC) evacuation and recharge;
- I. Diagnose malfunctions of vacuum and motor driven mode door;
- J. Pass HVAC certification test;
- K. Outline hazardous waste handling;
- L. Distinguish safe shop environment.

Course Content:
Lab:

1. Service Information, Tools and Safety

1. ~~Interpretation of information~~

1. ~~Factory set procedures~~

2. ~~Develop own diagnostic procedures~~

2. ~~Environmental and Hazardous Materials~~
3. Heating and Air Conditioning ~~Principles~~ Diagnosis
4. HVAC Parts ~~and Operation~~ identification
5. A/C Compressors and Clutches
6. Refrigerant and Oil Types and Handling
7. A/C System ~~Components and~~ Operation
8. Air Flow Management ~~System~~ _
9. HVAC Electrical Circuits and Schematics
10. Advanced Electrical HAVC ~~systems~~ diagnosis
11. Engine Cooling System Parts and Operation
12. ~~Heater System Operation and Diagnosis~~
13. Automatic Temperature Control Systems
14. ~~Hybrid Electric Vehicle HVAC Systems~~
15. Maintenance and Light Repair HVAC Inspection
16. Refrigerant Recovery, Recycling and Handling
17. A/C System Diagnosis and Service
18. ~~Nationally Recognized HAVC Certification Test~~
19. ~~IMACA~~
20. ~~ASE~~

Lecture:

1. Service Information, Tools and Safety
 1. Interpretation of information
 1. Factory set procedures
 2. Develop own diagnostic procedures
2. Environmental and Hazardous Materials
3. Heating and Air Conditioning Principles
4. HVAC Parts and Operation
5. A/C Compressors and Clutches
6. Refrigerant and Oil Types - and Handling
7. A/C System Components - and Operation
8. Air Flow Management System
9. HVAC Electrical Circuits - and Schematics
10. Advanced Electrical HAVC systems
11. Engine Cooling System Parts and Operation
12. Heater System Operation - and Diagnosis
13. Automatic Temperature Control Systems

14. Hybrid Electric Vehicle HVAC Systems
15. Maintenance and Light Repair HVAC Inspection
16. Refrigerant Recovery, Recycling and Handling
17. A/C System Diagnosis and Service
18. Nationally Recognized HVAC Certification Test

1. IMACA
2. ASE

Methods of Instruction:

1. Lecture – Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
2. Lab - Student Hands-on laboratory activities and assignments
3. Audio-visual Activity - PowerPoint presentations, Mockup parts from automotive

Typical Outside-of-Class Assignments

A. ~~Other~~ Reading;
Read Chapter One in text

B. Research :

1. ~~Lecture~~ Engine based Construction assignments

1. ~~Text~~ research ~~reading~~

2. ~~Oral for~~ presentation

3. ~~Class a discussion~~ personal vehicle

2. ~~Lab based assignments:~~

1. ~~Completion of applied activities~~

2. ~~Lab activity worksheet~~

3. ~~Diagnosis and debugging~~

4. ~~Student Lab work sheets with emphasis on Hands-on applications~~

5. ~~Review of Lab sheets in both Lab and class settings~~

3. ~~Text reading assignments~~

1. ~~Class discussions of reading assignments~~

2. ~~Demonstrations pertaining to reading assignments~~

Methods of Evaluating Student Progress

- A. Exams/Tests
 1. monthly
- B. Lab Activities
 1. weekly
- C. Quizzes
 1. weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. Upon completion of AUTO A7, the student should be able to apply **Apply** HVAC safety precautions.
- B. Upon completion of AUTO A7, the student should be able to read **Read** and interpret HVAC gauges .
- C. **Apply service manual procedures to the vehicle** .

Textbooks (Typical):

Textbook:

1. Chris James Johanson D Halderman *Auto Automotive Heating and Air Conditioning Technology*. 5th ed., Goodheart-Wilcox Pearson, 2021-2024 .
2. James Duffy *Modern 2025 ASE Automotive Technology Suite*, Goodheart Wilcox, 2025.
3. Tim Giles *Automotive Service: Inspection, Maintenance, Repair*. 9th ed., Goodheart Wilcox Cengage, 2020.

Other Materials Required of Students

Other Materials Required of Students:

1. Safety Glasses.

Equity Based Curriculum

- **Methods of Instruction**
Address .
The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
- **Methods of Evaluation**
Address .
The course materials and evaluations are based on industry standards.
- **Typical Texts**
Address .
The course materials and evaluations are based on industry standards.

Requisite Skills

Before entering this course, it is required that a student be able to:

- A. **AUTO NAUT INTR INTL**
 1. Utilize and apply hazardous waste handling;
 2. Identify and describe uses of automotive related tools;
 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 5. Discuss **braking heating and cooling** systems, perform **a basic brake cooling inspection; systems identify parts tests** ;
 6. Identify **different air transmissions conditioning systems** , understand **theory cycles** of **operation refrigerant**;
 7. **Theorize on the future** of **both the manual automotive and automatic transmissions and fluid requirements; industry**.
- B. **NAUT INTR INT**
 1. **Utilize and apply hazardous waste handling;**
 2. Identify and describe uses of automotive related tools;
 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
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 7. **Theorize on the future** of **both the manual automotive and automatic transmissions and fluid requirements; industry**.
- C. **AUTO INTL**
 1. Utilize and apply hazardous waste handling;
 2. Identify and describe uses of automotive related tools;
 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
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 6. Identify **different air transmissions conditioning systems** , understand **theory cycles** of **operation refrigerant**;
 7. **Theorize on the future** of **both the manual automotive and automatic transmissions and fluid requirements; industry**.
- D. **AUTO INTZ INT**
 1. Identify and describe uses of automotive related tools;
 2. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 3. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 4. Discuss **braking heating and cooling** systems, perform **a basic brake cooling inspection; systems identify parts tests** ;
 5. Identify **different air transmissions conditioning systems** , understand **theory cycles** of **operation refrigerant**;
 6. **Theorize on the future** of **both the manual automotive and automatic transmissions and fluid requirements; industry**.

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. **FO:** Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and

worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration:

Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. There are exceptions to this as we learned in C-19.

Explain how the decision was made to offer this course in a Distance Education mode.

PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path. FO: Same as above

California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum Once per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly lab sessions

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: ~~PO: At least twice per semester~~ FO: At least once every other week.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: ~~Fully online only:~~ Minimum weekly
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Fully Minimum online only: once every other week weekly
- **Other:**
Frequency: ~~PO: Students will interact during on-campus~~ Minimum weekly ~~-labs~~ FO: Student will interact online in chat:

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: ~~Fully online only:~~ Minimum weekly
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: ~~PO and FO:~~ Quizzes: at least one quiz per section/chapter. Weekly. Exams: at least two per semester.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: ~~PO:~~ At least once per week ~~FO: At least once per week~~
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: ~~FO:~~ Weekly
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: ~~PO:~~ Weekly, in on-campus labs ~~FO: Weekly recorded by student and completed using online software:~~
- **Other:**
Frequency: ~~Both PO and FO:~~ Homework, assigned weekly

General Education/Transfer Request

General Education/Transfer Request

CSU Transfer

- Transfers to CSU

Codes and Dates

Course CB Codes

CB00: State ID

CCC000566973

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

B - Transferable to CSU only.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

B - Advanced Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

[Y - Not Applicable, Credit course](#)

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Credit for Prior Learning

Credit for Prior Learning Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam Yes ~~No~~

Credit-by-Portfolio ~~No~~ Yes

Please list the requirements/criteria/possible materials for a student to submit in their portfolio.

[Has Taken NAUT A7 with a C or better. P/NP does not qualify.](#)

Curriculum Committee Approval Date

Effective Term

Credit-by-Military-JST ~~No~~ Yes

Please list the ACE course(s) equivalent to this course

[See attached](#)

Curriculum Committee Approval Date

Effective Term

Credit-by-Industry-Recognized-Training Yes

Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses (including this one) for which a student will earn credit.

See attached

Curriculum Committee Approval Date

Additional Detail (List articulated courses, etc.) No

Please list the articulated courses. Also, we ask that you upload any relevant docs (e.g., exams) via Attached Files.

Curriculum Committee Approval Date

Effective Term

Curriculum Committee Approval Date

Effective Term

Course Modification: AUTO A8 - Engine Performance

Course Modification: AUTO A8 - Engine Performance (Launched - Implemented 09-24-2025)

compared with

AUTO A8 - Engine Performance (Active - Implemented 08-15-2021)

**Admin Outline for Automotive Technology A8
Engine Performance**
Effective: Fall ~~2021~~ 2026

Catalog Description:
AUTO A8 - Engine Performance
5.00 Units

Principals of automotive fuel induction, ignition and emission control systems, including inspection, diagnosis and repair of fuel and emission control systems/components governed by federal and state laws and standards. Electrical diagnosis of emission control systems. Relation of chassis and body systems to emissions. Students are strongly recommended to enroll in Automotive Lab concurrently.

3 Units Lecture 2 Units Lab

Prerequisite: ~~AUTO~~ ~~NAUT~~ ~~INTR~~ ~~INTL~~ with a minimum grade of C; ~~or~~ ~~and~~ ~~NAUT~~ ~~INTR~~ ~~INT~~ with a minimum grade of C, or AUTO INTL with a minimum grade of C and AUTO ~~INTR~~ ~~INT~~ with a minimum grade of C, INT and INTL may be taken concurrently.

Course Grading: Optional

Lecture Hours	54
Lab Hours	108
Inside of Class Hours	162
Outside of Class Hours	108

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- Distinguish and explain the different types of fuel delivery systems;
- Distinguish and explain the different types of ignition systems
- Perform tests related to popular fuel systems used on current model cars;
- Perform tests related to popular ignition systems used on current model cars
- Formulate diagnostic patterns, and analyze gas readings to expedite proper repairs
- Manipulate and use hand held diagnostic test equipment
- Demonstrate proficient use of diagnostic information systems;
- Explain theory and functionality of carburetors, throttle body, and port injectors;
 - Explain safety procedures and the handling of hazardous waste materials;
 - Maintain a clean and professional environment.

Course Content:
Lab:

- Diagnose fuel delivery systems.
- Diagnose types of ignition systems
- Fuel systems testing
- Ignition System Testing
- Diagnostic patterns, and analyze gas readings
- Diagnostic test equipment
- Diagnostic information systems.

8. [Diagnose various Engine Performance concerns](#)
9. [Handling of hazardous waste materials](#)
10. [Professional environment](#)

Lecture:

1. Different types of fuel delivery systems.
 1. Describe functionality of Carburetors
 2. Describe advantages of Fuel injectors
2. Different types of ignition systems
 1. Describe functionality of a points ignition systems
 2. Describe functionality of a high energy ignition systems
 3. Describe functionality of a coil over plug ignition systems
3. Fuel systems testing
 1. Perform pressure test
 2. Evaluate volume test and fuel composition
 3. Electronic pulse with modulation evaluation
 4. Volt drop and scope evaluation
4. Ignition System Testing
 1. Ignition Scope theory
 2. Ignition Scope Usage
 3. Ignition Scope Reading and evaluation
5. Diagnostic patterns, and analyze gas readings
 1. Execute diagnostic as described in service information systems
 2. Study and evaluate exhaust gas readings
6. Diagnostic test equipment
 1. Identify proper tester for application
 2. Manipulate hand held scanners to retrieve diagnostic information.
7. Diagnostic information systems
 1. Access and extract diagnostic information.

2. Research labor time guides for work determined in diagnostics.
8. Explain theory and functionality
 1. List theory of air fuel flow of a carburetor
 2. Explain advantages of port injectors and related equipment
9. Diagnose various Engine Performance concerns
10. Explain the difference in the three main automotive systems
11. Handling of hazardous waste materials
 1. Storage and handling of gasoline
 2. Storage and handling of diesel fuel
12. Professional environment
 1. Safety glasses (clear lens) worn in all Laboratory areas
 2. No loose clothing (coveralls strongly recommended)
 3. Long hair secured
 4. No open toe shoes (safety shoes recommended)
 5. Work areas maintained: clean free of debris and spills

Lecture:

1. Different types of fuel delivery systems.
 1. Describe functionality of Carburetors
 2. Describe advantages of Fuel injectors
2. Different types of ignition systems
 1. Describe functionality of a points ignition systems
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 5. Work areas maintained: clean free of debris and spills

Methods of Instruction:

1. Lab - - _ Student Hands-on laboratory activities and assignments
2. Lecture - - Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Typical Outside-of-Class Assignments

- A. ~~Other:~~
 - A. ~~Lecture based assignments~~
 1. ~~Lecture on scanner operation~~
 - B. ~~Lab based assignments~~
 1. ~~Perform diagnosis of MIL~~
 - C. ~~Text reading assignments~~
 1. ~~Read Chapter One~~

Reading:
[Read Chapter One in text](#)

- B. [Research:](#)
[Engine performance research for a personal vehicle](#)

Methods of Evaluating Student Progress

- A. Class Participation
 - 1. daily
- B. Exams/Tests
 - 1. monthly
- C. Home Work
 - 1. weekly
- D. Lab Activities
 - 1. weekly
- E. Quizzes
 - 1. weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of AUTO A8, the student should be able to apply~~ [Apply](#) emission safety precautions.
- B. ~~Upon completion of AUTO A8, the student should be able to read~~ [Read](#) and interpret scanner data .
- C. [Apply service manual techniques](#) .

Textbooks (Typical):

Textbook:

- 1. [Chris James Johanson D Halderman Auto Automotive Engine Performance and Driveability Technology](#) . 5 7 ed., [Goodheart Wilcox Pearson](#) , 2021 2024 .
- 2. James Duffy [Modern 2025 ASE Automotive Technology Suite](#) , [Goodheart Wilcox](#), 2025.
- 3. [Tim Giles Automotive Service: Inspection, Maintenance, Repair](#) . 9 6 ed., [Goodheart Wilcox Cengage](#) , 2020.

Other Materials Required of Students

Other Materials Required of Students:

- 1. Safety Glasses.

Equity Based Curriculum

- [Methods of Instruction](#)
[Address](#) .
[The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.](#)
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[Address](#) .
[The course materials and evaluations are based on industry standards.](#)
- [Typical Texts](#)
[Address](#) .
[The course materials and evaluations are based on industry standards.](#)

Requisite Skills

Before entering this course, it is required that a student be able to:

- A. ~~AUTO~~ [NAUT](#) ~~INTR~~ [INTL](#)
 - 1. Utilize and apply hazardous waste handling;
 - 2. Identify and describe uses of automotive related tools;
 - 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 4. Discuss four stroke engine cycle and identify engine parts;
 - 5. Perform basic engine teardown and reassembly;
 - 6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 7. Identify emissions components, understand 5 gas theory;
 - 8. ~~Identify~~ [Theorize](#) ~~different on~~ [transmissions](#); ~~the~~ [understand theory](#) ~~future of~~ [operation the of](#) [automotive](#) ~~both manual and automatic transmissions and fluid requirements~~; [industry](#).
- B. NAUT ~~INTR~~ [INT](#)
 - 1. ~~Utilize and apply hazardous waste handling~~;
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C. AUTO INTL

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D. AUTO INTZ INT

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DE Proposal

Delivery Methods

- Fully Online (FO)
- Partially Online

Rationale for DE

Explain why this course should be offered in Distance Education mode.

PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.

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Explain how the decision was made to offer this course in a Distance Education mode.

PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path. FO: Same as above

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- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*

Frequency: Weekly, as assignments or labs are turned in

- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*

Frequency: Minimum Once per week

- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*

Frequency: Minimum Once per week

- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*

Frequency: Weekly lab sessions

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*

Frequency: ~~PO: At least twice per semester~~ ~~FO:~~ At least once every other week.

- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*

Frequency: ~~Fully online only:~~ Minimum weekly

- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*

Frequency: ~~Fully~~ Minimum ~~online only once every other week~~ weekly

- **Other:**

Frequency: ~~PO: Students will interact during on-campus~~ Minimum weekly ~~-labs FO: Student will interact online in chat:~~

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*

Frequency: ~~Fully online only:~~ Minimum weekly

- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*

Frequency: ~~PO and FO:~~ Quizzes: at least one quiz per section/chapter. Weekly. Exams: at least two per semester.

- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*

Frequency: ~~PO: At~~ Minimum ~~least once per week~~ ~~FO: At least once per week~~ weekly

- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*

Frequency: ~~FO:~~ Weekly

- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*

Frequency: ~~PO:~~ Minimum ~~Weekly, in on-campus labs~~ ~~FO: Weekly recorded by student and completed using online software:~~ weekly

- **Other:**

Frequency: ~~Both PO and FO:~~ Homework ; assigned weekly

General Education/Transfer Request

General Education/Transfer Request

CSU Transfer

- Transfers to CSU

Codes and Dates

Course CB Codes

CB00: State ID

CCC000622191

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

B - Transferable to CSU only.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

[Y - Not Applicable, Credit course](#)

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Credit for Prior Learning

Credit for Prior Learning Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam ~~Yes~~ No

Credit-by-Portfolio ~~No~~ Yes

Please list the requirements/criteria/possible materials for a student to submit in their portfolio.

Has Taken NAUT A8 with a C or better. P/NP does not qualify.

Curriculum Committee Approval Date

Effective Term

Credit-by-Military-JST ~~No~~ Yes

Please list the ACE course(s) equivalent to this course

See attached

Curriculum Committee Approval Date

Effective Term

Credit-by-Industry-Recognized-Training Yes

Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses (including this one) for which a student will earn credit.

See attached

Curriculum Committee Approval Date

Additional Detail (List articulated courses, etc.) No

Please list the articulated courses. Also, we ask that you upload any relevant docs (e.g., exams) via Attached Files.

Curriculum Committee Approval Date

Effective Term

Curriculum Committee Approval Date

Effective Term

Course Modification: AUTO A9 - Light Vehicle Diesel Engines

Course Modification: AUTO A9 - Light Vehicle Diesel Engines (Launched - Implemented 09-27-2025)

compared with

AUTO A9 - Light Vehicle Diesel Engines (Active - Implemented 08-15-2022)

**Admin Outline for Automotive Technology A9
Light Vehicle Diesel Engines**

Effective: Fall ~~2022~~ 2026

Catalog Description:

AUTO A9 - Light Vehicle Diesel Engines

4.00 Units

An in depth study of diesel engines: mechanical, measurement, and assembly. A study of the above mentioned components including theory, teardown, evaluate, qualifying, and rebuilding. Diesel engine performance including emissions, turbos, exhaust and intake systems. This class's emphasis is on diesel engines and diesel engine performance/emissions. Students are encouraged to enroll in Automotive Lab concurrently.

2 Units Lecture 2 Units Lab

Prerequisite: ~~AUTO~~ ~~NAUT~~ ~~INTR~~ ~~INTL~~ with a minimum grade of C; ~~or~~ ~~and~~ NAUT ~~INTR~~ ~~INT~~ with a minimum grade of C, or AUTO INTL with a minimum grade of C and AUTO ~~INTR~~ ~~INT~~ with a minimum grade of C, INT and INTL may be taken concurrently.

Course Grading: Optional

Lecture Hours	36
Lab Hours	108
Inside of Class Hours	144
Outside of Class Hours	72

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Demonstrate the basic safety procedures of handling hazardous waste materials.
- B. Explain the history of diesel powertrain evolution.
- C. Operate a wide variety of precision measurement equipment.
- D. Explain four cycle engine theory and identify key components involved.
- E. Teardown typical diesel engine assembly.
- F. Take measurements of engine components and compare to specifications.
- G. Qualify new and used engine components.
- H. Rebuild engine to manufacturer specifications.
 - I. Identify and explain the function of diesel emission components
 - J. Identify and explain the function of diesel turbo and intake components
 - K. Identify and explain the function of diesel emission exhaust components

Course Content:

Lab:

1. Measurement Usage and reading
 1. Micrometer
 1. Vernier
 2. Caliper
 3. Dial bore gauge
 4. Snap gauges
 5. Straight edge

6. [Feeler gauges](#)

7. [Hole gauges](#)

2. [Engine Teardown](#)

1. [Removal and identification of external components](#)

1. [Special procedures](#)

1. [Loosening sequence](#)

2. [Removal and identification of internal components](#)

1. [Special Procedures](#)

1. [Loosening sequence](#)

3. [Component measurement](#)

1. [Specification lookup](#)

2. [Comparison](#)

1. [Component diagnosis](#)

1. [Failure analysis](#)

4. [Evaluation of replacement components](#)

1. [Correct component?](#)

2. [New and used part comparison](#)

5. [Engine rebuilding](#)

1. [Manufacturer Procedures](#)

1. [Component sequence](#)

2. [Torque specifications](#)

3. [Tightening sequences](#)

2. [Proper engine timing](#)

1. [Camshaft to crankshaft](#)

2. [Crankshaft to balance shaft](#)

6. Different types of fuel delivery systems diagnosis

1. Mechanical Injection
2. Direct Injection
3. HEIU

7. Fuel systems testing

1. Perform pressure test
2. Evaluate volume test and fuel composition
3. Electronic pulse with modulation evaluation

8. Diagnose various Engine Performance concerns

9. Emission system diagnostics and testing

10. Diagnostic service information

11. Exhaust system evaluation

12. Turbos

13. Valve adjustments

14. Professionalism

Lecture:

1. Safety

1. Tool usage and nomenclature
2. Proper disposal procedures
3. Environmentally conscious decisions

2. Powertrain evolution

1. The first four cycle diesel engines
2. Current engines
3. Horsepower and emission tradeoffs
4. Environmental decisions driving design

3. Measurement

1. Micrometer
 1. Vernier
 2. Caliper
 3. Dial bore gauge

4. Snap gauges
5. Straight edge
6. Feeler gauges
7. Hole gauges

4. Four cycle engine theory

1. Intake, compression, power, exhaust

1. 360 degrees in one degree intervals
2. Valve overlap
3. Timing concerns and tricks
4. Street vs. racing

2. DOHV vs. OHV vs. Valve in block design

1. Pros and cons of each
2. Current technology

3. Key Valve train components

4. Key bottom end components

5. Camshaft timing

1. Static camshaft
2. Dynamic camshaft
3. Electronic valves

6. Crankshaft design and balance

7. Cylinder head design

1. Single valve
2. Multiple valve

5. Engine Teardown

1. Removal and identification of external components

1. Special procedures

1. Loosening sequence

2. Removal and identification of internal components

1. Special Procedures

1. Loosening sequence

6. Component measurement

1. Specification lookup

2. Comparison

1. Component diagnosis

1. Failure analysis

7. Evaluation of replacement components

1. Correct component?

2. New and used part comparison

8. Engine rebuilding

1. Manufacturer Procedures

1. Component sequence

2. Torque specifications

3. Tightening sequences

4. Special concerns

1. Assembly lube

2. Gaskets and sealers

2. Dynamic engine torque

3. Proper engine timing

1. Camshaft to crankshaft

2. Crankshaft to balance shaft

9. Different types of fuel delivery systems.

1. Mechanical Injection

2. Direct Injection

3. HEIU

10. Fuel systems testing

1. Perform pressure test
2. Evaluate volume test and fuel composition
3. Electronic pulse with modulation evaluation

11. Diagnose various Engine Performance concerns

12. Emission system diagnostics and testing

13. Diagnostic service information

14. Exhaust system evaluation

15. Turbos

16. Valve adjustments

17. Professionalism

1. Safety glasses
2. Working shop expectations
3. Attitude
4. Cleanliness
5. Maintenance of work areas and tools

Methods of Instruction:

1. Lab - Group and individual laboratory activities
2. Lecture - Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Typical Outside-of-Class Assignments

A. ~~Other:~~

Reading:
Read Chapter One in text

A. ~~Lecture-based assignments~~

Research:
Engine Construction research for a personal vehicle

1. ~~Lecture on Engine Construction~~

2. ~~Lab-based assignments~~

1. ~~Remove cylinder heads and check for specifications~~

3. ~~Text reading assignments~~

1. ~~Read Chapter One in text~~

Methods of Evaluating Student Progress

A. Exams/Tests

- 1. One midterm and one final exam
- B. Home Work
 - 1. Weekly
- C. Lab Activities
 - 1. Bi-weekly
- D. Quizzes
 - 1. Weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of AUTO A9, the student should be able to diagnose~~ Diagnose and repair diesel engine mechanical systems.
- B. ~~Upon completion of AUTO A9, the student should be able to diagnose~~ Diagnose and repair diesel turbo systems.
- C. ~~Upon Apply completion safety of in AUTO all A9; lab the student should be able to diagnose and repair electronic diesel system~~ conditions .

Textbooks (Typical):

Textbook:

- 1. James Heard Duffy Heavy 2025 Duty ASE Equipment Automotive Technology: A Systems Approach Suite . 1ed., Pearson Goodheart Wilcox , 2016 2027 .
- 2. Halderman Automotive Engines: Theory and Servicing. 9th 10 ed., Prentice Hall, 2018 2023 .
- 3. Halderman and Ward Light Vehicle Diesel Principals / Engine Engines . 1 ed., Pearson, 2019 2021 .

Other Materials Required of Students

Other Materials Required of Students:

- 1. Safety Glasses.

Equity Based Curriculum

- Measurable Objectives
 - Address
 - Industry-Standard evaluations will be used for lab work. _ Students being able to acquire industry certificates which are not held in high quantities by minorities. This will help them get a job .
- _ Methods of Instruction
 - Address _
 - The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
- _ Methods of Evaluation
 - Address _
 - The course materials and evaluations are based on industry standards.
- _ Typical Texts
 - Address _
 - The course materials and evaluations are based on industry standards .

Requisite Skills

Before entering this course, it is required that a student be able to:

- A. ~~AUTO NAUT INTR INTL~~
 - 1. Utilize and apply hazardous waste handling;
 - 2. Identify and describe uses of automotive related tools;
 - 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 4. Discuss four stroke engine cycle and identify engine parts;
 - 5. Perform basic engine teardown and reassembly;
 - 6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 7. Identify ~~different emissions transmissions components~~, understand 5 gas theory ;
 - 8. Theorize on the future of operation the of automotive both manual and automatic transmissions and fluid requirements; ~~industry.~~
- B. NAUT ~~INTR INT~~
 - 1. ~~Utilize and apply hazardous waste handling;~~
 - 2. Identify and describe uses of automotive related tools;
 - 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 4. Discuss four stroke engine cycle and identify engine parts;
 - 5. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 6. Identify ~~different emissions transmissions components~~, understand 5 gas theory ;
 - 7. Theorize on the future of operation the of automotive both manual and automatic transmissions and fluid requirements; ~~industry.~~
- C. AUTO INTL
 - 1. Utilize and apply hazardous waste handling;
 - 2. Identify and describe uses of automotive related tools;
 - 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 4. Discuss four stroke engine cycle and identify engine parts;
 - 5. Perform basic engine teardown and reassembly;
 - 6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 7. Identify ~~different emissions transmissions components~~, understand 5 gas theory ;
 - 8. Theorize on the future of operation the of automotive both manual and automatic transmissions and fluid requirements; ~~industry.~~
- D. AUTO ~~INTZ INT~~
 - 1. Identify and describe uses of automotive related tools;
 - 2. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 3. Discuss four stroke engine cycle and identify engine parts;

4. [Apply Ohm's law, read basic schematics, test automotive electrical systems;](#)
5. Identify [different emissions](#) [transmissions](#) [components](#), understand [5 gas](#) theory ;
6. [Theorize on the future](#) of [operation](#) [the](#) [of](#) [automotive](#) [both manual and automatic transmissions and fluid requirements;](#) [industry.](#)

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. **FO:** Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration:

[Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE \(our accreditation agency\) we must complete in-person labs. There are exceptions to this as we learned in C-19.](#)

Explain how the decision was made to offer this course in a Distance Education mode.

PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path. **FO:** Same as above

[California Automotive Teachers have given this recommendation to allow our students to continue on their career path.](#)

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly lab sessions
- **Other:**
Frequency: **PO:** Student interaction, fulfillment of SLO's and measurable objectives will be done **on campus in the labs;** weekly. **FO:** Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: **PO:** At least twice per semester **FO:** At least once every other week.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: **Fully online only:** Minimum weekly
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: **Fully** [Minimum](#) **online only once every other week** [weekly](#)

- **Other:**

Frequency: ~~PO: Students will interact during on-campus~~ Minimum weekly ~~-labs~~

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*

Frequency: ~~Fully online only:~~ Minimum weekly

- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*

Frequency: ~~PO and FO:~~ Quizzes: at least one quiz per section/chapter. Weekly. Exams: at least two per semester.

- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*

Frequency: ~~PO:~~ Minimum ~~At least once per week FO: At least once per week~~ weekly.

- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*

Frequency: ~~FO:~~ Minimum ~~Weekly~~ weekly.

- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*

Frequency: ~~PO:~~ Minimum ~~Weekly, in on-campus labs FO: Weekly recorded by student and completed using online software:~~ weekly

- **Other:**

Frequency: ~~Both PO and FO:~~ Homework ; assigned weekly

General Education/Transfer Request

General Education/Transfer Request

CSU Transfer

- Transfers to CSU

Codes and Dates

Course CB Codes

CB00: State ID

CCC000584345

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

B - Transferable to CSU only.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

[Y - Not Applicable, Credit course](#)

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Credit for Prior Learning

Credit for Prior Learning Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam ~~Yes~~ No

Credit-by-Portfolio ~~No~~ Yes

Please list the requirements/criteria/possible materials for a student to submit in their portfolio.

[Has Taken NAUT A9 with a C or better. P/NP does not qualify.](#)

Curriculum Committee Approval Date

Effective Term

Credit-by-Military-JST Yes

Please list the ACE course(s) equivalent to this course

[See Attached](#)

Curriculum Committee Approval Date

Effective Term

Credit-by-Industry-Recognized-Training Yes

Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses (including this one) for which a student will earn credit.

See attached

Curriculum Committee Approval Date

Additional Detail (List articulated courses, etc.) No

Please list the articulated courses. Also, we ask that you upload any relevant docs (e.g., exams) via Attached Files.

Curriculum Committee Approval Date

Effective Term

Curriculum Committee Approval Date

Effective Term

Course Modification: AUTO C1 - Automobile Service Consultant

Course Modification: AUTO C1 - Automobile Service Consultant (Launched - Implemented 09-27-2025)

compared with

AUTO C1 - Automobile Service Consultant (Active - Implemented 08-15-2020)

**Admin Outline for Automotive Technology C1
Automobile Service Consultant**

Effective: Fall ~~2020~~ 2026

Catalog Description:**AUTO C1 - Automobile Service Consultant****3.00 Units**

Automotive Service Consultant fundamentals including: Communications, customer service, legal documents, business interactions, billing, parts and labor guides, shop management applications, shop operations, sales, vehicle identification and systems operations. Course content is aligned with tasks identified by Automotive Service Excellence (ASE) certification. 3 Units Lecture

Course Grading: Optional

Lecture Hours	54
Inside of Class Hours	54
Outside of Class Hours	108

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- A. describe the role of the service consultant;
- B. demonstrate effective methods of communications utilizing verbal, written, and electronic means;
- C. demonstrate appropriate levels of professionalism in behavior, attire, and work ethic;
- D. perform visual vehicle inspection;
- E. generate and utilize repair orders in accordance with industry standards;
- F. properly utilize labor guides, parts guides to generate quotes;
- G. describe the basic operation of various vehicle systems in simple terms;
- H. locate and identify vehicle identification number and other relevant labels on the vehicle;
- I. describe Customer Service Index, and how it applies to the automotive service industry;
- J. compare and contrast different vehicle types of vehicle warranties;
- K. identify appropriate vehicle service intervals; perform billing calculations;
- L. identify service related positions and their duties in an automotive repair facility.

Course Content:

1. Lecture Topics:

1. Vehicle systems overview
2. Electronic management systems
3. Repair Orders
4. Labor guides
5. Parts guides
6. Professional writing
7. Communication skills
8. Career overview

9. Professionalism
10. Ongoing Education
11. Computer basics
12. Billing
13. Vehicle information
14. Basic Management
15. Warranty
16. Service Intervals
17. Customer Service
18. Visual inspection
19. Documentation Laboratory projects:
20. Locate vehicle information
21. Perform visual inspections
22. Generate RO's
23. Communications with technicians
24. Communications with customer
25. Estimate generation
26. Closing RO's
27. Professional Visit

Methods of Instruction:

1. Critique - Lab
2. Audio-visual Activity - Powerpoints, and Lab Demonstrations
3. Projects - Textbook assignments
4. ~~Classroom Activity—Lecture~~
5. Written Exercises - Vehicle writeups
6. Lecture - The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Typical Outside-of-Class Assignments

- A. Reading:
Read chapter on "The role of the service consultant."
- B. Other:
1. Complete review quiz at the end of chapter
 2. Complete - assignments using service information, lecture materials, and text
 3. ~~Read chapter on "The role of the service consultant."~~

Methods of Evaluating Student Progress

- A. Class Participation
1. daily
- B. Class Work
1. daily
- C. Exams/Tests
1. twice a semester
- D. Group Projects
1. one major per semester

- E. Home Work
 - 1. weekly
- F. Projects
 - 1. two per semester
- G. Quizzes
 - 1. once a week

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. Perform a visual Inspection of a vehicle
- B. Write a repair order to completion following the "Write it Right" book.
- C. [Use service information to research repairs.](#)

Textbooks (Typical):

Textbook:

- 1. [Ronald Gary Garner, C-William Garner LaRosa The Service Consultant Advising Working and in an Automotive Facility Management. 3 1 ed., Delmar CDX, 2016 2020.](#)
- 2. Andrew Rezin *Automotive Service Management*. 3 ed., Pearson, 2019.

Manual:

- 1. [Chris Craig. The Service Advisors Starter Guide .Online. 2023.](#)
- 2. Bureau of Automotive Repair . [Write it Right](#). <https://www.bar.ca.gov/pdf/writeitright.pdf>, 2015.

Other Materials Required of Students

Other Materials Required of Students:

- 1. Online Book Access to internet Subscription to Service Consultant Software (code purchased by student).

Equity Based Curriculum

- [. Methods of Instruction Address .](#)
[The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.](#)

Requisite Skills

DE Proposal

Delivery Methods

- [Fully Online \(FO\)](#)

Rationale for DE

Explain why this course should be offered in Distance Education mode.

[This class is a lecture only and aimed at working professionals.](#)

Explain how the decision was made to offer this course in a Distance Education mode.

~~One of the items in our Advisory Board meeting minutes is to write a Service Consultant class. This was fulfilled but has not been offered yet. One of the reasons it has not been offered is the concern that it would not fill as a F2F class. The next advisory board meeting many service managers and shop owners expressed interest in sending current employees. Service consultants normally work Monday through Friday 6am to 7pm. This does not leave any time to attend a class. It was decided by full time faculty to offer the class DE so that not only can our core automotive students attend but also people employed in the community and beyond. It was voted on May 15th advisory board meeting to make the class DE and also apply for DE.~~

[Working professionals can work at their own pace and complete the class in their free time not interfering with their work schedule.](#)

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)

- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- [The same standards of course quality identified in the course outline of record can be applied.](#)
- [The content identified in the course outline of record can be presented effectively and with the same degree of rigor.](#)
- [A student can achieve the same goals and objectives identified in the course outline of record.](#)
- [The same assignments in the course outline of record can be completed by the student and graded by the instructor.](#)
- [The same assessments and level of student accountability can be achieved.](#)

DE Course Interaction

Instructor-Student Interaction

- **Discussion board:** *The instructor will regularly participate in discussions that deal with academic content, will consistently provide substantive feedback, and will facilitate all discussions.*
Frequency: The instructor will [regularly participate in discussions that deal with academic content, will constantly provide substantive feedback, and will facilitate all of the discussions. For example, the instructor will monitor all the discussions and give 5-10 individual responses to discussion posts per week weekly.](#) These responses will include positive reinforcement comments and corrective responses.
- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: [The instructor will provide regular substantive, academic feedback to students on assignments and other assessments. Students will know why they deserved the grade they received and what they can do to improve.](#) For writing assignments and assessments, the instructor will utilize grading [rubric rubrics weekly](#), which are derived from ASE guidelines.
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: [Regular announcements that are academic in nature will be posted to the class. For example, the The](#) instructor will post at least one academic announcement per week. To a lesser extent, the instructor will post announcements include information on when assignments are due, changes in the syllabus, exam schedules, etc. [In addition to the announcements online Remind will be used.](#)
- **Chat:** *The instructor will use chat to interact with students, textually and/or graphically, in realtime.*
Frequency: The instructor will use [chat to interact with students, textually and/or graphically, in real-time. The instructor will use](#) a chatroom and/or Remind to conduct virtual office hours [weekly](#).

Student-Student Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: [Students will post to the discussion board in each module, answering questions posed by the instructor. They will also reply to each others' postings. An example assignment is "Explain in detail how you would handle a customer who has an issue with a vehicle that was not fixed right the first time."](#)
- - **Group work:** - *Students will work in teams to complete group projects. The projects will then be shared with the rest of the class.*
Frequency: - [Students will work in teams to complete a group project. This project will then be shared with the rest of the class in the discussion board. An example assignment is compare and contrast your partner and your place of work. What works well, what does not?" weekly](#)
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: [As an adjunct to the group discussion board, students will use the class chatroom to discuss their group project in real-time.](#)
- - **Peer editing/critiquing:** - *Students will complete peer editing assignments.*
Frequency: - [Students will edit each other's paper and give feedback in order to improve their writing. An example assignment is "Give one example each in good and poor customer service for another student." weekly](#)

Student-Content Interaction

- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: [Quizzes Exams: will twice be per used in each module to make sure students completed the assigned reading and understood it. These term quizzes will be "openbook", but the questions will be randomized so different students get different questions: weekly](#)
- **Practice quizzes, tests/exams:** *Practice quizzes will be given periodically throughout the course so students will be able to gauge their understanding of the content.*
Frequency: [Quizzes will be used in each module to make sure students completed the assigned reading and understood it. These quizzes will be "openbook", but the questions will be randomized so different students get different questions: weekly](#)
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: [Written lecture material will be divided into short, readable \("chunked"\) sections with links to subsequent pages, if necessary. For example, four mini-lectures, each with two short paragraphs per page, will be posted on the topic of maintenance requirement for the modern automobile: weekly](#)
- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*
Frequency: [Video will be used to demonstrate procedures and to help students visualize concepts. These clips increase the modalities of learning offered to students and meet the needs of those who learn best by seeing and hearing content.](#)
- - **Brainstorming:** - *Brainstorming will be used to promote creative thinking.*
Frequency: - [Brainstorming will be used to promote creative thinking via free association of ideas at the beginning of specific lessons. This will be done in the discussion board. An example of a brainstorming activity is "When dealing with warranty issues what are some ideas to help with the processing of claims."](#)
- - **Case studies:** - *Students will evaluate real-world problems, situations, etc.*
Frequency: - [Working in groups, students will evaluate real-world problems, situations, etc. They will then present their cases to the class in the discussion board for analysis. An example case study is "in the following paragraph a real interaction between a customer and SC. What are your first impressions? What did the SC do correct? What did they do wrong? How would you have handled the situation?"](#)
- - **Student presentations:** - *Students will prepare and present on a topic being studied.*
Frequency: - [Students will be divided into groups and assigned roles to "play" in a real-world situation. Each group will have its own discussion board, and students will "speak" by typing on behalf of their assigned role. This type of role-playing will be discussion-based. An example activity is "One group take the customer role and the other the SC role. The customer is irate and this is the third time back for the repair. Go!" weekly](#)

General Education/Transfer Request

General Education/Transfer Request

CSU Transfer

- Transfers to CSU

Codes and Dates

Course CB Codes

CB00: State ID

CCC000612016

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

B - Transferable to CSU only.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

[Y - Not Applicable, Credit course](#)

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: AUTO INTL - Introduction to Automotive Hands-On Lab

Course Modification: AUTO INTL - Introduction to Automotive Hands-On Lab (Launched - Implemented 09-22-2025)

compared with

AUTO INTL - Automotive Service and Introduction Hands-On Lab (Active - Implemented 08-15-2021)

Admin Outline for Automotive Technology INTL

Introduction to Automotive ~~Service and Introduction~~ Hands-On Lab

Effective: Fall ~~2021~~ 2026

Catalog Description:

AUTO INTL - Introduction to Automotive ~~Service and Introduction~~ Hands-On Lab

2.00 Units

This is the Lab section that can only be taken if you are also taking ~~INTZ~~ INT. Bumper-to-Bumper Automotive Knowledge. Starting with hazardous waste handling, tool identification, maintenance, and lubrication, moving into engine mechanical, emissions controls, suspension systems, air conditioning, airbags and safety, transmissions, axles, and finishing off with the future of the automotive industry. This is an introductory class for people who want to know more about their vehicle or who are planning an automotive career. This class is preparation for ASE G1.

~~Units Lecture~~ 2 Units Lab

Corequisite: AUTO ~~INTZ~~ INT This is the lab section and must be taken at the same time

Course Grading: Optional

Lecture Hours

Lab Hours 108

Inside of Class Hours 108

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Utilize and apply hazardous waste handling;
- B. Identify and describe uses of automotive related tools;
- C. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
- D. Discuss four stroke engine cycle and identify engine parts;
- E. Perform basic engine teardown and reassembly;
- F. Apply Ohm's law, read basic schematics, test automotive electrical systems;
- G. Identify emissions components, understand 5 gas theory;
- H. Discuss heating and cooling systems, perform basic cooling systems tests;
- I. Identify air conditioning systems, understand cycles of refrigerant;
- J. Discuss braking systems, perform a brake inspection, identify parts;
- K. Differentiate between suspension and steering system types, inspect and qualify components;
- L. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
- M. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
- N. Theorize on the future of the automotive industry.

Course Content:

Lab:

Lecture:

1. Safety and Handling of hazardous waste materials

1. Occupational Safety Health Administration (OSHA) Shop standards applied

2. Industry safety standards applied

3. Hazardous material Waste, handling: waste oil as well as other chemicals related to the automobile Materials

2. Tool Identification

1. Ratchets, Sockets, Wrenches, Screwdrivers
2. Torque Wrenches
3. Hammers, Pliers
4. Specialty Tools

3. Maintenance and inspection

1. Manufacturing recommendations
2. Periodic inspections for unusual conditions
3. Component failure inspections
4. Chassis lubrication
5. Engine oil changes
 1. On car application
6. Fluid inspection and service
 1. Leaks
 2. Power steering
 3. Transmission
 4. Axles
 5. Washer
 6. Coolant/Antifreeze
 7. On car application

4. Four stroke -Stroke Engine Cycle

1. Intake
2. Compression
3. Power
4. Exhaust
5. Timing
 1. Spark
 2. Camshaft

5. Gasoline Engine - Component Identification and Teardown

1. History of design and metallurgy of engines
2. Engine Block components
3. Cylinder Head components
4. Intake, Exhaust and other major bolt on components

6. Electrical Systems

1. Ohms law Theory
2. Electrical Schematic Icons and drawings
3. Battery Basics
4. Alternator/Generator Basics
5. Starter Motor Basics
6. Electrical Testing

1. Battery
 1. Theory
 2. On car application

2. Alternator
 1. Theory
 2. On car application

3. Starter
 1. Theory
 2. On car application

7. Emissions Systems

1. Parts Identification
2. Reading Emissions Labels
3. Smog Controls
 1. California and Federal Requirements
 2. History of the Smog Program
 3. Government and Manufacturer laws and regulations
4. Environmental Responsibilities

8. Heating and Cooling

1. History and current innovations of heating and cooling systems
2. Parts Identification
3. Heating operation
4. Heating Systems Testing
 1. On car application
5. Coolant Systems Testing
 1. On car application

9. Air Conditioning Systems

1. Environmental concerns
2. Parts Identification
3. On car Testing and inspection procedures and application

10. Braking systems

1. Base Systems
 1. Brake systems history and improvements through time
 2. Fluid differences and cautions
 3. Parts Identification
 4. On car inspection procedures
 5. Government and Manufacturer laws and regulations
 6. On car application
2. Antilock Systems
 1. Differences from base systems
 2. Parts Identification

11. Steering and Suspension Systems

1. Historical information and current technology
2. Steering
 1. Fluid usage current and historical
 2. Different steering systems
 3. Parts Identification
 4. On car inspection procedures and application
 5. Government and Manufacturer laws and regulations
3. Suspension
 1. Different suspension systems
 2. Parts Identification
 3. On car inspection procedures and application

12. Transmissions and Axles

1. History Safety of the transmission
2. Automatic Transmissions
 1. Fluid Requirements
 1. On Car fluid checking Restraints
 2. Gears sets
 3. Clutches Bands and Sprags
 4. Torque Converters

3. Manual Transmissions

1. Fluid Requirements
2. Clutch
3. Gears

4. Front and Rear Axles

1. Fluid Requirements
2. Ring Gear
3. Pinion Gear
4. Propshafts

5. Transfer Cases

1. Fluid Requirements
2. Electronic and Manual
3. Clutches
4. Gears

13. Safety Restraints

1. Seat Belts

1. Installation Concerns
2. Inspection and Replacement

2. Airbags

1. History of Airbags and current technology
2. Parts Identification

3. Inspection and Replacement

4. Airbag deployment demonstration

14. Automotive Industry Future

1. Environmental Concerns

2. Oil Supply Concerns

1. Middle East Stability
2. How much is left?

3. Electronic Integration

1. Computers
2. Steering
3. Braking

4. Parking
5. Heads up Displays
6. Navigation
7. Entertainment Systems
8. Communication Systems
9. Optical Systems

4. Alternative Fuels

1. CNG
2. Propane
3. Bio-Diesel
4. E85
5. Hydrogen

5. Hybrids

1. Gasoline/Electric
2. Diesel/Electric
3. Hydrogen/Electric

Methods of Instruction:

1. Lab - Student Hands-on laboratory activities and assignments should incorporate real-life experiences of diverse automotive technicians and encourage participation and universal learning.
2. Mockup parts from automobiles

Typical Outside-of-Class Assignments

A. ~~Other~~ Laboratory :

1. Apply lecture in lab by evaluating vehicles in lab setting
2. Evaluate and discuss Fluke 87 readings with class
3. Repair and confirm basic automotive maintenance issues

Methods of Evaluating Student Progress

- A. Class Participation
 1. Daily
- B. Class Work
 1. Daily
- C. Group Projects
 1. Weekly
- D. Lab Activities
 1. Weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~perform~~ Perform ~~and an~~ oil change with 100% accuracy.
- B. ~~recognize~~ Recognize and apply shop safety precautions .
- C. Test engine coolant .

Textbooks (Typical):

Textbook:

1. Tim Giles *Automotive Service: Inspection, Maintenance, Repair*. 6 ed., Cengage, ~~2019~~ 2020 .
2. James D Halderman *Automotive ~~Maintenance and Light Repair~~ Technology*. 6 ~~7~~ ed., Pearson, ~~2020~~ 2024 .
3. James Duffy *~~Modern~~ 2025 ASE Automotive ~~Technology Suite~~*. ~~9 ed.~~, Goodheart-Wilcox Publishing, ~~2017~~ 2025 .

Other Materials Required of Students

Other Materials Required of Students:

1. Safety glasses.

Equity Based Curriculum

- Methods of Instruction
Address Laboratory activities and assignments should incorporate real-life experiences of diverse automotive technicians and encourage participation and universal learning.
- Methods of Evaluation
Address The course materials and evaluations are based on industry standards.
- Typical Texts
Address The course materials and evaluations are based on industry standards.

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. There are exceptions to this as we learned in C-19.

Explain how the decision was made to offer this course in a Distance Education mode.

California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.

- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: *Weekly, as assignments or labs are turned in*
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: *Minimum Once per week*
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: *Minimum Once per week*
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: *Minimum Once per week*
- **Other:**
Frequency: *Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.*

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: *At least once every other week.*
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: *At least once every other week.*
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: *At least once every other week.*
- **Other:**
Frequency: *Students will interact during on-campus weekly labs*

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: *weekly*
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: *Exams: at least two per semester. Quizzes: at least one quiz per section/chapter. Weekly.*
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: *Weekly*
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: *Weekly*
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: *Weekly*
- **Other:**
Frequency: *Homework, assigned weekly*

General Education/Transfer Request

General Education/Transfer Request

CSU Transfer

- Transfers to CSU - Approved

Codes and Dates

Course CB Codes

CB00: State ID

CCC000621876

CB03: TOP Code

094800 - Automotive Technology

CIP Code

47.0604 - Automobile/Automotive Mechanics Technology/Technician.

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

B - Transferable to CSU only.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

Y - Not Applicable, Credit course

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Credit for Prior Learning

Credit for Prior Learning . Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam . No

Credit-by-Portfolio . Yes

Please list the requirements/criteria/possible materials for a student to submit in their portfolio. .

Two years of hands-on automotive work besides an oil change or tire establishment. This option will give credit for both INTL and INT.

or

Taken and passed NAUT INT with a C or better P/NP does not meet the qualifications.

or

ATECH 50 taken at Chabot within the last 5 years. This option will give credit for both INTL and INT.

Curriculum Committee Approval Date .

Effective Term .

Credit-by-Military-JST . No

Please list the ACE course(s) equivalent to this course .

Curriculum Committee Approval Date .

Effective Term .

Credit-by-Industry-Recognized-Training . Yes

Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses (including this one) for which a student will earn credit.

-

ASE G1 Test passed within the last 5 years.

Curriculum Committee Approval Date .

Additional Detail (List articulated courses, etc.) . No

Please list the articulated courses. Also, we ask that you upload any relevant docs (e.g., exams) via Attached Files. .

Curriculum Committee Approval Date .

Effective Term .

Curriculum Committee Approval Date .

Effective Term .

Course Modification: AUTO L1 - Advanced Engine Performance

Course Modification: AUTO L1 - Advanced Engine Performance (Launched - Implemented 09-27-2025)

compared with

AUTO L1 - Advanced Engine Performance (Active - Implemented 08-15-2021)

**Admin Outline for Automotive Technology L1
Advanced Engine Performance**
Effective: Fall ~~2021~~ 2026

Catalog Description:
AUTO L1 - Advanced Engine Performance
5.00 Units

Continuation of Automotive Technology A6 and A8 with an emphasis on diagnosis of electronic problems including computer controlled circuits/systems using schematics, diagnostic procedures and equipment. Students are strongly recommended to enroll in Automotive Lab concurrently.

3 Units Lecture 2 Units Lab

Prerequisite: AUTO A6 with a minimum grade of C, or NAUT A6 ~~with a minimum grade of C, or AUTO A8~~ with a minimum grade of C

Course Grading: Optional

Lecture Hours	54
Lab Hours	108
Inside of Class Hours	162
Outside of Class Hours	108

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Obtain and interpret scan tool data, retrieve and record stored On Board Diagnostics (OBD) diagnostic trouble codes, and other On Board controllers;
- B. Diagnose the causes of electrical failures or concerns resulting from malfunctions in the computerized control systems with or without diagnostic trouble codes;
- C. Chart, inspect and test computerized engine control system sensors, Powertrain control module (PCM), actuators, and circuits using a graphing multi-meter (DMM)/digital storage oscilloscope (DSO), and perform necessary action;
- D. Access and use service information to perform step-by-step diagnosis;
- E. Evaluate complex electrical system problems;
- F. Develop diagnostic paths using wiring schematics;
- G. Diagnose malfunctions of electronic control systems causing vehicle performance problems, and determine necessary action;
- H. Outline hazardous waste handling
- I. Maintain a clean professional environment.

Course Content:
Lab:
Lecture:

1. On Board computer scan data
2. Emission system diagnostics and testing
3. Diagnostic patterns, and scope readings
4. Ignition timing
5. "OPEN/CLOSED loop systems
6. Exhaust system evaluation
7. Emissions and performance
8. Adjustment of hydraulic and solid lifters

- 9. Dynamometer
- 10. Handling of hazardous waste materials
- 11. Professional environment

Lecture:

- 1. On Board computer scan data
 - 1. Retrieval of codes and data
 - 1. Flash codes
 - 2. Scanner codes
 - 2. Interpretation of information
 - 1. Factory set procedures
 - 2. Develop own diagnostic procedures
- 2. Emission system diagnostics and testing
 - 1. Perform flow chart testing, with codes, and without codes
 - 2. Evaluate exhaust gas emission smog test results
 - 3. Electronic pulse with modulation evaluation
- 3. Diagnostic patterns, and analyze scope readings
 - 1. Digital storage oscilloscope usage
 - 1. Scope connection
 - 2. Pattern interpretation
- 4. Diagnostic service information
 - 1. Access service information (electronic)
 - 1. Application of information
 - 2. Access service information (paper)
 - 1. Application of information
 - 3. Research labor time guides for work determined in diagnostics

5. Ignition timing

1. Inspection of adjustable systems

1. Proper operation of timing light
2. Follow factory procedures
3. Set timing to specifications

6. Explain theory and functionality of "OPEN/CLOSED loop systems

1. List theory of fuel flow delivery system in open loop status

1. Sensor contribution at operating temperatures

7. Exhaust system evaluation

1. Back pressure

1. Testing and diagnosis

2. Installation inspection

8. Emissions and performance

1. Explain impact of emissions system on vehicle performance

1. Diagnoses of power systems

9. Valve adjustments

1. Adjustment of hydraulic and solid lifters

10. Dynamometer

1. Set up and use of dynamometer
2. Safety procedures
3. List dynamic information obtained from testing (loaded mode)

11. Handling of hazardous waste materials

1. Storage and handling of gasoline
2. Storage and handling of diesel fuel

12. Professional environment

1. Safety glasses (clear lens) worn in all Laboratory areas
2. No loose clothing (coveralls strongly recommended)
3. Long Hair secured
4. No open toe shoes (safety shoes recommended)
5. Work areas maintained: clean free of debris and spills

Methods of Instruction:

1. Lab - Student Hands-on laboratory activities and assignments
2. Lecture – Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Typical Outside-of-Class Assignments

A. Reading:

Read Chapter One in text

B. Other :

:

Engine Construction research for a personal vehicle

1. ~~Lecture-based assignments~~

1. ~~Lecture on 5-gas chemistry~~

2. ~~Text-reading~~

1. ~~Read Chapter One~~

3. ~~Lab-based assignments-~~

1. ~~Perform 5-gas analysis on at least five vehicles~~

Methods of Evaluating Student Progress

A. Exams/Tests

1. Minimum 1 midterm and 1 final exam

B. Home Work

1. Weekly

C. Lab Activities

1. Weekly

D. Quizzes

1. At the instructors discretion

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of AUTO L1, the student should be able to apply~~ Apply emissions safety precautions.
- B. ~~Upon completion of AUTO L1, the student should be able to diagnose~~ Diagnose engine driveability problems using a scanner and multimeter .

- C. [Apply service manual procedures to the vehicle](#) .

Textbooks (Typical):

Textbook:

1. James Duffy [2025 ASE Automotive Maintenance Suite](#) . and [Goodheart Light Wilcox, Repair 2025](#).
2. [Michael Klyde, Advanced Automotive Engine Performance](#) . 7 1 ed., [Pearson CDX](#) , 2016:
3. ~~Barry Hollembeak, Automotive Fuels & Emissions Classroom Manual, 7 ed., Thomson Delmar Learning, 2017~~ [2021](#) .
4. Barry Hollembeak *Automotive Fuels & Emissions Shop Manual*. 7 ed., Thomson Delmar Learning, 2017.

Other Materials Required of Students

Other Materials Required of Students:

1. Safety glasses.

Equity Based Curriculum

- [Methods of Instruction](#)
[Address](#) .
[The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.](#)
- [Methods of Evaluation](#)
[Address](#) .
[The course materials and evaluations are based on industry standards.](#)
- [Typical Texts](#)
[Address](#) .
[The course materials and evaluations are based on industry standards.](#)

Requisite Skills

Before entering this course, it is required that a student be able to:

A. AUTO A6

1. [Diagnose and repair basic automotive battery, starting, charging systems;](#)
2. Use electrical test equipment for accurate diagnosis of electrical systems and sub-systems;
3. Use problem-solving skills to categorize systems faults in automotive circuits and make needed repairs;
4. Identify types of ignition systems;
5. Describe and evaluate fuel control circuits for proper operation;
6. Explain the fundamentals of electronic and electrical theories;
7. [Conduct circuit and wire repairs;](#)
8. [Demonstrate safe and appropriate hazardous material handling;](#)
9. Maintain a clean and professional environment.

B. NAUT A6

1. [Diagnose and repair basic automotive battery, starting, charging systems;](#)
2. Use electrical test equipment for accurate diagnosis of electrical systems and sub-systems;
3. Use problem-solving skills to categorize systems faults in automotive circuits and make needed repairs;
4. Identify types of ignition systems;
5. Describe and evaluate fuel control circuits for proper operation;
6. Explain the fundamentals of electronic and electrical theories;
7. ~~Maintain~~ [Conduct](#) ~~a clean~~ [circuit](#) and ~~professional environment~~;

C. ~~AUTO-A8~~

1. ~~Perform tests related to popular fuel systems used on current model cars;~~
2. ~~Perform tests related to popular ignition systems used on current model cars~~
3. ~~Formulate diagnostic patterns, and analyze gas readings to expedite proper~~ [wire](#) repairs
4. ~~Manipulate and use hand-held diagnostic test equipment ;~~
5. Demonstrate ~~proficient safe use and of appropriate diagnostic hazardous information material systems handling ;~~
6. Maintain a clean and professional environment.

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs.

FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.

Explain how the decision was made to offer this course in a Distance Education mode.

PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

FO: Same as above

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly lab sessions
- **Other:**
Frequency: PO: Student interaction, fulfillment of SLO's and measurable objectives will be done on campus in the labs, weekly. FO: Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: PO: At least twice per semester FO: At least once every other week.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: Fully online only; Minimum weekly
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Fully online only; once every other week
- **Other:**
Frequency: PO: Students will interact during on-campus weekly labs

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: Fully online only; weekly
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: PO and FO: Quizzes: at least one quiz per section/chapter. Weekly. Exams: at least two per semester.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: PO: At least once per week FO: At least once per week
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: FO: Weekly
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: PO: Weekly, in on-campus labs FO: Weekly recorded by student and completed using online software.
- **Other:**
Frequency: Both PO and FO: Homework, assigned weekly

General Education/Transfer Request

General Education/Transfer Request

CSU Transfer

- Transfers to CSU

Codes and Dates

Course CB Codes

CB00: State ID

CCC000584391

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

B - Transferable to CSU only.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

B - Advanced Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

[Y - Not Applicable, Credit course](#)

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Credit for Prior Learning

Credit for Prior Learning Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam **Yes** [No](#)

Credit-by-Portfolio **No** [Yes](#)

Please list the requirements/criteria/possible materials for a student to submit in their portfolio.

[Has taken NAUT L1 with a C or better. P/NP does not qualify.](#)

Curriculum Committee Approval Date

Effective Term

Credit-by-Military-JST **No** [Yes](#)

Please list the ACE course(s) equivalent to this course

[See Attached](#)

Curriculum Committee Approval Date

Effective Term

Credit-by-Industry-Recognized-Training Yes

Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses (including this one) for which a student will earn credit.

See attached

Curriculum Committee Approval Date

Additional Detail (List articulated courses, etc.) No

Please list the articulated courses. Also, we ask that you upload any relevant docs (e.g., exams) via Attached Files.

Curriculum Committee Approval Date

Effective Term

Curriculum Committee Approval Date

Effective Term

Course Modification: AUTO L3 - Light Duty Hybrid/Electric Vehicles

Course Modification: AUTO L3 - Light Duty Hybrid/Electric Vehicles (Launched - Implemented 09-27-2025)

compared with

AUTO L3 - Light Duty Hybrid/Electric Vehicles (Active - Implemented 07-26-2021)

**Admin Outline for Automotive Technology L3
Light Duty Hybrid/Electric Vehicles**
Effective: Fall ~~2021~~ 2026

Catalog Description:
AUTO L3 - Light Duty Hybrid/Electric Vehicles
4.00 Units

A study in the history, current and future of alternative fuels, hybrids and electric vehicles in the automotive industry. - Emphasis in shop safety, hazardous waste handling, high voltage electrical precautions, basic engine construction of hybrids, battery storage systems, fuel storage systems, compressed natural gas, liquid propane gas, bio-diesel and hydrogen cell technology. Students are strongly recommended to enroll in Automotive Lab concurrently.

2 Units Lecture 2 Units Lab

Prerequisite: ~~AUTO~~ ~~NAUT~~ ~~INTR~~ ~~INTL~~ with a minimum grade of C; ~~or~~ ~~and~~ ~~NAUT~~ ~~INTR~~ ~~INT~~ with a minimum grade of C, or AUTO INTL with a minimum grade of C and AUTO ~~INTR~~ ~~INT~~ with a minimum grade of C, INT and INTL may be taken concurrently.

Course Grading: Optional

Lecture Hours	36
Lab Hours	108
Inside of Class Hours	144
Outside of Class Hours	72

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- Describe the importance of shop safety relating to different alternative fuels
- Explain the importance of implementation of alternative fuels
- Identify and perform safety procedures in regards to the handling of alternative fuels and battery disposal
- Access and research service information stored on computer
- Specify and list the differences in alternative fuels
- Distinguish and compare the different Hybrid fuel systems
- Use critical thinking skills to explore the future of alternative fuels
- Maintain a clean and professional environment
- ~~{Distance Education} PO: It will be no problem to uphold the measurable objectives being partially online. In-person labs will allow this. FO: The software must be purchased by the college to allow the objectives to happen. This can be done last minute in an emergency situation. Once the lab software is setup by the instructor, students can complete the virtual labs and the measurable objective can be met. Software is used across the State and Country. ASE/ NATEF have allowed the use of this in extreme emergencies and must be applied for by program coordinator. Grants are available from the State to purchase.~~

Course Content:
Lab:

- Shop safety when dealing with alternative fuels.
 - ~~Proper attire:~~
 - ~~Manufacturer and Government~~
- Safety and Handling of alternative fuels and battery systems. Lab demonstration and Hands on competency
- Service information Lab use of Service Information

1. Access Computer based service information; Alldata, Mitchell on demand as well as Manufacturer information systems as available.

4. Automotive Alternative Fuels Systems. Lab : ~~Perper~~ Proper handling, demonstrations , and lab sheets

1. Ethanol systems and blends.
2. CNG systems and blends.
3. LPG systems and blends.
4. Bio-Diesel systems and blends.
5. Electrical motor and solar systems.

1. Lead acid
2. Ni-Cd
3. Ni-Mh
4. Lit-Ion
5. Lit-Ion gel

6. Hydrogen Cell systems

5. Hybrid Fuel Systems.

1. On car and Simulator labs

6. Professional environment

1. ~~Safety glasses (Clear lenses) worn in all Laboratory areas:~~
2. ~~No loose clothing (Coveralls strongly recommended):~~
3. ~~Long Hair secured:~~
4. ~~No open toe shoes (safety shoes recommended):~~
5. ~~Work areas maintained; clean free of debris and spills:~~

Lecture:

1. Shop safety when dealing with alternative fuels.

1. Proper attire.

1. Manufacturer and Government

2. Fire Hazards, what to do and how to respond.

3. Cautionary Colors

1. Under 50 Volts
2. 50 to 100 Volts
3. Over 100 Volts.

2. Alternative Fuel Government regulations and implementation.

1. History and future of Alternative Fuel regulations.
2. Laws, domestic and international governing alternative fuels.
3. Gasoline supply and pricing.

1. How much is left?
2. Middle east Stability
3. OPEC

4. Fueling station availability.

1. Gasoline
2. Bio-Diesel
3. CNG
4. LPG
5. Propane

3. Safety and Handling of alternative fuels and battery systems.

1. Occupational Safety Health Administration (OSHA) Shop standards applied.
2. Flash points of different fuels.
3. Hazardous material handling; CNG, LPG, Bio-Diesel, Batteries, Hydrogen cell, as well as other chemicals related to the automobile and alternative fuels.

4. Service information.

1. Access Computer based service information; Alldata, Mitchell on demand as well as Manufacturer information systems as available.

5. Automotive Alternative Fuels Systems.

1. Ethanol systems and blends.
 1. Major Manufacturing Changes
 2. Effects on internal engine components
 3. Effects on fueling systems
2. CNG systems and blends.

1. Major Manufacturing Changes
2. Effects on internal engine components
3. Effects on fueling systems

3. LPG systems and blends.

1. Major Manufacturing Changes
2. Effects on internal engine components
3. Effects on fueling systems

4. Bio-Diesel systems and blends.

1. Major Manufacturing Changes
2. Effects on internal engine components
3. Effects on fueling systems

5. Electrical motor and solar systems.

1. Motor Technology Challenges
2. Solar Technology Challenges
3. Battery Technology Challenges

1. Lead acid
2. Ni-Cd
3. Ni-Mh
4. Lit-Ion
5. Lit-Ion gel
6. Coming Technology

6. Hydrogen Cell systems

1. Hydrogen Technology Challenges
2. Hydrogen Supply and rendering

6. Hybrid Fuel Systems.

1. Gasoline-Electric systems.
2. Gasoline-CNG systems.

3. Gasoline-LPG systems.

7. Future of Alternative Fuels systems.

1. Advances in Technology.
2. What's next?
3. Challenges new fuels have.

8. Professional environment

1. Safety glasses (Clear lenses) worn in all Laboratory areas.
2. No loose clothing (Coveralls strongly recommended).
3. Long Hair secured.
4. No open toe shoes (safety shoes recommended).
5. Work areas maintained; clean free of debris and spills.

Methods of Instruction:

1. Lecture - Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
2. Discussion - Group discussions.
3. Lab - Student Hands-on laboratory activities and assignments.
4. Audio-visual Activity - 1. PowerPoint presentations. 2. Mockup parts from automobile.

Typical Outside-of-Class Assignments

A. ~~Other:~~

Reading:
Read Chapter One in text

A. ~~Lecture based assignments-~~

Research:
Engine Construction research for a personal vehicle

1. ~~Lecture on PPE~~

2. ~~Text based assignments~~

1. ~~Read Chapter One~~

3. ~~Lab assignments~~

1. ~~Perform High voltage disabling~~

Methods of Evaluating Student Progress

A. Class Participation

1. Daily

B. Exams/Tests

1. At least twice per semester

C. Home Work

1. Weekly

- D. Quizzes
1. Weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~perform~~ Perform hybrid safety precautions with 100% accuracy.
- B. ~~perform~~ Perform the hybrid battery disconnect procedure .
- C. Use service information to perform a HV battery disconnect .

Textbooks (Typical):

Textbook:

1. Tom Denton and Hayley Pell. *Electric and Hybrid Vehicles*. 3 ed., Routledge, 2024.
2. James Duffy. *2025 ASE Automotive Suite*. , Goodheart Wilcox, 2025.
3. Tim Gilles *Automotive Service : Inspection, Maintenance, Repair* . 5 ~~6~~ ed., Cengage, ~~2016~~ 2020 .
4. James ~~Duffy~~ D Halderman ~~Modern~~ *Automotive Technology*. 9 ~~7~~ ed., ~~Goodheart-Wilcox~~ Pearson , ~~2018~~ 2024 .

Other Materials Required of Students

Other Materials Required of Students:

1. Safety glasses.

Equity Based Curriculum

- Methods of Evaluation
Address .
The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Requisite Skills

Before entering this course, it is required that a student be able to:

- A. ~~AUTO~~ NAUT ~~INTR~~ INTL
 1. Utilize and apply hazardous waste handling ;
 2. Identify and describe uses of automotive related tools;
 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 4. Discuss four stroke engine cycle and identify engine parts;
 5. Perform basic engine teardown and reassembly;
 6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 7. Identify emissions components, understand 5 gas theory;
 8. Discuss heating and cooling systems, perform basic cooling systems tests;
 9. Identify air conditioning systems, understand cycles of refrigerant;
 10. Discuss braking systems, perform a brake inspection, identify parts;
 11. Differentiate between suspension and steering system types, inspect and qualify components;
 12. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
 13. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
 14. Theorize on the future of the automotive industry.
- B. NAUT INT
 1. Identify and describe uses of automotive related tools;
 2. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile ;
 3. Discuss four stroke engine cycle and identify engine parts;
 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 5. Identify emissions components, understand 5 gas theory;
 6. Discuss heating and cooling systems, perform basic cooling systems tests;
 7. Identify air conditioning systems, understand cycles of refrigerant;
 8. Discuss braking systems, perform a brake inspection, identify parts;
 9. Differentiate between suspension and steering system types, inspect and qualify components;
 10. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
 11. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
 12. Theorize on the future of the automotive industry.
- C. ~~NAUT~~ AUTO ~~INTR~~ INTL
 1. Utilize and apply hazardous waste handling ;
 2. Identify and describe uses of automotive related tools;
 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 4. Discuss four stroke engine cycle and identify engine parts;
 5. Perform basic engine teardown and reassembly;
 6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 7. Identify emissions components, understand 5 gas theory;
 8. Discuss heating and cooling systems, perform basic cooling systems tests;
 9. Identify air conditioning systems, understand cycles of refrigerant;
 10. Discuss braking systems, perform a brake inspection, identify parts;
 11. Differentiate between suspension and steering system types, inspect and qualify components;
 12. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;

13. [Restraints system identification, know safety concerns of each system and inspection of restraint systems;](#)
14. [Theorize on the future of the automotive industry.](#)

D. [AUTO INT](#)

1. [Identify and describe uses of automotive related tools;](#)
2. [Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile ;](#)
3. Discuss four stroke engine cycle and identify engine parts;
4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
5. Identify emissions components, understand 5 gas theory;
6. Discuss heating and cooling systems, perform basic cooling systems tests;
7. [Restraints Identify system air identification conditioning systems , know understand safety concerns cycles of each system and inspection of restraint systems;](#)
8. [Theorize on the future of the automotive industry;](#)

E. [AUTO-INTL](#)

1. [Utilize and apply hazardous waste handling refrigerant ;](#)
2. Discuss [four stroke engine cycle and identify engine parts;](#)
3. [Apply Ohm's law, read basic schematics, test automotive electrical systems;](#)
4. [Identify emissions components, understand 5 gas theory;](#)
5. [Discuss heating and cooling braking systems, perform basic a cooling brake systems tests;](#)
6. [Restraints system identification inspection , know safety concerns of each system and inspection of restraint systems;](#)
7. [Theorize on the future of the automotive industry;](#)

F. [AUTO-INTZ](#)

1. [Discuss four stroke engine cycle and identify engine parts;](#)
2. [Apply Differentiate Ohm's between law suspension and steering system types , read inspect basic and schematics; qualify test automotive electrical systems components ;](#)
3. Identify [emissions different components transmissions](#), understand [5 theory gas of theory;](#)
4. [Discuss operation heating of both manual and cooling automatic systems; transmissions perform and basic fluid cooling systems tests requirements ;](#)
5. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
6. Theorize on the future of the automotive industry.

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs.

FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.

Explain how the decision was made to offer this course in a Distance Education mode.

PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

FO: Same as above.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in.
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week.
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week.
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly lab sessions.
- **Other:**
Frequency: PO: Student interaction, fulfillment of SLO's and measurable objectives will be done on campus in the labs, weekly. - FO: Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: PO: At least twice per semester. FO: At least once every other week.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: Fully online only: Minimum weekly.
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Fully online only: once every other week.
- **Other:**
Frequency: PO: Students will interact during on-campus weekly labs.

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: Fully online only: weekly.
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: ~~PO and FO:~~ Quizzes: at least one quiz per section/chapter. Weekly. Exams: at least two per semester.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: ~~PO: At least once per week. FO:~~ At least once per week.
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: FO: Weekly
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: PO: Weekly, in on-campus labs. FO: Weekly recorded by student and completed using online software.
- **Other:**
Frequency: Homework: ~~Both~~ ~~PO and FO:~~ ~~Assigned~~ assigned weekly.

General Education/Transfer Request

General Education/Transfer Request

CSU Transfer

- Transfers to CSU

Codes and Dates

Course CB Codes

CB00: State ID

CCC000503387

CB03: TOP Code

094840 - Alternative Fuels and Advanced Transportation Technology

CIP Code

47.0614 - Alternative Fuel Vehicle Technology/Technician.

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

B - Transferable to CSU only.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

B - Advanced Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

Y - Not Applicable, Credit course

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Credit for Prior Learning

Credit for Prior Learning Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam ~~Yes~~ No

Credit-by-Portfolio ~~No~~ Yes

Please list the requirements/criteria/possible materials for a student to submit in their portfolio.

Has taken NAUT L3 with a C or better. P/NP does not qualify.

Curriculum Committee Approval Date

Effective Term

Credit-by-Military-JST ~~No~~ Yes

Please list the ACE course(s) equivalent to this course

See attached

Curriculum Committee Approval Date

Effective Term

Credit-by-Industry-Recognized-Training Yes

Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses (including this one) for which a student will earn credit.

See attached

Curriculum Committee Approval Date

Additional Detail (List articulated courses, etc.) No

Please list the articulated courses. Also, we ask that you upload any relevant docs (e.g., exams) via Attached Files.

Curriculum Committee Approval Date

Effective Term

Curriculum Committee Approval Date

Effective Term

Course Modification: AUTO LABA - Beginning Automotive Lab

Course Modification: AUTO LABA - Beginning Automotive Lab (Launched - Implemented 09-27-2025)

compared with

AUTO LABA - Automotive Lab (Active - Implemented 08-15-2021)

Admin Outline for Automotive Technology LABA

Beginning Automotive Lab

Effective: Fall ~~2021~~ 2026

Catalog Description:

AUTO LABA - Beginning Automotive Lab

2.00 Units

Beginning Automotive Lab is an open laboratory class for basic automotive students. This class is for students desiring to expand their hands-on experience using their own vehicle.

~~instructor~~ The instructor will provide technical and supervisory support to guide students in the completion of their self - initiated projects. Service information via computer service manuals will be available for students to use for vehicle information and research.

~~0 Units Lecture~~ 2 Units Lab

Prerequisite: ~~AUTO NAUT INTR INTL~~ with a minimum grade of C; ~~or and~~ NAUT ~~INTR INT~~ with a minimum grade of C, or AUTO INTL with a minimum grade of C and AUTO ~~INTZ INT~~ with a minimum grade of C, INT and INTL may be taken concurrently.

Course Grading: Optional

Lecture Hours

Lab Hours 108

Inside of Class Hours 108

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Apply and Maintain a Safe work environment
 1. Practice proper vehicle lifting techniques
 2. Practice correct tool usage
 3. Analyze and categorize hazardous waste disposal
- B. Demonstrate a good example of professionalism in the work place
 1. Use proper judgement when working with peers
 2. Evaluate and apply instructions while working under a shop foreman (Instructor/head student)
 3. Judge when to ask for help or guidance
- C. Revise hands-on experience to further their career in the automotive field
- D. Construct and adapt critical thinking skills to diagnose and repair vehicles
 1. Measure and create time and labor estimates using Alldata and Shopkey.

Course Content:

Lab:

Lecture:

1. Shop safety and Handling of hazardous waste materials

1. Occupational Safety Health Administration (OSHA) Shop standards applied

2. Industry safety standards applied

3. Hazardous material handling; waste oil, as well as other chemicals related to the automobile

2. Professional environment

1. Safety glasses (Clear lenses) worn in all Laboratory areas
2. No loose clothing (Coveralls strongly recommended)
3. Long hair secured
4. No open toe shoes (safety shoes recommended)
5. Work areas maintained: clean free of debris and spills
6. Working with and next to other students in a shop environment

3. Hands-on experience

1. Using hand tools and diagnostic equipment to repair vehicles for example

1. Proper repair of intake manifold leak
2. Replacement of air conditioning compressor
3. Brake pad/shoe service
4. Diagnosis of Service Engine Soon Light using scanner
5. Evaluation of computer data stream using scanner

4. Critical Thinking

1. Reading diagnostic equipment and interpreting data
2. Readingshop Reading shop manual information and applying technical reading to repairing vehicles

5. Receiving Receiving guidance from other students

6. Using Alldata to find and apply time and labor guides for estimates

Methods of Instruction:

1. ~~Observation~~
2. Lab - Safety Presentation and Laboratory assignment, Collaborative lab projects and exercises, Individual lab projects and exercises, Individual Learning Contract ,The assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Typical Outside-of-Class Assignments

A. ~~Other~~ Laboratory :

1. Collaborative Learning

1. Safety Test

1. Perform Safety Test
2. Overview of Safety test with correct answers and explanation of answers
3. Laboratory tour and assignment, showing exits, evacuation plan, fire extinguishers, MSDS location, and location of shop equipment

2. Individual Learning Contract

1. What does the student wish to accomplish?
2. Are the units taken sufficient to complete the project(s)?

Methods of Evaluating Student Progress

- A. Class Participation
 - 1. daily
- B. Exams/Tests

~~1. Safety Test~~

1. Safety Test at least once per semester

- C. Group Projects
 - 1. weekly
- D. Lab Activities
 - 1. daily

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~apply~~ Apply safety in all lab conditions.
- B. ~~work~~ Work autonomously in a shop environment.
- C. Use shopkey to create job estimate

Textbooks (Typical):

~~Textbook: -~~

- 1. ~~Chris Johanson- Auto Heating and Air Conditioning: -4 ed., Goodheart-Wilcox, 2015.~~
- 2. ~~James Halderman- ASE Test Preparation and Study Guide: -2 ed., Pearson, 2017.~~
- 3. ~~Tim Gilles- Automotive Service: Inspection and Maintenance: -6 ed., Cengage, 2020.~~

Software:

- 1. Alldata. Alldata, (Current/e).

Other Materials Required of Students

Other Materials Required of Students:

- 1. Safety Glasses.

Equity Based Curriculum

- Methods of Instruction
Address

The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Requisite Skills

Before entering this course, it is required that a student be able to:

- A. ~~AUTO~~ NAUT ~~INTR~~ INTL
 - 1. Utilize and apply hazardous waste handling;
 - 2. Identify and describe uses of automotive related tools;
 - 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile ;
 - 4. Discuss four stroke engine cycle and identify engine parts;
 - 5. Perform basic engine teardown and reassembly ;
 - 6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 7. Identify emissions components, understand 5 gas theory;
 - 8. Discuss heating and cooling systems, perform basic cooling systems tests;
 - 9. Identify air conditioning systems, understand cycles of refrigerant;
 - 10. Discuss braking systems, perform a brake inspection, identify parts;
 - 11. Differentiate between suspension and steering system types, inspect and qualify components;
 - 12. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
 - 13. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
 - 14. Theorize on the future of the automotive industry.
- B. NAUT ~~INTR~~
 - 1. ~~Utilize and apply hazardous waste handling;~~
 - 2. ~~Identify and describe uses of automotive related tools;~~
 - 3. ~~Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;~~
 - 4. ~~Apply Ohm's law, read basic schematics, test automotive electrical systems;~~
 - 5. ~~Identify emissions components, understand 5 gas theory;~~
 - 6. ~~Discuss heating and cooling systems, perform basic cooling systems tests;~~
 - 7. ~~Identify air conditioning systems, understand cycles of refrigerant;~~
 - 8. ~~Discuss braking systems, perform a brake inspection, identify parts;~~

9. Differentiate between suspension and steering system types, inspect and qualify components;
 10. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
 11. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
- C. AUTO-INTL
1. Utilize and apply hazardous waste handling;
 2. Identify and describe uses of automotive related tools;
 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 5. Identify emissions components, understand 5 gas theory;
 6. Discuss heating and cooling systems, perform basic cooling systems tests;
 7. Identify air conditioning systems, understand cycles of refrigerant;
 8. Discuss braking systems, perform a brake inspection, identify parts;
 9. Differentiate between suspension and steering system types, inspect and qualify components;
 10. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
 11. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
- D. AUTO-INTZ INT
1. Identify and describe uses of automotive related tools;
 2. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 3. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 4. Identify emissions components, understand 5 gas theory;
 5. Discuss heating and cooling systems, perform basic cooling systems tests;
 6. Identify air conditioning systems, understand cycles of refrigerant;
 7. Discuss braking systems, perform a brake inspection, identify parts;
 8. Differentiate between suspension and steering system types, inspect and qualify components;
 9. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
 10. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
 11. Theorize on the future of the automotive industry.
- E. AUTO-INTL
1. Utilize and apply hazardous waste handling;
 2. Identify and describe uses of automotive related tools;
 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 4. Discuss four stroke engine cycle and identify engine parts;
 5. Perform basic engine teardown and reassembly;
 6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 7. Identify emissions components, understand 5 gas theory;
 8. Discuss heating and cooling systems, perform basic cooling systems tests;
 9. Identify air conditioning systems, understand cycles of refrigerant;
 10. Discuss braking systems, perform a brake inspection, identify parts;
 11. Differentiate between suspension and steering system types, inspect and qualify components;
 12. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
 13. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
 14. Theorize on the future of the automotive industry.
- F. AUTO-INT
1. Identify and describe uses of automotive related tools;
 2. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 3. Discuss four stroke engine cycle and identify engine parts;
 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 5. Identify emissions components, understand 5 gas theory;
 6. Discuss heating and cooling systems, perform basic cooling systems tests;
 7. Discuss braking systems, perform a brake inspection, identify parts;
 8. Differentiate between suspension and steering system types, inspect and qualify components;
 9. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
 10. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
 11. Theorize on the future of the automotive industry.

DE Proposal

Delivery Methods

- Fully Online (FO)
- Partially Online

Rationale for DE

Explain why this course should be offered in Distance Education mode.

PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs.

FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.

Explain how the decision was made to offer this course in a Distance Education mode.

PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

FO: Same as above.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.

- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in.
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week.
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week.
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly lab sessions.
- **Other:**
Frequency: PO: Student interaction, fulfillment of SLO's and measurable objectives will be done on campus in the labs, weekly. FO: Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: PO: At least twice per semester. FO: At least once every other week.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: Fully online only: Minimum weekly.
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Fully online only: once every other week.
- **Other:**
Frequency: PO: Students will interact during on-campus weekly labs.

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: Fully online only: weekly.
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Safety test, once per semester.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: ~~PO: At least once per week.~~ FO: At least once per week.
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: FO: Weekly.
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: PO: Weekly, in on-campus labs. FO: Weekly recorded by student and completed using online software.
- **Other:**
Frequency: Homework ~~:Both PO and FO:~~ assigned weekly.

General Education/Transfer Request

General Education/Transfer Request

CSU Transfer

- Transfers to CSU

Codes and Dates

Course CB Codes

CB00: State ID

CCC000510286

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

[Y - Not Applicable, Credit course](#)

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: AUTO LABB - Advanced Automotive Lab

Course Modification: AUTO LABB - Advanced Automotive Lab (Launched - Implemented 09-27-2025)

compared with

AUTO LABB - Automotive Lab Advanced (Active - Implemented 08-15-2021)

Admin Outline for Automotive Technology LABB

Advanced Automotive Lab ~~Advanced~~

Effective: Fall ~~2021~~ 2026

Catalog Description:

AUTO LABB - Advanced Automotive Lab ~~Advanced~~

2.00 Units

Advanced Automotive Lab ~~Advanced~~ is an open laboratory class for advanced automotive students. This class is for students desiring to expand their hands-on experience using their own vehicle. ~~Instructor~~ The instructor will provide technical and supervisory support to guide students in the completion of their self - initiated projects. Students are expected to help others in class and be able to work without guidance. Service information via computer service manuals will be available for students to use for vehicle information and research.

~~Class~~ The class is recommended for second year students only.

~~0 Units Lecture~~ 2 Units Lab

Prerequisite: AUTO LABA with a minimum grade of C, or NAUT ~~LABA~~ LAB with a minimum grade of C. ~~AUTO INTR with a minimum grade of C, or NAUT INTR with a minimum grade of C, or AUTO INTL with a minimum grade of C and AUTO INTZ with a minimum grade of C~~

Course Grading: Optional

~~Lecture Hours~~

Lab Hours 108

Inside of Class Hours 108

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Apply and maintain a safe work environment
 1. Practice proper vehicle lifting techniques
 2. Practice correct tool usage
 3. Analyze and categorize hazardous waste disposal
- B. Demonstrate a good example of professionalism in the work place
 1. Use proper judgement when working with peers
 2. Evaluate and apply instructions while working under a shop foreman (Instructor/lead student)
 3. Judge when to ask for help or guidance
- C. Revise hands-on experience to further their career in the automotive field
- D. Construct and adapt critical thinking skills to diagnose and repair vehicles
- E. Measure and create time and labor estimates using Alldata and Shopkey.

Course Content:

Lab:

Lecture:

1. Shop safety and Handling of hazardous waste materials

1. Occupational Safety Health Administration (OSHA) Shop standards applied

2. Industry safety standards applied

3. Hazardous material handling; waste oil, as well as other chemicals related to the automobile

2. Professional environment

1. Safety glasses (Clear lenses) worn in all Laboratory areas
2. No loose clothing (Coveralls strongly recommended).
3. Long hair secured
4. No open toe shoes (safety shoes recommended).
5. Work areas maintained: clean free of debris and spills
6. Working with and next to other students in a shop environment

3. Hands-on experience

1. Using hand tools and diagnostic equipment to repair vehicles for example
 1. Proper repair of intake manifold leak
 2. Replacement of air conditioning compressor
 3. Brake pad/shoe service
 4. Diagnosis of Service Engine Soon Light using scanner
 5. Evaluation of computer data stream using scanner

4. Critical Thinking

1. Reading diagnostic equipment and interpreting data
2. Reading shop manual information and applying technical reading to repairing vehicles

5. Providing guidance to other students

6. Ability to work without help from others

7. Using Alldata to find and apply time and labor guides for estimates

Methods of Instruction:

1. ~~Observation~~
2. Lab - Safety Presentation and Laboratory assignment, Collaborative lab projects and exercises, Individual lab projects and exercises, Individual Learning Contract

Typical Outside-of-Class Assignments

A. Other:

1. Collaborative Learning

1. Safety Test

1. Perform Safety Test
2. Overview of Safety test with correct answers and explanation of answers :
3. Laboratory tour and assignment, showing exits, evacuation plan, fire extinguishers, MSDS location, and location of shop equipment :

2. Individual Learning Contract

1. What does the student wish to accomplish?
2. Are the units taken sufficient to complete the project(s)?

Methods of Evaluating Student Progress

- A. Class Participation
 1. daily
- B. Exams/Tests
 1. Safety at beginning of semester Comprehensive Final
- C. Group Projects
 1. Weekly
- D. Lab Activities
 1. daily

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~apply~~ **Apply** all safety precautions.
- B. ~~Ucomplete~~ **Complete** hands on lab sessions with no instructor supervision necessary .
- C. **Apply service manual procedures to the vehicle** .

Textbooks (Typical):

~~Textbook~~ **Software** :

1. ~~Tim Alldata~~ . ~~Giles Automotive Service Inspection and Maintenance: -6 ed.~~ **Alldata** , ~~Cengage, 2020:~~
2. ~~James-Duffy Modern Automotive Technology: -9 ed.,~~ Goodheart-Wilcox, 2017:
3. ~~- Auto Heating and Air Conditioning: -4 ed.,~~ Goodheart-Wilcox, 2015 **(Online/e)** .

Other Materials Required of Students

Other Materials Required of Students:

1. Safety Glasses.

Equity Based Curriculum

- **Methods of Instruction**
Address **Methods of instruction provide diverse ways to meet needs of different learning styles.**

Requisite Skills

Before entering this course, it is required that a student be able to:

- A. AUTO LABA
 1. Apply and Maintain a Safe work environment
 2. Practice proper vehicle lifting techniques
 3. Practice correct tool usage
 4. Analyze and categorize hazardous waste disposal
 5. Demonstrate a good example of professionalism in the work place
 6. Use proper judgement when working with peers
 7. Evaluate and apply instructions while working under a shop foreman (Instructor/head student)
 8. Judge when to ask for help or guidance
 9. Revise hands-on experience to further their career in the automotive field
 10. Construct and adapt critical thinking skills to diagnose and repair vehicles
 11. Measure and create time and labor estimates using Alldata and Shopkey.
- B. NAUT ~~LABA~~ **LAB**
 1. Apply and Maintain a Safe work environment
 2. Practice proper vehicle lifting techniques
 3. ~~Practice correct tool usage~~
 4. Analyze and categorize hazardous waste disposal
 5. **Practice correct tool usage**
 6. Demonstrate a good example of professionalism in the work place
 7. Use proper judgement when working with peers
 8. Evaluate and apply instructions while working under a shop foreman (Instructor/head student)
 9. Judge when to ask for help or guidance
 10. Revise hands-on experience to further their career in the automotive field
 11. Construct and adapt critical thinking skills to diagnose and repair vehicles
 12. Measure and create time and labor estimates using Alldata and Shopkey.
- C. ~~AUTO-INTR~~
 1. ~~Utilize and apply hazardous waste handling;~~
 2. ~~Identify and describe uses of automotive related tools;~~

3. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 4. Identify emissions components, understand 5 gas theory;
 5. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
- D. **NAUT-INTR**
1. Utilize and apply hazardous waste handling;
 2. Identify and describe uses of automotive related tools;
 3. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 4. Identify emissions components, understand 5 gas theory;
 5. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
- E. **AUTO-INTL**
1. Utilize and apply hazardous waste handling;
 2. Identify and describe uses of automotive related tools;
 3. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 4. Identify emissions components, understand 5 gas theory;
 5. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
- F. **AUTO-INTZ**
1. Identify and describe uses of automotive related tools;
 2. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 3. Identify emissions components, understand 5 gas theory;
 4. Restraints system identification, know safety concerns of each system and inspection of restraint systems;

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs.

FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.

Explain how the decision was made to offer this course in a Distance Education mode.

PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

FO: Same as above.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in.
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week.
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week.

- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly lab sessions.
- **Other:**
Frequency: PO: Student interaction, fulfillment of SLO's and measurable objectives will be done on campus in the labs, weekly. FO: Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: PO: At least twice per semester. FO: At least once every other week.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: Fully online only: Minimum weekly.
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Fully online only: once every other week.
- **Other:**
Frequency: PO: Students will interact during on-campus weekly labs.

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: Fully online only: weekly.
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: 2 per semester (safety test and comprehensive final).
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: ~~PO: At least once per week.~~ ~~FO: At least once per week.~~ At least once per week.
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: FO: Weekly.
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: PO: Weekly, in on-campus labs. FO: Weekly recorded by student and completed using online software.
- **Other:**
Frequency: Homework: ~~Both PO and FO:~~ assigned weekly.

General Education/Transfer Request

General Education/Transfer Request

CSU Transfer

- Transfers to CSU

Codes and Dates

Course CB Codes

CB00: State ID

CCC000584335

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

B - Transferable to CSU only.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

[Y - Not Applicable, Credit course](#)

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status
N - Course is not a support course
CB27: Upper Division Status

Course Modification: AUTO LABC - Specialized Bench Work Automotive Lab

Course Modification: AUTO LABC - Specialized Bench Work Automotive Lab (Launched - Implemented 09-27-2025)

compared with

AUTO LABC - Automotive Lab Specialized Bench Work (Active - Implemented 08-17-2022)

Admin Outline for Automotive Technology LABC

~~Automotive Lab~~ Specialized Bench Work Automotive Lab

Effective: ~~Summer~~ Fall ~~2022~~ 2026

Catalog Description:

AUTO LABC - ~~Automotive Lab~~ Specialized Bench Work Automotive Lab

2.00 Units

Automotive Lab Specialized Bench Work is an open laboratory class for automotive students. This class is for students desiring to expand their hands-on experience using shop equipment. This class specializes in rebuilding automotive parts. The instructor will provide technical and supervisory support to guide students in the completion of their self-initiated projects. Service information via computer service manuals will be available for students to use for vehicle information and research. Class is recommended for second year students only.

~~0 Units Lecture~~ 2 Units Lab

Prerequisite: AUTO ~~INTR~~ LABA with a minimum grade of C, or NAUT ~~INTR with a minimum grade of C, or AUTO INTL with a minimum grade of c and AUTO INTZ~~ LAB with a minimum grade of C

Course Grading: Optional

Lecture Hours

Lab Hours 108

Inside of Class Hours 108

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Apply and maintain a safe work environment
 1. Practice proper vehicle lifting techniques
 2. Practice correct tool usage
 3. Analyze and categorize hazardous waste disposal
 4. Use proper judgement when working with peers
 5. Judge when to ask for help or guidance
- B. Demonstrate a good example of professionalism in the work place
- C. Revise hands-on experience to further their career in the automotive field
- D. Construct and adapt critical thinking skills to diagnose and repair vehicles
- E. Measure and create time and labor estimates using Alldata and Shopkey.
- F. Evaluate bench rebuilds.

Course Content:

Lab:

Lecture:

1. Shop safety and Handling of hazardous waste materials

1. Occupational Safety Health Administration (OSHA) Shop standards applied

2. Industry safety standards applied

3. Hazardous material handling; waste oil, as well as other chemicals related to the automobile

2. Professional environment

1. Safety glasses (Clear lenses) worn in all Laboratory areas
2. No loose clothing (Coveralls strongly recommended)
3. Long hair secured
4. No open toe shoes (safety shoes recommended)
5. Work areas maintained: clean free of debris and spills
6. Working with and next to other students in a shop environment

3. Hands-on experience

1. Using hand tools and diagnostic equipment to repair vehicles for example

1. Proper mounting of bench work
2. Follow service information for tear down
3. Follow service information for measurement
4. Follow service information for qualifying
5. Follow service information for rebuild

4. Critical Thinking

1. Reading measurement instruments and interpreting
2. Reading shop manual information and applying technical reading to repairing vehicles

5. Follow unit repair guides.

6. Bench qualify repairs

7. Compare cost analysis.

8. Receiving guidance from other students

9. Using Alldata to find and apply time and labor guides for estimates

Methods of Instruction:

1. ~~Observation~~
2. Lab - Safety Presentation and Laboratory assignment, Collaborative lab projects and exercises, Individual lab projects and exercises, Individual Learning Contract

Typical Outside-of-Class Assignments

A. ~~Other~~ Laboratory :

1. ~~Collaborative Learning~~
 1. ~~Safety Test~~
 2. Perform Safety Test
 3. Overview of Safety test with correct answers and explanation of answers.
 4. Laboratory tour and assignment, showing exits, evacuation plan, fire extinguishers, MSDS location, and location of shop equipment.

B. Project:

1. Individual Learning Contract

1. What does the student wish to accomplish?

1. List Bench rebuild activities

2. ~~Are the units taken sufficient to complete the project(s)?~~

Methods of Evaluating Student Progress

- A. Class Participation
 1. daily
- B. Exams/Tests
 1. Safety at beginning of semester Comprehensive Final
- C. Group Projects
 1. Weekly
- D. Lab Activities
 1. daily

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~apply~~ Apply all safety precautions.
- B. ~~complete~~ Complete hands on lab sessions with no instructor supervision necessary .
- C. Apply service manual procedures to the vehicle .

Textbooks (Typical):

~~Textbook: -~~

1. ~~Tim Giles- Automotive Service: Inspection and Maintenance: -6 ed., Cengage, 2020-~~
2. ~~James Duffy- Modern Automotive Technology: -10 ed., Goodheart-Wilcox, 2021-~~

Software:

1. Alldata. Alldata, (Current/e).
2. Shopkey. Shopkey, (Current/e).

Other Materials Required of Students

Other Materials Required of Students:

1. Safety Glasses.

Equity Based Curriculum

- Methods of Instruction
Address
Industry-Standard Methods evaluations of will instruction be provide used diverse for ways lab to work meet needs of different learning styles . .

Requisite Skills

Before entering this course, it is required that a student be able to:

- A. AUTO ~~INTR~~ LABA
 1. ~~Utilize~~ Apply and Maintain a Safe work environment
 2. Practice proper vehicle lifting techniques
 3. Practice correct tool usage
 4. Analyze and categorize hazardous waste disposal
 5. Demonstrate a good example of professionalism in the work place
 6. Use proper judgement when working with peers
 7. Evaluate and apply ~~hazardous instructions waste while handling;~~ working under a shop foreman (Instructor/head student)
 8. ~~Identify~~ Judge when to ask for help or guidance
 9. Revise hands-on experience to further their career in the automotive field
 10. Construct and ~~describe adapt uses critical of thinking automotive skills related to tools;~~ diagnose and repair vehicles
 11. Measure and create time and labor estimates using Alldata and Shopkey.
- B. NAUT ~~INTR~~ LAB
 1. ~~Utilize~~ Apply and Maintain a Safe work environment
 2. Practice proper vehicle lifting techniques
 3. Analyze and categorize hazardous waste disposal
 4. Practice correct tool usage
 5. Demonstrate a good example of professionalism in the work place
 6. Use proper judgement when working with peers
 7. Evaluate and apply ~~hazardous instructions waste while handling;~~ working under a shop foreman (Instructor/head student)
 8. ~~Identify~~ Judge when to ask for help or guidance
 9. Revise hands-on experience to further their career in the automotive field
 10. Construct and ~~describe adapt uses critical of thinking automotive skills related to tools;~~
- C. AUTO-INTL
 1. ~~Utilize~~ diagnose and ~~apply repair hazardous waste handling;~~ vehicles
 2. ~~Identify~~ Measure and ~~describe create uses of automotive related tools;~~
- D. AUTO-INTZ
 1. ~~Identify~~ time and ~~describe labor uses estimates of using automotive Alldata related and tools;~~ Shopkey.

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.

Explain how the decision was made to offer this course in a Distance Education mode.

PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path. FO: Same as above.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: *Weekly, as assignments or labs are turned in.*
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: *Minimum Once per week.*
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: *Minimum Once per week.*

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: *PO: At least twice per semester. FO: At least once every other week.*
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: *Minimum weekly.*

- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: *Minimum weekly.*

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: *Minimum weekly.*
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: *Safety test, once per semester.*
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: *At least once per week.*
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: *PO: Weekly, in on-campus labs. EO: Weekly recorded by student and completed using online software.*
- **Other:**
Frequency: *Homework assigned weekly.*

General Education/Transfer Request

General Education/Transfer Request

CSU Transfer

- Transfers to CSU - Approved

Codes and Dates

Course CB Codes

CB00: State ID

CCC000629989

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

B - Transferable to CSU only.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

[Y - Not Applicable, Credit course](#)

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

2 - Not Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: AUTO LABD - Specialized Electronic Work Automotive Lab

Course Modification: AUTO LABD - Specialized Electronic Work Automotive Lab (Launched - Implemented 09-27-2025)

compared with

AUTO LABD - Automotive Lab Specialized Electronic Work (Active - Implemented 08-17-2022)

Admin Outline for Automotive Technology LABD

~~Automotive Lab~~ Specialized Electronic Work Automotive LabEffective: ~~Summer~~ Fall ~~2022~~ 2026

Catalog Description:

AUTO LABD - ~~Automotive Lab~~ Specialized Electronic Work Automotive Lab

2.00 Units

Automotive Lab Specialized Electronic Work is an open laboratory class for automotive students. This class is for students desiring to expand their hands-on experience using shop equipment. This class specializes in electronics work. This includes accessories, EV, hybrid, and aftermarket electrical. The instructor will provide technical and supervisory support to guide students in the completion of their self-initiated projects. Service information via computer service manuals will be available for students to use for vehicle information and research.

~~0 Units Lecture~~ 2 Units Lab

Prerequisite: AUTO ~~INTR~~ LABA with a minimum grade of C, or NAUT ~~INTR with a minimum grade of C, or AUTO INTL with a minimum grade of c and AUTO INTZ~~ LAB with a minimum grade of C

Course Grading: Optional

Lecture Hours

Lab Hours 108

Inside of Class Hours 108

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Apply and maintain a safe work environment
 1. Practice proper vehicle lifting techniques
 2. Practice correct tool usage
 3. Analyze and categorize hazardous waste disposal
 4. Use proper judgement when working with peers
 5. Judge when to ask for help or guidance
- B. Demonstrate a good example of professionalism in the work place
- C. Revise hands-on experience to further their career in the automotive field
- D. Construct and adapt critical thinking skills to diagnose and repair vehicles
- E. Measure and create time and labor estimates using Alldata and Shopkey.
- F. Evaluate electrical hazards.
- G. Use ohms law to calculate volts, amps, ohms or watts.
- H. Judge best practices when installing aftermarket accessories.

Course Content:

Lab:Lecture:

1. Shop safety and Handling of hazardous waste materials

1. Occupational Safety Health Administration (OSHA) Shop standards applied

2. Industry safety standards applied

3. Hazardous material handling; waste oil, as well as other chemicals related to the automobile

2. Professional environment

1. Safety glasses (Clear lenses) worn in all Laboratory areas
2. No loose clothing (Coveralls strongly recommended)
3. Long hair secured
4. No open toe shoes (safety shoes recommended)
5. Work areas maintained: clean free of debris and spills
6. Working with and next to other students in a shop environment

3. Hands-on experience

1. Using hand tools and diagnostic equipment to repair vehicles for example

1. Proper mounting of bench work

1. Meter Follow . usage service information for tear down
2. Scope Follow . usage service information for measurement
3. PPE Follow . usage service information for qualifying
4. Follow service information for rebuild

2. Critical Thinking

1. Reading measurement instruments and interpreting
2. Reading shop manual information and applying technical reading to repairing vehicles
3. Follow factory unit . installation repair guides
4. Complete Bench . hybrid qualify . safety assessments repairs
5. Compare cost analysis
6. Receiving guidance from other students
7. Using Alldata to find and apply time and labor guides for estimates

Methods of Instruction:

1. Observation
2. Lab - Safety Presentation and Laboratory assignment, Collaborative lab projects and exercises, Individual lab projects and exercises, Individual Learning Contract

Typical Outside-of-Class Assignments

A. ~~Other~~ Laboratory :

1. ~~Collaborative Learning~~

1. ~~Safety Test~~
2. Perform Safety Test
3. Overview of Safety test with correct answers and explanation of answers.
4. Laboratory tour and assignment, showing exits, evacuation plan, fire extinguishers, MSDS location, and location of shop equipment.

B. Project:

1. Individual Learning Contract

1. What does the student wish to accomplish?

1. List electrical activities
2. Highlight high safety activities

3. ~~Are the units taken sufficient to complete the project(s)?~~

Methods of Evaluating Student Progress

- A. Class Participation
 1. daily
- B. Exams/Tests
 1. Safety at beginning of semester Comprehensive Final
- C. Group Projects
 1. Weekly
- D. Lab Activities
 1. daily

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~apply~~ Apply all safety precautions.
- B. ~~complete~~ Complete hands on lab sessions with no instructor supervision necessary .
- C. Apply service manual procedures to vehicle .

Textbooks (Typical):

~~Textbook: -~~

1. ~~Tim Giles- Automotive Service/Inspection and Maintenance: -6 ed., Cengage, 2020-~~
2. ~~James Duffy- Modern Automotive Technology: -10 ed., Goodheart-Wilcox, 2021-~~

Software:

1. ~~Alldata~~. Alldata, (Current/e).
2. ~~Shopkey~~. Shopkey, (Current/e).

Other Materials Required of Students

Other Materials Required of Students:

1. Safety Glasses.

Equity Based Curriculum

- Methods of Instruction
- Address
 1. ~~Industry-Standard~~ Methods evaluations of will instruction be provide used diverse for ways lab to work meet needs of different learning styles . .

Requisite Skills

Before entering this course, it is required that a student be able to:

- A. AUTO ~~INTR~~ LABA
 1. ~~Utilize~~ Apply and Maintain a Safe work environment
 2. Practice proper vehicle lifting techniques
 3. Practice correct tool usage
 4. Analyze and categorize hazardous waste disposal
 5. Demonstrate a good example of professionalism in the work place
 6. Use proper judgement when working with peers
 7. Evaluate and apply ~~hazardous~~ instructions ~~waste~~ while ~~handling;~~ working under a shop foreman (Instructor/head student)
 8. ~~Identify~~ Judge when to ask for help or guidance
 9. Revise hands-on experience to further their career in the automotive field
 10. Construct and ~~describe~~ adapt uses critical of thinking automotive skills related to tools; diagnose and repair vehicles
 11. Measure and create time and labor estimates using Alldata and Shopkey.
- B. NAUT ~~INTR~~ LAB
 1. ~~Utilize~~ Apply and Maintain a Safe work environment
 2. Practice proper vehicle lifting techniques
 3. Analyze and categorize hazardous waste disposal
 4. Practice correct tool usage
 5. Demonstrate a good example of professionalism in the work place
 6. Use proper judgement when working with peers
 7. Evaluate and apply ~~hazardous~~ instructions ~~waste~~ while ~~handling;~~ working under a shop foreman (Instructor/head student)
 8. ~~Identify~~ Judge when to ask for help or guidance

9. Revise hands-on experience to further their career in the automotive field
 10. Construct and describe adapt uses critical of thinking automotive skills related to tools;
- C. **AUTO-INTL**
1. Utilize diagnose and apply repair hazardous-waste-handling; vehicles
 2. Identify Measure and describe create uses-of-automotive-related tools;
- D. **AUTO-INTZ**
1. Identify time and describe labor uses estimates of using automotive Alldata related and tools; Shopkey.

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.

Explain how the decision was made to offer this course in a Distance Education mode.

PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path. FO: Same as above.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.
Frequency: Weekly, as assignments or labs are turned in.
- **Announcements:** Regular announcements that are academic in nature will be posted to the class.
Frequency: Minimum Once per week.

- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: *Minimum Once per week.*

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: *PO: At least twice per semester. FO: At least once every other week.*
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: *Minimum weekly.*
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: *Minimum weekly.*

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: *Minimum weekly.*
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: *Safety test, once per semester.*
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: *At least once per week.*
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: *PO: Weekly, in on-campus labs. FO: Weekly recorded by student and completed using online software.*
- **Other:**
Frequency: *Weekly homework*

General Education/Transfer Request

General Education/Transfer Request

CSU Transfer

- Transfers to CSU - Approved

Codes and Dates

Course CB Codes

CB00: State ID

CCC000629988

CB03: TOP Code

094800 - Automotive Technology

CIP Code

47.0604 - Automobile/Automotive Mechanics Technology/Technician.

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

B - Transferable to CSU only.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

Y - Not Applicable, Credit course

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

2 - Not Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: AUTO P1 - Powertrains: Modifications for Performance

Course Modification: AUTO P1 - Powertrains: Modifications for Performance (Launched - Implemented 09-27-2025)

compared with

AUTO P1 - Powertrains: Modifications for Performance (Active - Implemented 08-15-2021)

**Admin Outline for Automotive Technology P1
Powertrains: Modifications for Performance**

Effective: Fall ~~2021~~ 2026

Catalog Description:
AUTO P1 - Powertrains: Modifications for Performance
4.00 Units

An in-depth study of engine and transmission modifications made in order to improve performance. This class will explain the differences in laws governing vehicles in all fifty states including those registered in California; how to improve performance legally; and the penalties of breaking the law. Students will learn to calculate the benefit versus cost of bolt-on performance products and major engine or transmission modifications. NOTE: Some modifications are intended for off-road applications only. Students are encouraged to enroll in Automotive Lab concurrently.

3 Units Lecture 1 Units Lab

Prerequisite: ~~AUTO~~ ~~NAUT~~ ~~INTR~~ ~~INTL~~ with a minimum grade of C ; ~~or~~ ~~and~~ NAUT ~~INTR~~ ~~INT~~ with a minimum grade of C, or AUTO INTL with a minimum grade of C and AUTO ~~INTZ~~ ~~INT~~ with a minimum grade of C.

Course Grading: Optional

Lecture Hours	54
Lab Hours	54
Inside of Class Hours	108
Outside of Class Hours	108

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Demonstrate the basic safety procedures of handling hazardous waste materials.
- B. Operate a wide variety of precision measurement equipment.
- C. Explain four cycle engine theory and identify key components involved.
- D. Teardown typical engine assembly.
- E. Make measurements of engine components and compare to specifications.
- F. Explain the difference between 49 and 50 state legal.
- G. Interpret the Law as it applies to a personal vehicle and modification.
- H. Theorize possible horsepower outcomes for modifications.
 - I. Compare and Contrast Bolt-on Modifications.
 - J. Perform Major Powertrain Modifications.
 - K. Demonstrate Professionalism.

Course Content:
Lab:

1. Measurement ~~tools~~
 1. ~~Hands~~ ~~tool~~ ~~on-use-of-all-measurement-tools-in-course-content~~ ~~usage~~
2. Engine Teardown and rebuilding
3. Horsepower and Torque Measurement with Dynamometer
4. Bolt on Modifications
5. Major Powertrain modifications lab performance

6. Professionalism

1. ~~Safety glasses~~
2. ~~Working shop expectations~~
3. ~~Attitude~~
4. ~~Cleanliness~~
5. ~~Maintenance of work areas and tools~~

Lecture:

1. Safety

1. Tool usage and nomenclature
2. Proper disposal procedures
3. Environmentally conscious decisions

2. Measurement tools

1. Micrometer
 1. Vernier
 2. Caliper
2. Dial bore gauge
3. Snap gauges
4. Straight edge
5. Feeler gauges
6. Hole gauges

3. Four cycle engine theory

1. Intake, compression, power, exhaust
 1. 360 degrees in one degree intervals
 2. Valve overlap
 3. Timing concerns and tricks
 4. Street vs. racing
2. DOHV vs. OHV vs. Valve in block design
 1. Pros and cons of each
 2. Current technology

3. Key Valve train components
4. Key bottom end components
5. Camshaft timing

1. Static camshaft
2. Dynamic camshaft
3. Electronic valves

6. Crankshaft design and balance
7. Cylinder head design

1. Single valve
2. Multiple valve

4. Engine Teardown

1. Removal and identification of external components

1. Special procedures
2. Loosening sequence

2. Removal and identification of internal components

1. Special Procedures
1. Loosening sequence

5. Component measurement

1. Specification lookup
2. Comparison

1. Component diagnosis
1. Failure analysis

6. Modification Laws

1. Federal Standards
2. California Standards

7. Federal and California Statutes regarding punishment

1. Fines and Jail time
2. Environmental impact

8. Horsepower and Torque

1. Horse Power calculations

1. Curve Maps
2. Slope versus Incline

2. Torque Calculations

1. Curve Maps
2. Slope versus Incline

3. Changes from modifications

9. Bolt on Modifications

1. Removal and identification of factory parts

1. Special procedures
2. Specific design flaws and challenges

2. Installation and identification of modification parts

1. Special procedures
2. Specific design and challenges

10. Major Powertrain modifications

1. Cost versus gain
2. Comparison

1. Component diagnosis
2. Manufacturing Process

11. Professionalism

1. Safety glasses
2. Working shop expectations
3. Attitude
4. Cleanliness
5. Maintenance of work areas and tools

Methods of Instruction:

1. Demonstration [- Group and individual lab demo activities](#)
2. Discussion [- Group and individual discussion board activities](#)
3. Guest Lecturers [- Group and individual lecture activities](#)
4. Lecture
5. ~~Student Presentations~~ [- Group and individual lecture activities. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.](#)
6. Lab - Group and individual laboratory activities

Typical Outside-of-Class Assignments

A. ~~Other:~~

[Reading:](#)
[Read Chapter One in text](#)

A. ~~Lecture-based assignments~~

[Research:](#)
[Engine Construction research for a personal vehicle](#)

1. ~~Lecture on State of California Smog laws regarding modifications~~

2. ~~Text-based assignments~~

1. ~~Read Chapter One~~

3. ~~Current event based assignments~~

1. ~~The BAR just passed a ruling pertaining to (example). Discuss in class how this effects performance modifications~~

4. ~~Lab Based assignments~~

1. ~~Dyno test for HP and torque for baseline readings~~

Methods of Evaluating Student Progress

A. Exams/Tests

1. twice a semester

B. Lab Activities

~~1. Daily~~

1. Daily hands on component required. Lab Safety Demonstrated

C. Quizzes

1. Weekly

D. ~~Hands on component 100% needed 100% Lab Safety Demonstrated Daily~~

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. Determine the proper way to modify an exhaust system and stay within the legal limits of emissions and noise.
- B. Use powertrain data gathered from a dyno test to determine fuel mixture.
- C. Follow proper safety standards in lab.

Textbooks (Typical):

Textbook:

- 1. Allan Bonnick Routledge. Automotive Powertrain Science and Technology. Routledge, 2020.
- 2. ISBN-13: 978-1932494426 *Engine Management: Advanced Tuning*. 1 ed., Cartech, 2018.
- 3. ISBN-13: 978-1557884886 *Street Turbocharging HP1488: Design, Fabrication, Installation, and Tuning of...* 1 ed., HPBooks, 2017.

Software:

- 1. HP TUNERS , HP Tuners. (Current/Online/e).
- 2. Alldata. Alldata, (Current/Online/e).
- 3. Shopkeypro. Snapon, (Current/Online/e).

Other Materials Required of Students

Other Materials Required of Students:

- 1. Closed Toes Shoes. .
- 2. Safety Glasses.

Equity Based Curriculum

- Course Content
Address .
Group and individual lecture activities. Discuss nomenclature used in the automotive industry and its effects on different groups.
- Methods of Instruction
Address .
The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
- Methods of Evaluation
Address .
The course materials and evaluations are based on industry standards.
- Typical Texts
Address .
The course materials and evaluations are based on industry standards.

Requisite Skills

Before entering this course, it is required that a student be able to:

- A. ~~AUTO~~ ~~NAUT~~ ~~INTR~~ ~~INTL~~
 - 1. Utilize and apply hazardous waste handling;
 - 2. Identify and describe uses of automotive related tools;
 - 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 4. Discuss four stroke engine cycle and identify engine parts;
 - 5. Perform basic engine teardown and reassembly;
 - 6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 7. Identify emissions components, understand 5 gas theory;
 - 8. Discuss ~~braking~~ ~~heating and cooling~~ systems, perform ~~a basic brake cooling~~ ~~inspection~~ ~~systems~~ ~~identify parts~~;
 - 9. ~~Differentiate between suspension and steering system types; inspect and qualify components~~ ~~tests~~ ;
 - 10. Identify ~~different air~~ ~~transmissions~~ ~~conditioning systems~~ , understand ~~theory~~ ~~cycles~~ of ~~operation of both manual and automatic transmissions and fluid requirements~~;
- B. ~~NAUT~~ ~~INTR~~
 - 1. ~~Utilize and apply hazardous waste handling~~;
 - 2. ~~Identify and describe uses of automotive related tools~~;
 - 3. ~~Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile~~;
 - 4. ~~Discuss four stroke engine cycle and identify engine parts~~;
 - 5. ~~Perform basic engine teardown and reassembly~~;
 - 6. ~~Apply Ohm's law, read basic schematics, test automotive electrical systems~~;
 - 7. ~~Identify emissions components, understand 5 gas theory~~ ~~refrigerant~~ ;
 - 8. Discuss braking systems, perform a brake inspection, identify parts;
 - 9. Differentiate between suspension and steering system types, inspect and qualify components;

10. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
11. [Restraints system identification, know safety concerns of each system and inspection of restraint systems;](#)
12. [Theorize on the future of the automotive industry.](#)

C. NAUT INT

1. [Identify and describe uses of automotive related tools;](#)
2. [Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;](#)
3. [Discuss four stroke engine cycle and identify engine parts;](#)
4. [Apply Ohm's law, read basic schematics, test automotive electrical systems;](#)
5. [Identify emissions components, understand 5 gas theory;](#)
6. [Discuss heating and cooling systems, perform basic cooling systems tests;](#)
7. [Identify air conditioning systems, understand cycles of refrigerant;](#)
8. [Discuss braking systems, perform a brake inspection, identify parts;](#)
9. [Differentiate between suspension and steering system types, inspect and qualify components;](#)
10. [Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;](#)
11. [Restraints system identification, know safety concerns of each system and inspection of restraint systems;](#)
12. [Theorize on the future of the automotive industry.](#)

D. AUTO INTL

1. Utilize and apply hazardous waste handling;
2. Identify and describe uses of automotive related tools;
3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
4. Discuss four stroke engine cycle and identify engine parts;
5. Perform basic engine teardown and reassembly;
6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
7. Identify emissions components, understand 5 gas theory;
8. Discuss [heating and cooling systems, perform basic cooling systems tests;](#)
9. [Identify air conditioning systems, understand cycles of refrigerant;](#)
10. [Discuss](#), braking systems, perform a brake inspection, identify parts;
11. Differentiate between suspension and steering system types, inspect and qualify components;
12. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
13. [Restraints system identification, know safety concerns of each system and inspection of restraint systems;](#)
14. [Theorize on the future of the automotive industry.](#)

E. AUTO ~~INTL~~ INT

1. Identify and describe uses of automotive related tools;
2. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
3. Discuss four stroke engine cycle and identify engine parts;
4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
5. Identify emissions components, understand 5 gas theory;
6. Discuss [heating and cooling systems, perform basic cooling systems tests;](#)
7. [Identify air conditioning systems, understand cycles of refrigerant;](#)
8. [Discuss](#), braking systems, perform a brake inspection, identify parts;
9. Differentiate between suspension and steering system types, inspect and qualify components;
10. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
11. [Restraints system identification, know safety concerns of each system and inspection of restraint systems;](#)
12. [Theorize on the future of the automotive industry.](#)

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.

Explain how the decision was made to offer this course in a Distance Education mode.

PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path. FO: Same as above.

Accessibility:

- [Closed captioning for videos.](#)
- [Transcription for audio.](#)
- [Alt-text/ tags for images.](#)

- [Utilizing headers/styles for text formatting to make web pages accessible for screen readers.](#)
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- [Formatting and coding to make tables accessible for screen readers.](#)
- [Exploratory links.](#)
- [Proper color contrast.](#)
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- [The same standards of course quality identified in the course outline of record can be applied.](#)
- [The content identified in the course outline of record can be presented effectively and with the same degree of rigor.](#)
- [A student can achieve the same goals and objectives identified in the course outline of record.](#)
- [The same assignments in the course outline of record can be completed by the student and graded by the instructor.](#)
- [The same assessments and level of student accountability can be achieved.](#)

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** . *The instructor will provide regular substantive academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: . *Weekly, as assignments or labs are turned in.*
- **Announcements:** . *Regular announcements that are academic in nature will be posted to the class.*
Frequency: . *Minimum Once per week.*
- **Web conferencing:** . *The instructor will use web conferencing to interact with students in real time.*
Frequency: . *Minimum Once per week.*
- **Face-to-face meetings (partially online courses only):** . *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: . *Weekly lab sessions.*
- **Other:** .
Frequency: . *PO: Student interaction, fulfillment of SLO's and measurable objectives will be done on campus in the labs, weekly. FO: Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.*

Student-Student Interaction

- **Email:** . *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: . *PO: At least twice per semester. FO: At least once every other week.*
- **Class discussion board:** . *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: . *Minimum weekly.*
- **Chat:** . *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: . *Minimum weekly.*
- **Other:** .
Frequency: . *Students will interact during on-campus weekly labs.*

Student-Content Interaction

- **Class discussion board:** . *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: . *Minimum weekly.*
- **Quizzes, tests/exams:** . *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: . *Quizzes: at least one quiz per section/chapter. Weekly. Exams: at least two per semester.*
- **Lecture:** . *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: . *At least once per week.*
- **Simulations:** . *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: . *At least once per week.*
- **Projects:** . *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: . *PO: Weekly, in on-campus labs. FO: Weekly recorded by student and completed using online software.*
- **Other:** .
Frequency: . *Homework is assigned weekly.*

General Education/Transfer Request

General Education/Transfer Request

CSU Transfer

- Transfers to CSU

Codes and Dates

Course CB Codes

CB00: State ID

CCC000599275

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

B - Transferable to CSU only.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

[Y - Not Applicable, Credit course](#)

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

[Credit for Prior Learning](#)

[Credit for Prior Learning](#) . [Yes](#)

[Please select the method\(s\) of credit for prior learning that students can use to earn credit for this course at Las Positas College.](#)

[Credit-by-Exam](#) . [No](#)

[Credit-by-Portfolio](#) . [Yes](#)

[Please list the requirements/criteria/possible materials for a student to submit in their portfolio.](#) .

[Has Taken NAUT P1 with a C or better. P/NP does not qualify.](#)

[Curriculum Committee Approval Date](#) .

[Effective Term](#) .

[Credit-by-Military-JST](#) . [Yes](#)

[Please list the ACE course\(s\) equivalent to this course](#) .

[See Attached](#)

[Curriculum Committee Approval Date](#) .

[Effective Term](#) .

[Credit-by-Industry-Recognized-Training](#) . [Yes](#)

[Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses \(including this one\) for which a student will earn credit.](#)

-

[See Attached](#)

[Curriculum Committee Approval Date](#) .

[Additional Detail \(List articulated courses, etc.\)](#) . [No](#)

[Please list the articulated courses. Also, we ask that you upload any relevant docs \(e.g., exams\) via Attached Files.](#) .

[Curriculum Committee Approval Date](#) .

[Effective Term](#) .

[Curriculum Committee Approval Date](#) .

[Effective Term](#) .

Course Modification: AUTO SDR - Specified Diagnostic and Repair

Course Modification: AUTO SDR - Specified Diagnostic and Repair (Launched - Implemented 09-24-2025)

compared with

AUTO SDR - Specified Diagnostic and Repair (Active - Implemented 03-14-2025)

**Admin Outline for Automotive Technology SDR
Specified Diagnostic and Repair**

Effective: Fall ~~2020~~ 2026

Catalog Description:
AUTO SDR - Specified Diagnostic and Repair
5.00 Units

This is a Bureau of Automotive Repair approved alternative to the ASE A6, A8 and L1 certification required for obtaining and maintaining smog technician licenses. This course will follow BAR guidelines for smog license prep. Student may or may not qualify for license exam after taking this class. For more information see www.smogcheck.ca.gov

4 Units Lecture 1 Units Lab

Course Grading: Optional

Lecture Hours	72
Lab Hours	54
Inside of Class Hours	126
Outside of Class Hours	144

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Explain and apply fuel management theory, testing, and diagnosis including computerized controls;
- B. Explain and apply ignition theory, testing and diagnosis including use of an ignition scope and diagnosis of emissions problems caused by the ignition system;
- C. Explain and apply on board computer theory, testing, and diagnosis including demonstrated use of a scan tool and diagnostic trouble code deciphering.
- D. Thoroughly understand and explain four cycle engine basics: compression, ignition, fuel, air, and vacuum;
- E. Use an emissions gas analyzer, scanner, and Digital Storage Oscilloscope and apply test results to aid in diagnosing a vehicle;
- F. Explain the function of sensors and actuators and their interaction with the computer as well as proper diagnostic procedures for each
- G. Explain and demonstrate the theory and proper diagnostic procedures for understanding of how long and short term fuel trim work;
- H. Correctly diagnose emissions control system failures
 - I. Retrieve, interpret, and apply diagnostic trouble codes
- J. Explain and apply four cycle engine theory including compression, air, fuel, ignition, vacuum, and the interaction between them
- K. Diagnose and repair automotive battery, starting, and charging systems using meters, test lights, and logic probes;
- L. Diagnose open, short, and grounded circuits;
- M. Explain Ohm's Law and apply in lab exercises;
- N. Perform a voltage drop test;
- O. Read and utilize a wiring diagram including standard industry symbol identification;
- P. Successfully apply diagnostic flow charts in order to achieve accurate diagnostic results of electronic components.
- Q. Use common industry terminology and abbreviations related to the course material

Course Content:
Lab:

—

1. [Voltage drop testing](#)
2. [Wiring diagrams reading and application](#)
3. [Diagnostic Flow Charts reading and application](#)
4. [Four cycle engine testing: compression, ignition, fuel, air, and vacuum](#)

5. [Operation of diagnostic tools: DSO, scanner, and emissions analyzer](#)
6. [Testing of sensors and actuators, their interaction with the PCM, and their effect on drivability and emissions](#)
7. [Diagnostic procedures for injected and carbureted fuel control systems](#)
8. [OBD II diagnostics and diagnostic trouble codes](#)
9. [Industry and BAR procedures](#)
10. [Fuel management testing, and diagnosis](#)
11. [Ignition testing, and diagnosis](#)
12. [On board computer testing, and diagnosis](#)

Lecture:

1. Use of meters, test lights, and logic probes in diagnosing battery, starting, and charging systems
2. Circuit Problems
 1. Opens, causes and corrections
 2. Shorts, causes and corrections
 3. Grounds, causes and corrections
3. Intermittent electrical problems
 1. Diagnostic Strategy
 2. Collection Information
 3. Attacking problem
4. Ohm's Law and electrical theory
 1. Ohms Law
 2. Computing Ohms Law
 3. Using Ohms Law in stock vehicles
 4. Using Ohms Law with aftermarket accessories
5. Voltage drops
 1. What do they mean?
 2. Better than Ohms?
6. Wiring diagrams
 1. Schematic Icons
 2. Reading Charts

7. Diagnostic Flow Charts
8. Four cycle engine basics: compression, ignition, fuel, air, and vacuum
9. Operation of diagnostic tools: DSO, scanner, and emissions analyzer
10. Function of sensors and actuators, their interaction with the PCM, and their effect on drivability and emissions
11. Theory and diagnostic procedures for injected and carbureted fuel control systems
12. OBD II diagnostics and diagnostic trouble codes
13. Industry and BAR terminology, abbreviations, standards, and procedures
14. Fuel management theory, testing, and diagnosis
15. Ignition theory, testing, and diagnosis
16. On board computer theory, testing, and diagnosis

Methods of Instruction:

1. Lecture - Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
2. Lab - Hands-On lab Exercises
3. ~~Audio-visual Activity~~
4. ~~Discussion~~

Typical Outside-of-Class Assignments

- A. ~~Other:~~
 - Reading:
Read Chapter One in text
- A. ~~Read each chapter in the text and be prepared to seek clarification and ask questions in class-~~
 - Research:
Engine Construction research for a personal vehicle
2. ~~Orally discuss the material covered in each chapter-~~
3. ~~Complete the review questions and related lab exercises for each chapter-~~
 - 1. ~~Explain how the computer is used to control the a alternator-~~
 - 2. ~~Why do voltage regulators include temperature compensation-~~
4. ~~Complete lab activity worksheets for diagnosis and debugging using electrical/electronic diagnostic equipment. Show competence when entering data into California smog equipment~~
 - 1. ~~Charging voltage check~~
 - 2. ~~Lighting system troubleshooting~~

Methods of Evaluating Student Progress

- A. Class Participation
 1. daily
- B. Exams/Tests
 1. Comprehensive from State
- C. Lab Activities
 1. daily

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of AUTO SDR, the student should be able to, obtain~~ Obtain and interpret scan tool data.
- B. ~~Upon completion of AUTO SDR, student should be able to apply~~ Apply safety - _ precautions in shop lab exercises
- C. Apply electrical theory to battery systems.

Textbooks (Typical):

Textbook:

1. James Halderman *ASE Test Preparation and Study Guide*. 2 ed., Pearson, ~~2017~~ 2019 .
2. State of California https://www.bar.ca.gov/pdf/2017_Smog_Check_Manual.pdf. 2017 ed., State of California, 2017.

Other Learning Materials: -

1. ~~James-D-Halderman- Automotive-Maintenance Any and Light all Repair: current + and ed.; past Pearson; "BAR 2014;~~
2. ~~Tim Blasts" Giles these Automotive are Service informational 5 releases ed. from Cengage, the 2015 State about the smog check program .~~

Other Materials Required of Students

Other Materials Required of Students:

1. Internet access.
2. Safety Glasses.

Equity Based Curriculum

- Methods of Instruction
Address The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
- Typical Texts
Address Smog Tests are offered in multiple languages.

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs.

FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.

Explain how the decision was made to offer this course in a Distance Education mode.

PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

FO: Same as above.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in.
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week.
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week.
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly lab sessions.
- **Other:**
Frequency: PO: Student interaction, fulfillment of SLO's and measurable objectives will be done on campus in the labs, weekly. FO: Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: PO: At least twice per semester. FO: At least once every other week.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: Fully online only: Minimum weekly.
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Fully online only: once every other week.
- **Other:**
Frequency: PO: Students will interact during on-campus weekly labs.

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: Fully online only: weekly.
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: ~~PO and FO: at~~ **At** least three exams per semester.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: ~~PO: At least once per week. FO:~~ At least once per week.
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: FO: Weekly.
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: PO: Weekly, in on-campus labs. FO: Weekly recorded by student and completed using online software.
- **Other:**
Frequency: Homework ~~:Both PO and FO:~~ assigned weekly.

General Education/Transfer Request

General Education/Transfer Request

CSU Transfer

- Transfers to CSU

Codes and Dates

Course CB Codes

CB00: State ID

CCC000578919

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0612 - Vehicle Emissions Inspection and Maintenance Technology/Technician.](#)

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

B - Transferable to CSU only.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

Y - Not Applicable, Credit course

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

2 - Not Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Credit for Prior Learning

Credit for Prior Learning Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam No

Credit-by-Portfolio ~~No~~ Yes

Please list the requirements/criteria/possible materials for a student to submit in their portfolio.

Has taken NAUT SDR with a C or better. P/NP does not qualify.

Curriculum Committee Approval Date

Effective Term

Credit-by-Military-JST No

Please list the ACE course(s) equivalent to this course

Curriculum Committee Approval Date

Effective Term

Credit-by-Industry-Recognized-Training Yes

Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses (including this one) for which a student will earn credit.

1. Completed a BAR certified SDR (Specified Diagnostic and Repair) class. May be taken as one, two or three classes. Classes may be taken in any form and from any BAR certified school. To receive credit for SDR student must have taken A6 alternative, A8 alternative and L1 alternative. Must have been completed in the last five years with a passing grade.

or

2. Current and valid California smog licence. Must have both EI and EO.

Curriculum Committee Approval Date

Additional Detail (List articulated courses, etc.) Yes

Please list the articulated courses. Also, we ask that you upload any relevant docs (e.g., exams) via Attached Files.

[Attached Files](#)

Curriculum Committee Approval Date

Effective Term Spring 2025

Curriculum Committee Approval Date

Effective Term

Course Modification: AUTO SMOG - Smog Level One and Level Two

Course Modification: AUTO SMOG - Smog Level One and Level Two (Launched - Implemented 09-27-2025)

compared with

AUTO L1L2 - Smog Level One and Level Two (Active - Implemented 03-14-2025)

**Admin Outline for Automotive Technology ~~L1L2~~ SMOG
Smog Level One and Level Two**
Effective: Fall ~~2020~~ 2026

Catalog Description:
AUTO ~~L1L2~~ SMOG - Smog Level One and Level Two
5.50 Units

This course includes classes/modules the State of California's requires for a student/automotive technician to be prepared to take their Smog License Test. This class will include Level One and Level Two smog training only. At the end of the class students may or may not qualify for either EI or EO smog license. See www.smogcheck.ca.gov for more information.

5 Units Lecture 0.5 Units Lab

Course Grading: Optional

Lecture Hours	90
Lab Hours	27
Inside of Class Hours	117
Outside of Class Hours	180

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Incorporate the concepts, techniques, principles, and legal requirements of the California Smog Check Program, including changes and updates published in the latest edition of the Smog Check Manual;
- B. Analyze a vehicle with emission control problems to a criterion established by the instructor based on Bureau of Automotive Repair and industry standards by using the newest in automotive and emission control theory;
- C. Analyze vehicle emission systems applications for theory, operation and diagnosis, to a standard set by the Bureau of Automotive Repair, through manipulative, oral, or written assignments, and/or class discussion;
- D. Demonstrate proper operating procedures and safety precautions using a 5-Gas Analyzer to conduct a complete smog inspection;
- E. Apply automotive computer system theory to evaluate, diagnose, and repair an emissions malfunction caused by a component of the computer system;
- F. Perform advanced diagnostic and repair procedures on vehicles equipped with 2nd Generation On Board Diagnostics (OBD II) using the latest electronic interface equipment;
- G. Discuss and apply the operating theory of wide band oxygen sensor by interpreting scan tool data and the ion transfer between platinum zirconium electrodes.
- H. Analyze and diagnose a vehicle with emission control problems, including NOx problems, to a criterion established by the instructor based on Bureau of Automotive Repair and industry standards
- I. Demonstrate setup and operation of diagnostic and testing equipment including but not limited to Digital Storage Oscilloscope, BAR97 smog machine, and a dynamometer. Explain results obtained during operation of said equipment.
- J. Demonstrate loaded mode emissions base lining techniques and use of diagnostic flow charts
- K. Explain catalytic converter theory, operation, and efficiency testing procedures
- L. Explain and demonstrate the differences in emissions testing procedures between the BAR90 and the BAR97 gas analyzer systems including dynamometer use of the Enhanced Smog Check Program
- M. Perform 5 gas diagnostics
- N. Explain the rules and regulations guiding the smog check program and technician duties

Course Content:
Lab:

-

1. [Fuel delivery systems.](#)
2. [Ignition systems](#)

3. [Fuel systems testing](#)
4. [Ignition System Testing](#)
5. [Diagnostic patterns, and analyze gas readings](#)
6. [Diagnostic test equipment](#)
7. [Diagnostic information systems](#)
8. [Diagnose various Engine Performance concerns](#)
9. [Handling of hazardous waste materials](#)
10. [Professional environment](#)

Lecture:

1. The Level One Course is divided into seven parts called modules which correspond with the State Examination modules:
 1. Rules and Regulations
 2. Automotive Theory
 3. Emission Control Theory and Operations
 4. Vehicle Emission Systems Applications
 5. TAS Operation and Testing Procedures
 6. Computer Systems Theory
 7. Diagnosis and Repair of Computerized Vehicles
2. The OBD II Training covers advanced diagnostic and repair procedures on 2nd Generation On Board Diagnostics (OBD II vehicles using the latest electronic interface equipment.
3. Monitor setting and training
4. Five gas training
5. Emission system diagnosis
6. The 2003 Update Course covers smog testing procedures and new rules and regulations in the latest Smog Check Manual.
7. The 2005 Update course covers wide band oxygen sensors testing and theory
8. The 2007 Update course covers catalytic converter testing and theory.
9. The 2011 Update course covers wide band oxygen sensors testing and theory
10. Level Two training including Dynamometer usage, State computer usage, laws and regulations.
11. BAR specified Diagnostic and Repair Training
12. DAD training and requirements
13. Any new content the State of California Smog training requires.

Methods of Instruction:

1. Lecture - [Group and individual activities](#).
2. Lab - Hands-On lab exercises
3. Audio-visual Activity - [Group and individual activities](#)
4. Discussion - [Group and individual activities](#)

Typical Outside-of-Class Assignments

- A. ~~Other:~~
 - [Reading:](#)
 - [Read Chapter One in text](#)

- A. ~~Read each module in the text and be prepared to seek clarification and ask questions in class:~~

Research:

Engine Construction research for a personal vehicle

2. ~~Orally discuss the material covered in each module:~~

3. ~~Complete the review questions for each module in the student workbook:~~

1. ~~(Example) Base spark advance is calculated using what 2 inputs?~~

2. ~~(Example) True or False? Potentiometers are used to measure throttle position:~~

4. ~~Complete the related lab exercises for each (relevant) module:~~

1. ~~(Example) Customize an engine diagnostic scanner for troubleshooting purposes:~~

2. ~~(Example) Perform a complete Smog Check inspection on at least two computer-controlled vehicles, one foreign and one domestic:~~

Methods of Evaluating Student Progress

- A. Class Participation

1. weekly.

- B. Exams/Tests

~~1. One final from State of California~~

1. One final from State of California. Passing final exam with a minimum of 70% correct

- C. Lab Activities

~~1. Weekly~~

1. Weekly, demonstrating competency when performing required lab assignments.

- D. Quizzes

1. Weekly

- E. Passing final exam with a minimum of 70% correct; Demonstrating competency when performing required lab assignments; Meeting mandatory attendance criteria;

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of AUTO L1L2, the student should be able to, obtain~~ Obtain and interpret powertrain data.

- B. ~~Upon completion of AUTO L1L2, the student should be able to perform~~ Perform an OIS test.

- C. Perform smog test

Textbooks (Typical):

Textbook:

1. James Halderman *ASE Test Preparation and Study Guide*. 2 ed., Pearson, 2017.
2. Bureau of Automotive Repair, *Clean Air Car Course Training Manual*, Department of Consumer Affairs, 1993.
3. Bureau of Automotive Repair, *Clean Air Car Course Student Workbook*, Department of Consumer Affairs, 1993.
4. State of California *Smog Check Inspection Manual*. 2017 ed., Department of Consumer Affairs, ~~2017~~ 2021.
5. Bureau of Automotive Repair, *Write It Right*, Department of Consumer Affairs, 1999.
6. Bureau of Automotive Repair, *Laws and ~~Regulation~~ Regulations*, Department of Consumer Affairs, ~~2004~~ 2025.
7. Maurseth, M., E. K. Smith, *BD II Generic On-Board Diagnostic Second Generation*, California Institute of Automotive Technology, 2009.

Other Materials Required of Students

Other Materials Required of Students:

1. Safety Glasses.

Equity Based Curriculum

- Methods of Instruction
Address

The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

- Methods of Evaluation
Address The course materials and evaluations are based on industry standards.
- Typical Texts
Address The course materials and evaluations are based on industry standards.

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs.

FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.

Explain how the decision was made to offer this course in a Distance Education mode.

PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path. FO: Same as above

California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly lab sessions
- **Other:**
Frequency: PO: Student interaction, fulfillment of SLO's and measurable objectives will be done on campus in the labs, weekly. FO: Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*

Frequency: PO: At least twice per semester - FO: At least once every other week.

- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*

Frequency: Fully online only: Minimum weekly

- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*

Frequency: Fully online only: once every other week

- **Other:**

Frequency: PO: Students will interact during on-campus weekly labs

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*

Frequency: Fully online only: weekly

- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*

Frequency: ~~PO and FO:~~ Quizzes: at least one quiz per section/chapter. Weekly. - Exams: One final from State of California

- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*

Frequency: PO: At least once per week - FO: At least once per week

- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*

Frequency: FO: Weekly

- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*

Frequency: PO: Weekly, in on-campus labs - FO: Weekly recorded by student and completed using online software.

- **Other:**

Frequency: ~~Both PO and FO:~~ Homework, assigned weekly

General Education/Transfer Request

General Education/Transfer Request

CSU Transfer

- Transfers to CSU

Codes and Dates

Course CB Codes

CB00: State ID

CCC000566979

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0612 - Vehicle Emissions Inspection and Maintenance Technology/Technician.](#)

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

B - Transferable to CSU only.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

B - Advanced Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

Y - Not Applicable, Credit course

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

2 - Not Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Credit for Prior Learning

Credit for Prior Learning Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam No

Credit-by-Portfolio No

Please list the requirements/criteria/possible materials for a student to submit in their portfolio.

Curriculum Committee Approval Date

Effective Term

Credit-by-Military-JST No

Please list the ACE course(s) equivalent to this course

Curriculum Committee Approval Date

Effective Term

Credit-by-Industry-Recognized-Training Yes

Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses (including this one) for which a student will earn credit.

1. Completed a BAR certified Level one and Level two class. May be taken as one or two classes. Classes may be taken in any form and from any BAR certified school. To receive credit for L1L2 student must have taken both Level 1 and Level 2. Must have been completed in the last five years with a passing grade.

or

2. Current and valid California smog license. Must have both EI and EO.

Curriculum Committee Approval Date

Additional Detail (List articulated courses, etc.) ~~Yes~~ No

Please list the articulated courses. Also, we ask that you upload any relevant docs (e.g., exams) via Attached Files.

Curriculum Committee Approval Date

Effective Term Spring 2025

Curriculum Committee Approval Date

Effective Term

Course Modification: COMM C1004 - Interpersonal Communication

Course Modification: COMM C1004 - Interpersonal Communication (Launched - Implemented 10-21-2025)

compared with

CMST 10 - Interpersonal Communication (Active - Implemented 08-15-2025)

Admin Outline for Communication Studies ~~10~~ **C1004**

Interpersonal Communication

Effective: Fall ~~2025~~ **2027**

Catalog Description:

~~CMST~~ **COMM** ~~10~~ **C1004** - Interpersonal Communication

3.00 Units

This course covers theory, research, and application of ethical one-to-one communication practices in various and diverse interpersonal relationships including in personal, professional, and social situations. Exploration, discussion, and evaluation of the principles of the verbal and non-verbal communication process in relationships ~~:Study of theory and research findings and their application to communication in interpersonal relationships in personal and professional contexts .~~

3 Units Lecture

Course Grading: Optional

Lecture Hours	54
Inside of Class Hours	54
Outside of Class Hours	108

Justification for course proposal

Discipline:

Communication Studies

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Evaluate and apply research methods and theories of interpersonal communication.
- B. Analyze the ways that communication can create, develop and shape perceptions of personal and social identities including variables such as but not limited to culture, gender, ethnicity, race, age, and orientation
- C. Evaluate the influences of culture, gender, ethnicity, race, age, accessibility, and orientation on the development, maintenance, and dissolution of interpersonal relationships.
- D. Critically assess and utilize ethical communication practices within interpersonal relationships as part of interpersonal communication competency.
- E. Critically assess sources of conflict in interpersonal relationships and implement appropriate conflict management strategies.
- F. Identify the essential elements of the interpersonal communication event ;
- G. Describe, define, discuss and explain the basic communication process ;
- H. ~~Describe ways that communication creates, develops, and changes personal identities including variables such as culture, gender, ethnicity, and race; explain the effect of communication on personal identities;~~
- I. ~~Describe the effects of communication on interpersonal relationships and social and cultural realities;~~
- J. Analyze and discuss breakdowns of the interpersonal communication event ;
- K. ~~Demonstrate ethical interpersonal communication founded on communication theory and research including critical listening and other individual skills and competencies for successful interpersonal communication;~~
- L. ~~Diagnose conflict in interpersonal relationships and demonstrate appropriate conflict management strategies .~~

Course Content:

1. ~~Theories~~ Foundational theories, models, and ~~principles~~ research ~~of in~~ interpersonal ~~communication~~
2. ~~Verbal and nonverbal~~ communication
 1. ~~Description and explanation of verbal communication~~
 1. The verbal level: words and meanings
 2. The interpersonal level: language and relationships
 3. The societal level: language and communication systems
 2. Influences on identity development, and the impact of culture, race, ethnicity, gender, orientation, etc. on interpersonal communication
 1. Description and explanation of ~~non-verbal the communication self concept~~

1. How the self concept develops
2. Characteristics of non-verbal the communication self concept
3. Differences Impression between management verbal and non-verbal communication
4. Types of non-verbal in communication
 1. Eye The contact perceived self
 2. Gestures The presenting self
 3. Face The and desired eyes
 4. Body orientation self
3. Interpersonal The communication role of perception in various contexts
 1. Personal
 2. Professional
4. Ethical interpersonal communication
 1. Honesty
 2. Ramifications ; of including dishonest theories communication
5. Description such as Attribution Theory and explanation Uncertainty of Reduction the self concept
 1. How the self concept develops
 2. Characteristics of the self concept
 3. Impression management in communication
 1. The perceived self
 2. The presenting self
 3. The desired self
6. Description and explanation of the perception process Theory
 1. Effects on perception
 2. Effects on personal identities
 3. The accuracy and inaccuracy of perception
 4. Perception checking to prevent misunderstandings
7. Description Symbolic and explanation linguistic attributes with respect to language in interpersonal communication
8. The role of the emotions act in communicating effectively; may include physiological cognitive, and impact neurological theories
 1. What emotions are
 2. Types of listening emotions
 3. Influences in on emotional expression
 4. Guidelines for expressing emotions
 5. Managing difficult emotions
9. Nonverbal communication ; may include principles and theories such as Expectancy Violation Theory
 1. Characteristics of non-verbal communication
 2. Differences between verbal and non-verbal communication
 3. Types of non-verbal communication

1. Eye contact
 2. Gestures
 3. Face and eyes
 4. Body orientation
-
10. Listening; processes, styles, types, challenges, and responses
 1. Non-listening behaviors and reasons for non-listening
 2. Ways to improve listening skills
 11. **Description** Interpersonal climate (social tone of relationships) such as confirming/disconfirming messages, self-disclosure, and explanation relational trust
 12. Ethics in interpersonal communication; may include concepts such as navigating power, influence, bias, stereotyping, bullying, and the dark side of **small group dynamics in** communication
 1. **Roles, action and behaviors** Honesty
 2. Ramifications of **small dishonest group participants**
 3. **Group think** communication
 13. **Conflict** Interpersonal management conflict in theories; interpersonal may communication include Face-Negotiation Theory and Accommodation Theory.
 1. The nature of conflict
 2. Personal conflict styles
 3. Conflict in relational systems
 4. Variables in conflict style
 5. Methods of conflict resolution
 6. Win-win conflict resolution
 14. **Description** Development, maintenance, and explanation dissolution of relational various development types of relationships; may include Social Penetration Theory, Attachment Theory, and Knapp's Relational Model
 1. Interpersonal attraction
 2. Developmental stages in intimate relationships
 3. Self-disclosure in relationships
 4. Alternatives to self-disclosure
 15. Interpersonal communication in various contexts
 1. Personal
 2. Professional
 16. Description and explanation of **the small role group of emotions dynamics** in **interpersonal** communication
 1. **What** Roles, emotions action are and behaviors of small group participants
 2. **Types** Group of emotions
 3. **Influences on emotional expression**
 4. **Guidelines for expressing emotions**
 5. **Managing difficult emotions** think

Methods of Instruction:

1. Student Presentations - Group and/or individual speech.
2. Discussion - Facilitate whole class discussion.
3. Lecture - Instructor delivery of course content.
4. Classroom Activity - In class group activities.
5. Projects - Group presentation.
6. Simulations - Role-playing situations
7. Written Exercises - Journal and/or written papers.

Typical Outside-of-Class Assignments

A. Writing:

1. Paper:

1. Consider a recent conflict you have had with someone. Determine whether it was a pseudo, simple, or ego conflict. Describe the strategies you used to manage the conflict. Discuss the other strategies you could have used to help manage the disagreement.
2. How do the strategies for escalating and maintaining a relationship relate to the indirect and direct strategies used for terminating a relationship? What research supports your ideas?

2. Journal:

1. Monitor and then jot down notes about your own self-talk during a conversation with another person. What competing thoughts and ideas occurred to you while you were conversing with your partner? What did you do to refocus on the message?

B. Project:

1. Speech:

1. Go through your personal music library and identify a selection that best symbolizes you. Your selection may be based upon either the lyrics or the music. Bring your selection to class and play it for your classmates. Tell why this music symbolizes you (presenting, perceived, or desired self). Discuss with classmates how today's music provides a glimpse of our culture and a vehicle for self-expression.

2. Group assignment:

1. Working with a group of your classmates, develop your own model of interpersonal communication. Include all of the components that are necessary to describe how communication between people works. Share your model with the class, describing the decisions your group made in developing it. Illustrate your model with a conversation between two people, pointing out how elements of the conversation relate to the model.

Methods of Evaluating Student Progress

A. Class Participation

1. Weekly class activities

B. Exams/Tests

1. one midterm and one final exam

C. Group Projects

1. Minimum of one

D. Oral Presentation

1. minimum of one

E. Papers

1. One completed journal and/or a minimum of 3 papers.

F. [Examples of potential methods of evaluation used to observe or measure students' achievement of course outcomes and objectives could include but are not limited to quizzes, exams, written assignments, journals, projects, research, oral presentations, etc.](#)

G. [Methods of evaluation are at the discretion of local faculty.](#)

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. Identify and demonstrate necessary skills for application of interpersonal communication competence.
- B. Identify and demonstrate necessary skills of comprehension of interpersonal communication competence.
- C. [Apply appropriate Interpersonal Communication strategies in different contexts/settings.](#)

Textbooks (Typical):

OER:

1. [Department of Communication Studies, Austin Community College. *Communication to Connect: Interpersonal Communication for Today*. ,Department of Communication Studies, Austin Community College, 2021.](#)
2. [Leonard. *Interpersonal Communication Textbook*. ,College of the Canyons, 2019.](#)
3. [Wrench, Punyanunt-Carter, & Thweatt. *Interpersonal Communication: A Mindful Approach to Relationships*. ,State University of New York, 2023.](#)
4. Teresa Fisher *Fundamentals of Interpersonal Communication*, CUNY Bronx Community College, 2021. .
5. Jason S. Wrench, Narissra M. Punyanunt-Carter, and Katherine S Thweatt *Interpersonal Communication: A Mindful Approach to Relationships*, Milne Open Textbooks, 2023. .

Textbook:

1. [Adler, R., & Proctor II, R. *Looking Out, Looking In*. 16th ed., Wadsworth Publishing, 2022.](#)
2. [Wood, J. *Interpersonal Communication: Everyday Encounters*. 9th ed., Wadsworth Publishing, 2020.](#)
3. [Guerrero, Anderson & Afifi. *Close Encounters: Communication in Relationships*. 6th ed., Sage Publications, Inc, 2020.](#)
4. [Adler, R., & Proctor II, R. *Interplay: The Process of Interpersonal Communication*. 16th ed., Oxford University Press, 2023.](#)
5. Steven McCornack & Kelly Morrison *Reflect & Relate*. 6th ed., Macmillan Learning, 2022.
6. Joseph A. DeVito *The Interpersonal Communication Book*. 16th ed., Pearson, 2022.
7. ~~Ronald Adler, Russell F. Proctor-~~ [Looking Out/Looking In: 16th ed., Cengage, 2023.](#)
8. Steven A. Beebe, Susan J. Beebe, Mark V. Redmond *Interpersonal Communication: Relating to Others*. 9th ed., Pearson, 2020.

[Other Learning Materials:](#) .

1. [Texts and course materials will be in accessible format. Priority will be given to OER or low-cost materials where possible. Examples of texts include, but are not limited to:](#)

Other Materials Required of Students

Equity Based Curriculum

- Measurable Objectives
 - Address**
Students will discuss with other students of varying diversities including but not limited to culture, education, neurodiversity, and access.
- Course Content
 - Address**
A full examination of self and others is taught. When relationship building it is important to understand and adapt to others.
- Assignments

Address

Students will be able to report on and address any situations of dominance and exclusion in the group process ensuring that voices are heard and valued.

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Online with the Flexible In-Person Component (OFI)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

The work needed to complete this course can be done virtually. Shared and mutually agreed upon times can be arranged for the students to complete the assigned work for the course. Additionally, the content can be addressed through Canvas pages.

Explain how the decision was made to offer this course in a Distance Education mode.

1. This course should be offered to be in line with what most other campuses are doing. We would like to be current and offer this class so more students have a chance to take it.
2. We came to this conclusion in a department meeting.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: The instructor will email students weekly and respond promptly to students.
- **Discussion board:** *The instructor will regularly participate in discussions that deal with academic content, will consistently provide substantive feedback, and will facilitate all discussions.*
Frequency: At least one per module.
- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Grading rubrics will be defined and completed for every assignment.
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: At least one per module.
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: When requested by a student.
- **Telephone:** *The telephone will be used to interact with students individually to answer questions, review student work, etc.*
Frequency: When requested by a student.
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: When requested by a student.
- **Chat:** *The instructor will use chat to interact with students, textually and/or graphically, in real time.*
Frequency: When requested by a student.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: Students are free to communicate through email if they want.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: At least one per module.
- **Group work:** *Students will work in teams to complete group projects. The projects will then be shared with the rest of the class.*
Frequency: At least one group project that requires students to communicate with each other.
- **Web conferencing:** *Students will interact in real time with each other to discuss coursework and assignments.*

Frequency: Students to meet for the group project as many times as needed to complete the assignment.

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: At least one per module.
- **Group work:** *Students will collaborate in private groups to solve problems, become experts on certain topics, etc. They will then present their findings to the class.*
Frequency: At least one group project.
- **Written papers:** *Papers will be written on various topics.*
Frequency: At least one per semester.
- **Research Assignments:** *Students will use the Internet and library resources to research questions, problems, events, etc.*
Frequency: At least one per semester.
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Chapter quizzes for each chapter or a midterm and a final exam.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: Written lecture material will be posted for every module.
- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*
Frequency: Videos will be included on module pages. No minimum.
- **Student presentations:** *Students will prepare and present on a topic being studied.*
Frequency: At least one per semester.

General Education/Transfer Request

General Education/Transfer Request

Cal-GETC

- [1C - Oral Communication - Approved](#)
- 4 - Social and Behavioral Sciences - Approved

Chabot College GE

- ~~1B-Communications and Analytical Thinking~~

CSU GE

- ~~A1—Oral Communication~~
- ~~D—Social Science~~
- ~~E—Lifelong Learning and Self-Development~~

CSU Transfer

- Transfers to CSU - Approved

~~1GETC-GE~~

- ~~1C—Oral Communication~~
- ~~4—Social and Behavioral Sciences~~

Las Positas College GE

- [1B - Oral Communication and Critical Thinking - Approved](#)
- 4 - Social and Behavioral Sciences - Approved

UC Transfer

- Transfers to UC - Approved

C-ID: COMM 130 - Approved

Codes and Dates

Course CB Codes

CB00: State ID

CCC000362855

CB03: TOP Code

150600 - Speech Communication

CIP Code

[09.0101 - Speech Communication and Rhetoric.](#)

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

A - Transferable to both UC and CSU.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

E - Non-Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

Y - Not Applicable, Credit course

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: MATH C2210 - Calculus I: Early Transcendentals

Course Modification: MATH C2210 - Calculus I: Early Transcendentals (Launched - Implemented 10-27-2025)

compared with

MATH 1 - Calculus I (Active - Implemented 03-14-2025)

Admin Outline for Mathematics **† C2210**

Calculus I: **Early Transcendentals**

Effective: Fall **2025** 2027

Catalog Description:

MATH **† C2210** - Calculus I: **Early Transcendentals**

5.00 Units

An **A** introduction **first to course** single-variable in differential and integral calculus including: of functions; a single variable. Topics include limits and continuity; of functions, techniques and applications of differentiation, an introduction to integration, and integration; the Fundamental Theorem of Calculus; areas. This course is primarily intended for Science, Technology, Engineering, and volumes Mathematics of (STEM), solids-of-revolution majors.

5 Units Lecture

Prerequisite: MATH 30 with a minimum grade of C and MATH 39 with a minimum grade of C Pre-calculus, or MATH college 2+ algebra with and a minimum grade of C trigonometry, or MATH equivalent, 22 or with placement a as minimum determined grade by of the C college's multiple measures assessment process.

Course Grading: Letter Grade Only

Lecture Hours	90
Inside of Class Hours	90
Outside of Class Hours	180

Justification for course proposal

Discipline:

Mathematics

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- Evaluate Find the equation of a tangent line to the graph of a function.
- Compute the limit of a function at and a evaluate real indeterminate number; forms using L'Hôpital's Rule.
- Compute derivatives using differentiation formulas.
- Determine whether the continuity of a function.
- Find the derivative of a function is continuous at as a point limit.
- Use or differentiation on to interval; solve applications such as related rate problems and optimization problems.
- Use implicit differentiation and find derivatives of transcendental functions.
- Graph functions using methods of calculus.
- Evaluate a definite integral as a limit.
- Evaluate integrals using the Fundamental Theorem of Calculus.
- Apply integration to find areas.
- Find and interpret average and instantaneous rates of change; .
- State Use the precise definition of the derivative as the a limit of to prove a difference limit quotient and use the definition to find the derivative of a function;
- Interpret the derivative as the slope of a tangent line and find the equation of a tangent line to a function; exists.
- Explain the definitions of velocity and acceleration and use the derivative to find the velocity and acceleration of an object in motion, given the position function for the object; .
- State and apply the rules for differentiating algebraic and trigonometric functions; . -
- Utilize the chain rule when differentiating functions;
- Work with differentials and their applications; .
- Use calculus-based methods to analyze functional behavior; .
- Sketch the graphs of functions using the methods of calculus;
- Find all maxima, minima and points of inflection of a function;
- Use implicit differentiation;
- Evaluate the limit of a function at infinity;
- Apply differentiation to solve related rate and optimization problems;
- Apply the Mean Value Theorem; .
- Utilize Newton's Method; .
- Evaluate a definite integral as the limit of a Riemann sum;
- Apply the Fundamental Theorem of Integral Calculus; .
- Evaluate integrals by the method of substitution; .
- Find areas between curves and volumes of solids of revolution;

AE. ~~Use the precise definition of a limit to prove a limit exists .~~

Course Content:

1. Limits : ~~intuitive and precise definitions; computation using numerical, graphical, and algebraic approaches~~

1. Left-hand limits and right-hand limits

2. ~~Computing limits~~

1. ~~Numerically~~

2. ~~Graphically~~

3. ~~Algebraically~~

3. Limits of trigonometric functions

4. Limits at infinity

5. Precise definition of a limit

2. ~~Continuity and differentiability of functions~~

1. ~~Definition of continuity~~

2. ~~Continuity at a real number~~

3. ~~Continuity on an interval~~

4. ~~Discontinuous functions~~

1. ~~Types of discontinuities~~

2. ~~Removable discontinuities~~

5. ~~Intermediate Value Theorem~~

3. ~~Derivative as a limit~~

4. ~~Interpretation of derivatives as slopes of tangent lines and rates of change~~

1. ~~Secant and tangent lines~~

2. Average and instantaneous rates of change

1. ~~Continuity~~

1. ~~Definition of continuity~~

2. ~~Continuity at a real number~~

3. ~~Continuity on an interval~~

4. ~~Discontinuous functions~~

1. ~~Types of discontinuities~~

2. ~~Removable discontinuities~~

2. ~~Intermediate Value Theorem~~

3. ~~Secant and tangent lines~~

4. Average and instantaneous rates of change; velocity Velocity and acceleration

5. Definition Differentiation of formulas; the constants, derivative power as rule, the product limit of a difference rule, quotient

6. Interpretation of rule, the and derivative chain rule

1. Slope of a tangent line
2. Rate of change
3. Derivative as a function

7. Differentiation Derivatives formulas of transcendental functions including trigonometric, exponential, and techniques logarithmic

1. Differentiation Logarithmic differentiation

8. Implicit differentiation, differentiation of constant-valued inverse function functions, including inverse trigonometric functions

1. Domain and range
2. Power Graphs
3. Hyperbolic rule
4. Product and rule
5. Quotient inverse rule
6. Trigonometric hyperbolic functions

9. Chain Applications rule of differentiation, including related rates and optimization

1. Newton's Method
2. Implicit Differentials derivative and their applications

10. Higher-order derivatives

• Applications Indeterminate forms and L'Hôpital's Rule

1. Types of differentiation
indeterminate forms

1. Rate Techniques for evaluating limits of change- indeterminate forms
2. Related rates

2. Optimization

• Functional analysis

1. Mean-Value Theorem

2. Critical numbers

3. Maximum and minimum values, (absolute Extreme Value Theorem

1. Critical numbers
2. Absolute and local }

4. ~~Curve Graphing sketching: functions algebraic; using rational first and trigonometric second functions derivatives, concavity, and asymptotes~~
 1. First Derivative Test
 2. Second Derivative Test
 3. Test for Concavity and Points of Inflection
 4. Extrema
 5. Asymptotic behavior
 1. Limits at infinity
 2. Horizontal and vertical asymptotes
5. ~~Differentials~~ Mean Value Theorem
6. Antiderivatives and ~~their indefinite applications integrals~~
7. ~~Newton's Method~~
8. ~~Antiderivatives~~
9. Definite ~~integral~~
integrals as limits of Riemann sums
 1. Interpretation of the integral as area under a curve and net change
 2. ~~Defined Basic as integration limit rules and properties of a Riemann Sum~~ integrals
 1. ~~Evaluation of a definite integral as the limit of a Riemann Sum~~
 3. ~~Indefinite integrals~~
 4. ~~Properties of definite~~ Definite and indefinite ~~integrals~~
10. Fundamental Theorem of Calculus
11. Integration
 1. ~~As~~ antidifferentiation
 2. ~~Method of by~~ substitution
12. ~~Applications of integration~~
 1. ~~Area under a curve~~
 2. ~~Area between curves~~
 3. ~~Volume of a solid of revolution~~
13. ~~Inverse functions~~
 1. ~~Differentiation of inverse functions~~

Methods of Instruction:

1. Discussion _
2. Lecture
3. Web- or CD-Rom-based tutorials
4. Student presentations

Typical Outside-of-Class Assignments

A. Other :

Homework should be assigned from the text and should include a sufficient number and variety of problems to develop both skill and conceptual understanding. A typical assignment should take an average student 1 to 2 hours for each hour in class.

1. Homework

1. Homework should be assigned from the text and should include a sufficient number and variety of problems to develop both skill and conceptual understanding. A typical assignment should take an average student 1 to 2 hours for each hour in class:

2. Collaborative learning

1. Collaborative learning, done in small groups of 2-4 students, can be used to introduce new concepts, build skills, or teach problem solving. Students may be asked to present their results on the board:
2. Example collaborative learning assignment: Have each group solve a curve sketching problem and then present their work to the rest of the class, explaining the process they used and their results:

Methods of Evaluating Student Progress

A. Exams/Tests

1. minimum 4 exams and a comprehensive final exam

B. Home Work

1. Assigned for each section covered

C. Quizzes

1. Announced or unannounced, in-class or take home at the discretion of the instructor

D. Collaborative Students Group should Activities-At demonstrate their mastery of the learning objectives and their ability to devise, organize, and present complete solutions to problems.

E. Examples of potential methods of evaluation include, but are not limited to, exams, quizzes, homework, classwork, technology-based activities, laboratory work, projects, and research demonstrations.

F. Methods of evaluation are at the discretion of the local instructor faculty.

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. Construct an optimization model and use it to find the desired quantity.
- B. Evaluate and interpret a definite integral.
- C. Find the roots of a function using Newton's method.
- D. Find the volume of a solid of revolution using washers or shells:
- E. Integrate a function involving a u-substitution.

Textbooks (Typical):

OER: .

1. Strang, G., Herman, E., et al. *Calculus Volume 1*. OpenStax. 2025. <https://openstax.org/details/books/calculus-volume-1/>.

Textbook:

1. James Stewart, Stewart J., et al. *Calculus ; Single Variable Calculus Early Transcendentals*. 9th ed., Cengage, 2020 2021 .
2. Joel R Hass Briggs , Christopher D Heil, Maurice D Weir- *Thomas' Calculus: -15th ed W* ., Pearson; et 2022 al .
3. William L Briggs; Lyle Cochran, Bernard Gillett *Calculus: Early Transcendentals*. 3rd ed., Pearson, 2019.
4. Hass, J., et al. *Thomas' Calculus: Early Transcendentals*. 15th ed., Pearson. 2023.

Other Learning Materials: .

1. A college level textbook designed for science, technology, engineering and math majors, and supporting the learning objectives of this course. Texts used by individual institutions and even individual sections will vary.

Other Materials Required of Students

Other Materials Required of Students:

1. Graphing calculator may be required.

Equity Based Curriculum

- Course Content

Address

Each of the topics includes a look at applications to the real world. It is an important component of this course that students understand how the material matters to them in their daily life, career and industry, as well as how it will be used in their future studies.

- Methods of Instruction

Address

We deliver the material in a variety of ways in order to accommodate a range of different learning styles. This course can be offered in-person or online. Students will learn the material through lecture, interactive assignments, and individually.

- Assignments

Address

Assignments will include real-world problems so students can see how the material relates to their personal lives and links to career and industry.

- Methods of Evaluation

Address

There will be a mix of ways for students to receive feedback on their understanding of the material, including homework, class work, quizzes, and exams. That way students will have multiple opportunities for feedback and assessment.

- Typical Texts

Address

Free, open-source course materials are being developed and should be available for future offerings of this course.

- ~~Other Materials Required of Students~~

~~**Address -**~~

~~Free graphing calculators are provided through the library:~~

- ~~- Library~~

~~**Address**~~

~~Free graphing calculators are provided through the library.~~

Requisite Skills

Before entering this course, it is required that a student be able to:

A. MATH-30

1. Solve rational, linear, polynomial, radical, absolute value, exponential, and logarithmic equations;
2. Solve linear, nonlinear and absolute value inequalities;
3. Explore and apply rational, linear, polynomial, radical, absolute value, exponential, and logarithmic equations in context of applications;
4. Analyze functions graphically and investigate properties of functions;
5. Apply functions and other algebraic techniques to model real world applications in science, technology, engineering and mathematics;
6. Graph linear and nonlinear functions, including functions with radicals, exponential functions, absolute value functions, and logarithmic functions;
7. Apply transformations to the graphs of functions;
8. Synthesize results from the graphs and/or equations of functions;
9. Recognize the relationship between functions and their inverses graphically and algebraically;
10. Determine if a function has an inverse and find the inverse when it exists;
11. Apply techniques for finding real and complex zeros of polynomials and roots of equations;
12. Solve systems of equations and inequalities;
13. Analyze conics algebraically and graphically;
14. Find the terms of a sequence and the partial sums of a series;
15. Use formulas to find sums of finite and infinite series;

B. MATH-39

1. Define trigonometric functions in terms of the right triangle, using coordinates of a point and distance from the origin, and using the unit circle;
2. State from memory the values for sine, cosine and tangent functions of common angles given in either degrees or radians;
3. Identify special triangles and their related angle and side measures;
4. State from memory the Pythagorean identities, reciprocal identities, quotient identities, double angle identities, and sum and difference identities for sine and cosine;
5. Evaluate the trigonometric function of an angle in degree and radian measure;
6. Manipulate and simplify a trigonometric expression;
7. Solve trigonometric equations, including equations with multiple angles over different intervals, and solve triangles and applied problems;
8. Graph the basic trigonometric functions and apply changes in period, phase and amplitude to generate new graphs;
9. Evaluate and graph inverse trigonometric functions;
10. Develop and use trigonometric ratios or other trigonometric formulas to solve problems;
11. Develop and use the law of sines and law of cosines to completely solve an oblique triangle;
12. Convert between polar and rectangular coordinates and equations;
13. Graph polar coordinate equations;
14. Represent a vector (a quantity with magnitude and direction) in the form $\langle a, b \rangle$ and $a\mathbf{i} + b\mathbf{j}$;

C. MATH-2+

1. Graph functions and relations in rectangular coordinates and polar coordinates; including rational, linear, polynomial, radical, absolute value, exponential, and logarithmic, and trigonometric equations, including their definitions, evaluation, domain and range
2. Synthesize results from the graphs and/or equations of functions and relations
3. Analyze functions graphically and investigate properties of functions, such as asymptotic behavior, intercepts, and vertices, increasing and decreasing, extreme values, and average rates of change
4. Apply transformations to the graphs of functions and relations
5. Explore and apply functions to model real world applications, including applications in science, technology, engineering and mathematics
6. Explore and graph basic conics, such as parabolas, circles, ellipse and hyperbolas
7. Recognize the relationship between functions and their inverses graphically and algebraically
8. Solve and apply equations including rational, linear, polynomial, exponential, absolute value, radical, and logarithmic, and solve linear, nonlinear, and absolute value inequalities
9. Solve systems of equations and inequalities
10. Identify special triangles and their related angle and side measures
11. Evaluate the trigonometric function of an angle given in degree and radian measure
12. Manipulate and simplify a trigonometric expression
13. Solve trigonometric equations, triangles, and applications
14. Graph the basic trigonometric functions and apply changes in period, phase and amplitude to generate new graphs

D. MATH-22

1. Graph functions and relations in rectangular coordinates and polar coordinates
2. Synthesize results from the graphs and/or equations of functions and relations
3. Analyze functions graphically and investigate properties of functions, such as asymptotic behavior, intercepts, and vertices, increasing and decreasing, extreme values, and average rates of change

4. Explore and apply functions to model real world applications, including applications in science, technology, engineering and mathematics
5. Apply transformations to the graphs of functions and relations
6. Recognize the relationship between functions and their inverses graphically and algebraically
7. Solve and apply equations including rational, linear, polynomial, exponential, absolute value, radical, and logarithmic, and solve linear, nonlinear, and absolute value inequalities
8. Explore and graph basic conics, such as parabolas, circles, ellipse and hyperbolas
9. Solve systems of equations and inequalities
10. Identify special triangles and their related angle and side measures
11. Explore, evaluate, and model situations involving arc length and circular motion
12. Evaluate the trigonometric function at an angle whose measure is given in degrees and radians
13. Manipulate and simplify a trigonometric expression
14. Solve trigonometric equations, triangles, and applications
15. Graph the basic trigonometric functions and apply changes in period, phase and amplitude to generate new graphs
16. Evaluate and graph inverse trigonometric functions
17. Convert between polar and rectangular coordinates
18. Represent a vector (a quantity with magnitude and direction) in the form $\vec{r}$ and $a\vec{i} + b\vec{j}$

DE Proposal

Delivery Methods

- [Fully Online \(FO\)](#)
- [Online with the Flexible In-Person Component \(OFI\)](#)
- [Partially Online](#)

Rationale for DE

Explain why this course should be offered in Distance Education mode.

[Reasons include accessibility for students, to have more options than just traditional lecture \(face-to-face\), and to include in the OEI.](#)

Explain how the decision was made to offer this course in a Distance Education mode.

1) [Reasons include accessibility for students, to have more options than just traditional lecture \(face-to-face\), and to include in the OEI.](#) 2) At a recent math department meeting, we discussed the need to have more courses as part of the OEI. Classroom availability is limited and with the increase of FTEF towards higher-level math courses, we need to have an increased number of sections:

[At a recent math department meeting, we discussed the need to have more courses as part of the OEI. Classroom availability is limited and with the increase of FTEF towards higher-level math courses, we need to have an increased number of sections.](#)

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- [The same standards of course quality identified in the course outline of record can be applied.](#)
- [The content identified in the course outline of record can be presented effectively and with the same degree of rigor.](#)
- [A student can achieve the same goals and objectives identified in the course outline of record.](#)
- [The same assignments in the course outline of record can be completed by the student and graded by the instructor.](#)
- [The same assessments and level of student accountability can be achieved.](#)

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: The [Every](#) instructor [1-2](#) will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities. Students will be encouraged to email the instructor with questions about the content, structure, grading, etc., of the course. Replies will be made as soon as possible
- **- Discussion board:** *- The instructor will regularly participate in discussions that deal with academic content, will consistently provide substantive feedback, and will facilitate all discussions:*

Frequency: - The instructor will regularly participate in discussions that deal with academic content, will constantly provide substantive feedback, and will facilitate all of the discussions weeks.

- **Feedback on assignments:** The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.

Frequency: The Every instructor 1-2 will provide regular substantive, academic feedback to students on assignments and other assessments weeks.

- **Announcements:** Regular announcements that are academic in nature will be posted to the class.

Frequency: Announcements Every that 1-2 are academic in nature will be posted to the class regularly. To a lesser extent, the instructor will post announcements include information on when assignments are due, changes in the syllabus, exam schedules, etc weeks.

- **Face-to-face meetings (partially online courses only):** Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.

Frequency: Students 2-4 will times come per to semester campus as during scheduled face-to-face office hours to discuss any facet of by the course instructor and posted in the Course Notes upon registration. (hybrid courses only)

Student-Student Interaction

- **Email:** Students will be encouraged to email each other to ask questions about the course, including assignments.

Frequency: Students Every will 1 be encouraged 2 to email each other to ask questions about the course, including assignments weeks.

- **Class discussion board:** Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.

Frequency: Students will post to the discussion board in in each module, answering questions posed by the instructor. They will also reply to each others' postings. An example assignment is as follows: The instructor posts the following prompt: "List out any content-specific or conceptual every questions 1-2 concerning the content in the first module." Students would be expected to read the question, respond to it if they are able to, and then the instructor will review the students' responses and provide feedback. If there are no correct student responses, then the instructor will still provide feedback. In a hybrid course, the discussion board postings will be used to guide in-class discussion weeks.

Student-Content Interaction

- **Class discussion board:** Students will post to the discussion board, answering questions on course content posed by the instructor.

Frequency: Each in each module will or contain every at 1-2 least one class discussion relating to the topic(s) of the module weeks. Students will be required not only to post their opinions, ideas, and experiences, but they will also be required to reply to their classmates' posts. The instructor will pose questions relating to the textbook, online presentations, web sites, etc. An example assignment is as follows: "Discuss a real-life application of optimization as well as some of the challenges and limitations involved."

- **Quizzes, tests/exams:** Quizzes will be used to make sure students completed assigned material and understood it.

Frequency: Quizzes Every will 1-2 be used in each module to make sure students completed the assigned reading and understood it modules. These quizzes will be "open-book", but the questions will be randomized so different students get different questions. Tests and exams will include multiple choice and free response questions that will require higher-order thinking, along with supporting factual knowledge. The questions will be randomized (if delivered online) so different students get different questions. Time limits varies will per also be set. For hybrid classes, all tests/exams will be given out in class. A typical exam question is, "Find the first derivative of a trigonometric function." instructor.

- **Lecture:** Students will attend or access synchronous or asynchronous lectures on course content.

Frequency: Hybrid 3-5 students will be expected to attend a classroom-based lecture at least once times per week. These lectures are intended to be interactive and consist of a variety of activities including the instructor answering student questions, students participating in group work activities, and other active learning classroom-based exercises. The instructor should not predominantly utilize classroom time for traditional lecture. For both the hybrid and online courses, material will be provided to students online in the form of short video lectures:

- - **Simulations:** - Simulations will be used by students so they can participate in and learn from processes.

Frequency: - Simulations will be used by students so they can participate in, and learn from, processes that might otherwise be less available because of danger, expense or logistical difficulties. An example simulation for this course is as follows: "Use the java applet to simulate the effects of varying a constant on the behavior of the derivative function."

- **Video:** Video will be used to demonstrate procedures and to help students visualize concepts.

Frequency: Video will be used to demonstrate procedures and to help students visualize concepts. These clips increase the modalities of learning offered to students and meet the needs of those who learn best by seeing and hearing content. These online videos can be used various ways, including: 1. Pose a question at the beginning of the video to give students an idea of what to expect, what to look for, and what might be worth thinking about; 2. Present videos in an outline-like structure using short, descriptive links to different segments that include running 3 times of per each segment; 3. Include a short quiz or practice quiz at the end of each video; 4. Use the video as a springboard to a wholeclass discussion; and 5. Assign multiple short videos, then have students identify, compare, and contrast the concepts presented in each. All videos will be close captioned week.

General Education/Transfer Request

General Education/Transfer Request

Chabot College GE Cal-GETC

- MP: 2 Mathematics - Mathematical Proficiency Concepts and Quantitative Reasoning - Approved

CSU Transfer

- Transfers to CSU - Approved

Las Positas College GE

- 2 - Mathematical Concepts and Quantitative Reasoning - Approved

UC Transfer

- Transfers to UC - Approved

C-ID : MATH 210 - Approved

Codes and Dates

Course CB Codes

CB00: State ID

CCC000348340

CB03: TOP Code

170100 - Mathematics, General

CIP Code

27.0101 - Mathematics, General.

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

A - Transferable to both UC and CSU.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

E - Non-Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

Y - Not Applicable, Credit course

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

B. Course meets any of the following:

1. CSU General Education Breadth Area B4: Mathematics/Quantitative Reasoning
2. UC IGETC Area 2: Mathematical Concepts and Quantitative Reasoning
3. Course has a general education certification or articulation agreement that ensures the course fulfills mathematics or quantitative reasoning requirements at an accredited four-year institution

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Credit for Prior Learning

Credit for Prior Learning Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam Yes

Credit-by-Portfolio No

Please list the requirements/criteria/possible materials for a student to submit in their portfolio.

Curriculum Committee Approval Date

Effective Term

Credit-by-Military-JST No

Please list the ACE course(s) equivalent to this course

Curriculum Committee Approval Date

Effective Term

Credit-by-Industry-Recognized-Training No

Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses (including this one) for which a student will earn credit.

Curriculum Committee Approval Date

Additional Detail (List articulated courses, etc.) No

Please list the articulated courses. Also, we ask that you upload any relevant docs (e.g., exams) via Attached Files.

Curriculum Committee Approval Date

Effective Term

Curriculum Committee Approval Date

Effective Term Spring 2025

Course Modification: MATH C2220 - Calculus II: Early Transcendentals

Course Modification: MATH C2220 - Calculus II: Early Transcendentals (Launched - Implemented 10-27-2025)

compared with

MATH 2 - Calculus II (Active - Implemented 03-14-2025)

Admin Outline for Mathematics ~~2~~ **C2220**

Calculus II : **Early Transcendentals**

Effective: Fall ~~2019~~ **2027**

Catalog Description:

MATH ~~2~~ **C2220** - Calculus II : **Early Transcendentals**

5.00 Units

~~Continuation~~ **A** of ~~second~~ **single-variable** ~~course in~~ differential and integral calculus ~~of a single variable~~ . - Topics ~~covered include~~ **include: applications inverse of and hyperbolic functions; integration**, techniques of integration ;~~polar and parametric equations~~; , infinite sequences ; ~~and~~ series, ~~power and series~~ **the calculus of parametric** and ~~Taylor polar series; equations, applications~~ **This of course integration. Primarily is primarily intended** for ~~mathematics~~ **Science** , ~~physical Technology. science~~ **Engineering**, and ~~engineering~~ **Mathematics (STEM)** majors.

5 Units Lecture

Prerequisite: ~~Calculus I: Early Transcendentals (MATH + C2210), with or a equivalent. minimum or grade placement of as~~ **€** ~~determined by the college's multiple measures assessment process.~~

Course Grading: Letter Grade Only

Lecture Hours	90
Inside of Class Hours	90
Outside of Class Hours	180

Justification for course proposal

Discipline:

Mathematics

Number of Times Course May Be Taken for Credit:

1

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Apply integration to find areas and volumes.
- B. Evaluate definite and indefinite integrals using a variety of integration formulas and techniques.
- C. Use integration to solve applications such as work or length of a curve.
- D. Evaluate improper integrals.
- E. Determine convergence of sequences and series.
- F. Represent functions as power series.
- G. Graph, differentiate, and integrate functions in polar and parametric form.
- H. Graph, differentiate, and integrate inverse functions and transcendental functions such as trigonometric, exponential and logarithmic functions;
- I. ~~Evaluate limits by applying L'Hospital's rule and techniques appropriate to limits of indeterminate forms;~~
- J. ~~Evaluate definite and indefinite integrals by a variety of integration techniques;~~
- K. Apply numerical methods to approximate definite integrals ;
- L. ~~Evaluate improper integrals;~~
- M. Use integration to ~~solve applications such as work, arc length and~~ **find** the surface area of a solid of revolution ;
- N. Solve separable first order differential equations;
- O. Solve exponential growth and decay problems ;
- P. ~~Graph, differentiate and integrate functions in polar and parametric form;~~
- Q. ~~Determine convergence or divergence of an infinite sequence;~~
- R. ~~Determine convergence or divergence of an infinite series, alternating or non-alternating, by applying tests for convergence ;~~
- S. Estimate the sum of a convergent series;
- T. Determine convergence or divergence of a power series, and find the radius and interval of convergence;
- U. Find the radius and interval of convergence;
- V. Apply theorems for differentiation and integration of a power series ; .
- W. Find Taylor and Maclaurin series for a given function ; .
- X. Use the binomial series to find a power series of a function ;

Course Content:

1. ~~Transcendental~~ **Applications** ~~functions~~

1. Exponential of functions
 1. Differentiation
 2. Integration
2. Logarithmic integration functions
 1. Differentiation
 2. Logarithmic to differentiation
 3. Integration
2. Inverse areas trigonometric between functions
 1. Domain curves and range
 2. Graphs
 3. Differentiation
 4. Antiderivatives volumes, and including integration-formulas
3. Hyperbolic-functions
 1. Definitions-and-graphs
 2. Identities
 3. Differentiation
 4. Antiderivatives-and-integration-formulas
 5. Inverse-hyperbolic-functions
 6. Differentiation
 7. Antiderivatives-and-integration-formulas
4. Indeterminate-forms
 1. Types volumes of indeterminate-forms
 2. L'Hospital's-rule
 3. Techniques-for-evaluating-limits solids of indeterminate-forms revolution
5. Techniques of integration ,including integration by parts, trigonometric substitution, and partial fraction decomposition
 1. Substitution
 2. Inverse trigonometric function integration formulas
 3. Integration-by-parts
 4. Products of trigonometric functions
 5. Trigonometric-substitution
 6. Partial-fraction-decomposition
 7. Table of Integrals
 8. Hyperbolic substitution

6. Numerical ~~methods~~ integration, of including ~~integration~~ trapezoidal and Simpson's rules

1. Midpoint rule
2. ~~Trapezoidal rule~~
3. ~~Simpson's rule~~
4. Error analysis

7. Improper integrals

8. ~~Applications~~ Additional applications of integration

1. ~~Arc~~ , such as work, arc length
2. ~~Surface~~ , area of a solid surface of revolution
3. ~~Moments~~ , moments and ~~center~~ centers of mass
4. ~~Work~~

9. ~~Separable~~ , first-order separable differential equations

10. ~~Exponential~~ , growth and decay

11. Introduction to sequences and series

1. Infinite sequences

1. Definition
2. Geometric sequence
3. Convergence
4. Divergence

2. Infinite series

1. Geometric series
2. Telescoping series
3. p-series
4. Alternating series

12. Multiple tests for convergence of sequences and series

1. Tests for convergence or divergence

1. nth term divergence test
2. Integral test
3. p-series test
4. Comparison tests
5. Alternating series test
6. Ratio and root tests

2. Sum of a convergent series
13. Power series, radius of convergence, interval of convergence
14. Differentiation and integration of power series
 1. Power series representation of a function
 2. Tests for convergence
 3. Applications
 4. Binomial series
15. Taylor series expansion of functions
 1. Maclaurin series representation of a function
 2. Taylor's inequality
16. Parametric ~~curves~~ equations and ~~equations;~~ calculus with parametric curves
 1. Curve sketching and direction of motion
 2. Elimination of a parameter
 3. ~~Calculus with parametric curves~~
 1. Slope of a tangent line
 2. Area
 3. Arc length
17. Polar curves and ~~equations;~~
 1. ~~Polar~~ calculus ~~coordinates~~
 2. ~~Curve sketching~~
 3. ~~Calculus with~~ in polar ~~curves~~ coordinates
 1. Slope of tangent line
 2. Area
 3. Arc length
18. ~~Infinite sequences~~
 1. ~~Definition~~
 2. ~~Geometric sequence~~
 3. ~~Convergence~~
 4. ~~Divergence~~
19. ~~Infinite series~~
 1. ~~Geometric series~~

2. ~~Telescoping-series~~
3. ~~p-series~~
4. ~~Alternating-series~~
5. ~~Tests for convergence or divergence~~

1. ~~nth term divergence test~~
2. ~~Integral test~~
3. ~~p-series test~~
4. ~~Comparison tests~~
5. ~~Alternating series test~~
6. ~~Ratio and root tests~~

6. ~~Sum of a convergent series~~

20. ~~Power-series~~

1. ~~Definition~~
2. ~~Power series representation of a function~~
3. ~~Tests for convergence~~
4. ~~Radius and interval of convergence~~
5. ~~Applications~~
6. ~~Binomial series~~

21. ~~Taylor and Maclaurin series~~

1. ~~Definition~~
2. ~~Finding the Taylor or Maclaurin series representation of a function~~
3. ~~Taylor's inequality~~

Methods of Instruction:

1. Discussion ~~_~~
2. Lecture ~~_~~
3. Web- or CD-Rom-based tutorials
4. Student presentations
5. Collaborative learning

Typical Outside-of-Class Assignments

A. Other:

1. ~~Homework~~

1. Homework should be assigned from the text and should include a sufficient number and variety of problems to develop both skill and conceptual understanding. -

1. Problems should range in level of difficulty from introductory level to challenging. -

2. A typical assignment should take an average student 1 to 2 hours for each hour in class.

2. ~~Collaborative learning~~

1. Collaborative learning, done in small groups of 2–4 students, can be used to introduce new concepts, build skills, or teach problem solving. Students may be asked to present their results on the board.
2. Example collaborative learning assignment: Have each group solve a curve sketching problem and then present their work to the rest of the class, explaining the process they used and their results.

Methods of Evaluating Student Progress

- A. Exams/Tests
 1. minimum 4 exams and a comprehensive final exam
- B. Home Work
 1. Assigned for each section covered
- C. Quizzes
 1. Announced or unannounced, in-class or take home at the discretion of the instructor
- D. Students should demonstrate their mastery of the learning objectives and their ability to devise, organize, and present complete solutions to problems.
- E. Examples of potential methods of evaluation include, but are not limited to, exams, quizzes, homework, classwork, technology-based activities, laboratory work, projects, and research demonstrations.
- F. Methods of evaluation are at the discretion of local faculty.

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. Determine an arc length using parametric equations.
- B. Determine the interval of convergence for a power series.
- C. ~~Evaluate an integral using a power series representation.~~
- D. Integrate a function using a partial fraction expansion.
- E. Numerically evaluate an integral using Simpson's Rule and determine the error.
- F. Find the volume of a solid of revolution using washers or shells.

Textbooks (Typical):

OER: _

1. Strang, G., Herman, E., et al., *Calculus Volume 2*, OpenStax, 2025. <https://openstax.org/details/books/calculus-volume-2/>.

_ Textbook:

1. William Stewart, J., et al., *Calculus: Single Variable Calculus Early Transcendentals*, 9th ed., Cengage, 2021.
2. Briggs, ~~W.~~, ~~Cochran~~ W., ~~Bernard~~ et ~~Gillett~~ al. *Calculus :Early Transcendentals*. 2nd 3rd ed., Pearson, ~~2015~~ 2019.
3. ~~Joel R~~ Hass, ~~Christopher D~~ Heit J., ~~Maurice~~ et ~~D~~ Weir al. *Thomas' Calculus: Early Transcendentals*. ~~14th~~ 15th ed., Pearson, ~~2017~~ 2023.

Other Learning Materials: _

1. A college level textbook designed for science, technology, engineering and math majors, and supporting the learning objectives of this course .
2. ~~James~~ Texts ~~Stewart~~ used Calculus, by . 8th individual . ed., institutions . Cengage, and . 2016 even individual sections will vary .

Other Materials Required of Students

Other Materials Required of Students:

1. Graphing calculator may be required.

Equity Based Curriculum

- _ Course Content
Address _
Each of the topics includes a look at applications to the real world. It is an important component of this course that students understand how the material matters to them in their daily life, career and industry, as well as how it will be used in their future studies.
- _ Methods of Instruction
Address _
We deliver the material in a variety of ways in order to accommodate a range of different learning styles. This course can be offered in-person or online. Students will learn the material through lecture, interactive assignments, and individually.
- _ Assignments
Address _
Assignments will include real-world problems so students can see how the material relates to their personal lives and links to career and industry.
- _ Methods of Evaluation
Address _
There will be a mix of ways for students to receive feedback on their understanding of the material, including homework, class work, quizzes, and exams. That way students will have multiple opportunities for feedback and assessment.
- _ Typical Texts
Address _
Free, open-source course materials are being developed and should be available for future offerings of this course.
- _ Library
Address _
Free graphing calculators are provided through the library.

Requisite Skills

Before entering this course, it is required that a student be able to:

A. MATH1

1. Evaluate the limit of a function at a real number;
2. Determine whether a function is continuous at a point or an interval;
3. Find and interpret average and instantaneous rates of change;
4. Interpret the derivative as the slope of a tangent line and find the equation of a tangent line to a function;
5. State and apply the rules for differentiating algebraic and trigonometric functions;
6. Utilize the chain rule when differentiating functions;
7. Use calculus-based methods to analyze functional behavior;
8. Find all maxima, minima and points of inflection of a function;
9. Use implicit differentiation;
10. Evaluate the limit of a function at infinity;
11. Evaluate a definite integral as the limit of a Riemann sum;
12. Apply the Fundamental Theorem of Integral Calculus;
13. Evaluate integrals by the method of substitution;
14. Find areas between curves and volumes of solids of revolution;

DE Proposal

Delivery Methods

- [Fully Online \(FO\)](#)
- [Online with the Flexible In-Person Component \(OFI\)](#)
- [Partially Online](#)

Rationale for DE

Explain why this course should be offered in Distance Education mode.

[Reasons include accessibility for students, to have more options than just traditional lecture \(face-to-face\), and to include in the OEI.](#)

Explain how the decision was made to offer this course in a Distance Education mode.

1) [Reasons include accessibility for students, to have more options than just traditional lecture \(face-to-face\), and to include in the OEI.](#) 2) [At a recent math department meeting, we discussed the need to have more courses as part of the OEI. Classroom availability is limited and with the increase of FTEF towards higher-level math courses, we need to have an increased number of sections.](#)

[At a recent math department meeting, we discussed the need to have more courses as part of the OEI. Classroom availability is limited and with the increase of FTEF towards higher-level math courses, we need to have an increased number of sections.](#)

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- [The same standards of course quality identified in the course outline of record can be applied.](#)
- [The content identified in the course outline of record can be presented effectively and with the same degree of rigor.](#)
- [A student can achieve the same goals and objectives identified in the course outline of record.](#)
- [The same assignments in the course outline of record can be completed by the student and graded by the instructor.](#)
- [The same assessments and level of student accountability can be achieved.](#)

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: ~~The Every~~ [instructor 1-2](#) ~~will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities. Students will be encouraged to email the instructor with questions about the content, structure, grading, etc., of the course. Replies will be made as soon as possible.~~
- **- Discussion board:** *- The instructor will regularly participate in discussions that deal with academic content, will consistently provide substantive feedback, and will facilitate all discussions.*

Frequency: - The instructor will regularly participate in discussions that deal with academic content, will constantly provide substantive feedback, and will facilitate all of the discussions weeks.

- **Feedback on assignments:** The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.

Frequency: The Every instructor 1-2 will provide regular substantive, academic feedback to students on assignments and other assessments weeks.

- **Announcements:** Regular announcements that are academic in nature will be posted to the class.

Frequency: Announcements Every that 1-2 are academic in nature will be posted to the class regularly. To a lesser extent, the instructor will post announcements include information on when assignments are due, changes in the syllabus, exam schedules, etc. weeks.

- **Face-to-face meetings (partially online courses only):** Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.

Frequency: Students 2-4 will times come per to semester campus as during scheduled face-to-face office hours to discuss any facet of by the course instructor and posted in the Course Notes upon registration. (hybrid courses only)

Student-Student Interaction

- **Email:** Students will be encouraged to email each other to ask questions about the course, including assignments.

Frequency: Students Every will 1-2 be encouraged to email each other to ask questions about the course, including assignments weeks.

- **Class discussion board:** Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.

Frequency: Students will post to the discussion board in in each module, answering questions posed by the instructor. They will also reply to each others' postings. An example assignment is as follows: The instructor posts the following prompt: "List out any content-specific or conceptual every questions 1-2 concerning the content in the first module." Students would be expected to read the question, respond to it if they are able to, and then the instructor will review the students' responses and provide feedback. If there are no correct student responses, then the instructor will still provide feedback. In a hybrid course, the discussion board postings will be used to guide in-class discussion weeks.

Student-Content Interaction

- **Class discussion board:** Students will post to the discussion board, answering questions on course content posed by the instructor.

Frequency: Each in each module will or contain every at 1-2 least one class discussion relating to the topic(s) of the module weeks. Students will be required not only to post their opinions, ideas, and experiences, but they will also be required to reply to their classmates' posts. The instructor will pose questions relating to the textbook, online presentations, web sites, etc. An example assignment is as follows: "Discuss which method would be best for testing the following series for convergence. Justify your response."

- **Quizzes, tests/exams:** Quizzes will be used to make sure students completed assigned material and understood it.

Frequency: Quizzes Every will 1-2 be used in each module to make sure students completed the assigned reading and understood it modules. These quizzes will be "open-book", but the questions will be randomized so different students get different questions. Tests and exams will include multiple choice and free response questions that will require higher-order thinking, along with supporting factual knowledge. The questions will be randomized- (if delivered online) so different students get different questions. Time limits varies will per also be set. For hybrid classes, all tests/exams will be given out in class. A typical exam question is, "Find the radius of convergence of the Taylor Series:" instructor.

- **Lecture:** Students will attend or access synchronous or asynchronous lectures on course content.

Frequency: Hybrid 3-5 students will be expected to attend a classroom-based lecture at least once times per week. These lectures are intended to be interactive and consist of a variety of activities including the instructor answering student questions, students participating in group work activities, and other active learning classroom-based exercises. The instructor should not predominantly utilize classroom time for traditional lecture. For both the hybrid and online courses, material will be provided to students online in the form of short video lectures:

- - **Simulations:** - Simulations will be used by students so they can participate in and learn from processes:

Frequency: - Simulations will be used by students so they can participate in, and learn from, processes that might otherwise be less available because of danger, expense or logistical difficulties. An example simulation for this course is as follows: "Use the java applet to simulate the effects of using parametric equations on the graph of a function."

- **Video:** Video will be used to demonstrate procedures and to help students visualize concepts.

Frequency: Video will be used to demonstrate procedures and to help students visualize concepts. These clips increase the modalities of learning offered to students and meet the needs of those who learn best by seeing and hearing content. These online videos can be used various ways, including: 1. Pose a question at the beginning of the video to give students an idea of what to expect, what to look for, and what might be worth thinking about; 2. Present videos in an outline-like structure using short, descriptive links to different segments that include running 3 times of per each segment; 3. Include a short quiz or practice quiz at the end of each video; 4. Use the video as a springboard to a wholeclass discussion; and 5. Assign multiple short videos, then have students identify, compare, and contrast the concepts presented in each. All videos will be close captioned week.

General Education/Transfer Request

General Education/Transfer Request

Chabot College GE Cal-GETC

- HB: 2 Communications - Mathematical Concepts and Analytical Quantitative Thinking
- MP: Mathematics Proficiency

CSU-GE

- B4 Reasoning - Mathematics/Quantitative Reasoning Approved

CSU Transfer

- Transfers to CSU

IGETC Las Positas College GE

- 2A 2 - Math Mathematical Concepts and Quantitative Reasoning - Approved

UC Transfer

- Transfers to UC

C-ID : MATH 220 - Approved

Codes and Dates

Course CB Codes

CB00: State ID

CCC000375566

CB03: TOP Code

170100 - Mathematics, General

CIP Code

[27.0101 - Mathematics, General.](#)

CB04: Credit Status

D - Credit - Degree Applicable

CB05: Transfer Status

A - Transferable to both UC and CSU.

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

E - Non-Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status**CB13: Special Class Status**

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

Y - Not Applicable, Credit course

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

B. Course meets any of the following:

1. CSU General Education Breadth Area B4: Mathematics/Quantitative Reasoning
2. UC IGETC Area 2: Mathematical Concepts and Quantitative Reasoning
3. Course has a general education certification or articulation agreement that ensures the course fulfills mathematics or quantitative reasoning requirements at an accredited four-year institution

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status**Credit for Prior Learning**

Credit for Prior Learning Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam Yes

Credit-by-Portfolio No

Please list the requirements/criteria/possible materials for a student to submit in their portfolio.

Curriculum Committee Approval Date

Effective Term

Credit-by-Military-JST No

Please list the ACE course(s) equivalent to this course

Curriculum Committee Approval Date

Effective Term

Credit-by-Industry-Recognized-Training No

Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses (including this one) for which a student will earn credit.

Curriculum Committee Approval Date

Additional Detail (List articulated courses, etc.) No

Please list the articulated courses. Also, we ask that you upload any relevant docs (e.g., exams) via Attached Files.

Curriculum Committee Approval Date

Effective Term

Curriculum Committee Approval Date

Effective Term Spring 2025

Course Modification: NAUT A5 - Brakes

Course Modification: NAUT A5 - Brakes (Launched - Implemented 09-24-2025)

compared with

NAUT A5 - Brakes (Active - Implemented 08-15-2021)

Admin Outline for Noncredit Automotive Technology A5 Brakes
Effective: Fall ~~2021~~ 2026

Catalog Description:
NAUT A5 - Brakes
216 Hours

Diagnosis, evaluation, inspection, adjustment, and repair of braking, antilock braking systems, traction control and related devices. Class will involve California State law regarding brake and safety inspections. Includes the material on the California Brake Adjuster's Licensing Examination. Students are strongly recommended to enroll in Automotive Lab concurrently.

Prerequisite: ~~AUTO~~ ~~NAUT~~ ~~INTR~~ ~~INTL~~ with a minimum grade of C; ~~or~~ ~~and~~ NAUT ~~INTR~~ ~~INT~~ with a minimum grade of C, or AUTO INTL with a minimum grade of C and AUTO ~~INTR~~ ~~INT~~ with a minimum grade of C, INT and INTL may be taken concurrently.

 Course Grading: ~~-Pass/No-Pass~~ Optional

Total Lecture Hours	36
Total Lab Hours	108
Total Inside of Class Hours	144
Total Outside of Class Hours	72
Total Noncredit Hours	216

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:
Course Objectives:

Upon completion of this course, the student should be able to:

- Describe the theory and fundamentals of automotive brake, anti-lock brake electronic traction control, and steering stability systems;
- Use basic testing and diagnostic tools and equipment in the inspection, diagnosis and repair of automotive braking systems;
- Demonstrate the ability to access the vehicle computer and various sensors relating to brakes and suspension systems;
- Demonstrate safe and appropriate handling of hazardous material;
- Accurately investigate and catalogue consumer concerns;
- Maintain a clean and professional environment.

Course Content:
Lab:

- Foundation brake systems
- Anti-Lock systems and sub-systems
- Traction control systems and sub-systems.
- Steering Stability systems and subsystems
- Proper and safe tool use procedures
- Diagnostic safety precautions
- Analysis of test results
- Digital volt, ohm meter reading (DVOM)
- Digital storage oscilloscope hook-up and reading
- Computer access
- Access vehicle on board computer

12. [Retrieve codes and refer to diagnostic service information](#)
13. [Evaluate sensor data](#)
14. [Hazardous material handling](#)
15. [Demonstrate proper handling of brake system components](#)
16. [Perform proper fluid disposal](#)
17. [Traction Control](#)
18. [Collision avoidance](#)
19. [Professional environment](#)

Lecture:

1. Automotive brakes.

1. Foundation brake systems

1. Hydraulic servo, dual-servo, advanced leading trailing and leading trailing
 2. Caliper and piston front
 3. Caliper and piston rear

2. Anti-Lock systems and sub-systems

1. Wheel speed sensors
 2. Vehicle speed sensors
 3. Hydraulic control units
 4. Electrical control units

3. Traction control systems, and sub-systems.

1. Wheel speed sensors
 2. Vehicle speed sensors
 3. Hydraulic control units
 4. Electrical control units

4. Steering Stability systems and subsystems

1. Wheel speed sensors
 2. Vehicle speed sensors
 3. Hydraulic control units
 4. Electrical control units
 5. Yaw Sensors
 6. Pitch Sensors
 7. Decelerometers

8. Steering input sensors

2. Testing and diagnostic tools and equipment

1. Proper and safe tool use procedures
2. Diagnostic safety precautions
3. Analysis of test results
4. Digital volt, ohm meter reading (DVOM)
5. Digital storage oscilloscope hook-up and reading

3. Computer access

1. Access vehicle on board computer
2. Retrieve codes and refer to diagnostic service information
3. Evaluate sensor data

4. Hazardous material handling

1. Demonstrate proper handling of brake system components
2. Perform proper fluid disposal

5. Consumer concerns

1. Research customer concerns, evaluate steps needed to repair concern
2. Catalogue concern
3. Repair Procedures

6. Electrical Concerns

1. Base Brakes
2. ABS
3. Traction Control
4. Collision avoidance

7. Professional environment

1. Safety glasses (clear lens) worn in all laboratory areas
2. No loose clothing (coveralls strongly recommended)
3. Long Hair secured

4. No open toe shoes (safety shoes recommended)
5. Work areas maintained; clean, free of debris and spills

Lecture:

1. -Automotive brakes:
 1. -Foundation brake systems
 1. Hydraulic servo, dual-servo, advanced leading-trailing and leading-trailing
 2. Caliper and piston-front
 3. Caliper and piston-rear
 2. Anti-Lock systems and sub-systems
 1. Wheel speed sensors
 2. Vehicle speed sensors
 3. Hydraulic control units
 4. Electrical control units
 3. -Traction control systems, and sub-systems:
 1. -Wheel speed sensors
 2. -Vehicle speed sensors
 3. -Hydraulic control units
 4. -Electrical control units
 4. -Steering Stability systems and subsystems
 1. -Wheel speed sensors
 2. -Vehicle speed sensors
 3. -Hydraulic control units
 4. -Electrical control units
 5. -Yaw Sensors
 6. -Pitch Sensors
 7. -Decelerometers
 8. -Steering input sensors
2. -Testing and diagnostic tools and equipment
 1. -Proper and safe tool use procedures
 2. -Diagnostic safety precautions
 3. -Analysis of test results
 4. -Digital volt, ohm meter reading (DVOM)
 5. -Digital storage oscilloscope hook-up and reading
3. -Computer access

1. ~~Access vehicle on board computer~~
2. ~~Retrieve codes and refer to diagnostic service information~~
3. ~~Evaluate sensor data~~
4. ~~Hazardous material handling~~
 1. ~~Demonstrate proper handling of brake system components~~
 2. ~~Perform proper fluid disposal~~
5. ~~Consumer concerns~~
 1. ~~Research customer concerns, evaluate steps needed to repair concern~~
 2. ~~Catalogue concern~~
 3. ~~Repair Procedures~~
6. ~~Electrical Concerns~~
 1. ~~Base Brakes~~
 2. ~~ABS~~
 3. ~~Traction Control~~
 4. ~~Collision avoidance~~
7. ~~Professional environment~~
 1. ~~Safety glasses (clear lens) worn in all laboratory areas~~
 2. ~~No loose clothing (coveralls strongly recommended)~~
 3. ~~Long Hair secured~~
 4. ~~No open toe shoes (safety shoes recommended)~~
 5. ~~Work areas maintained; clean, free of debris and spills~~

Methods of Instruction:

1. Lab - Student Hands-on laboratory activities and assignments
2. Lecture - Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Typical Outside-of-Class Assignments

A. ~~Other:~~

~~A. Lecture based assignments~~

~~1. Lecture on ABS:~~

~~B. Lab based assignments~~

~~1. Test Hall effect WSS~~

Reading:

Read Chapter One in text

B. Writing:

Brake Construction research for a personal vehicle

Methods of Evaluating Student Progress

- A. Exams/Tests
 1. monthly
- B. Lab Activities

- 1. weekly
- C. Quizzes
- 1. weekly

Student Learning Outcomes

- Upon the completion of this course, the student should be able to:
- A. ~~Upon completion of NAUT A5, the student should be able to obtain~~ Obtain and interpret - _ powertrain data related to the brake system.
 - B. ~~Upon completion of NAUT A5, the student should be able to apply~~ Apply brakes repair safety - _precautions.
 - C. ~~Recognize and apply shop safety_~~ precautions.

Textbooks (Typical):

- Textbook:
- 1. James ~~Duffy~~ ~~D Halderman~~ ~~Modern~~ Automotive Technology. 9 ~~7~~ ed., ~~Goodheart-Wilcox~~ Pearson , ~~2020~~ 2024 .
 - 2. ~~Chris James~~ ~~Johanson Duffy~~ Auto ~~2025~~ Brakes ASE Automotive Suite . ~~5-ed~~ ; Goodheart Wilcox, ~~2021~~ 2025 .
 - 3. ~~California~~ ~~Tim~~ ~~State~~ ~~Giles~~ Department Automotive _ Consumer Affairs_ Brake Service: Inspection _ _ Manual Maintenance, Repair _ 6 ed. _ _ Cengage _ ~~2003~~ 2020 .

Other Materials Required of Students

- Other Materials Required of Students:
- 1. Safety Glasses.

Equity Based Curriculum

- _ Methods of Instruction Address _
The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Requisite Skills

- Before entering this course, it is required that a student be able to:**
- A. ~~AUTO~~ NAUT ~~INTR~~ INTL
 - 1. Utilize and apply hazardous waste handling;
 - 2. Identify and describe uses of automotive related tools;
 - 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 5. Discuss braking systems, perform a brake inspection, identify parts;
 - 6. Differentiate between suspension and steering system types, inspect and qualify components;
 - 7. Theorize on the future of the automotive industry.
 - B. NAUT ~~INTR~~ INT
 - 1. ~~Utilize and apply hazardous waste handling;~~
 - 2. Identify and describe uses of automotive related tools;
 - 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 5. Discuss braking systems, perform a brake inspection, identify parts;
 - 6. Differentiate between suspension and steering system types, inspect and qualify components;
 - 7. Theorize on the future of the automotive industry.
 - C. AUTO INTL
 - 1. Utilize and apply hazardous waste handling;
 - 2. Identify and describe uses of automotive related tools;
 - 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 5. Discuss braking systems, perform a brake inspection, identify parts;
 - 6. Differentiate between suspension and steering system types, inspect and qualify components;
 - 7. Theorize on the future of the automotive industry.
 - D. AUTO ~~INTR~~ INT
 - 1. Identify and describe uses of automotive related tools;
 - 2. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 3. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 4. Discuss braking systems, perform a brake inspection, identify parts;
 - 5. Differentiate between suspension and steering system types, inspect and qualify components;
 - 6. Theorize on the future of the automotive industry.

DE Proposal

- Delivery Methods
- Fully Online (FO)
 - Partially Online

Rationale for DE

Explain why this course should be offered in Distance Education mode.

~~FO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well~~

however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.

Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. There are exceptions to this as we learned in C-19.

Explain how the decision was made to offer this course in a Distance Education mode.

~~PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path. FO: Same as above~~

California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.
Frequency: Weekly, as assignments or labs are turned in
- **Announcements:** Regular announcements that are academic in nature will be posted to the class.
Frequency: Minimum Once per week
- **Web conferencing:** The instructor will use web conferencing to interact with students in real time.
Frequency: Minimum Once per week
- **Face-to-face meetings (partially online courses only):** Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.
Frequency: Weekly lab sessions
- **- Other: -**
Frequency: - ~~PO: Student interaction, fulfillment of SLO's and measurable objectives will be done on campus in the labs, weekly. FO: Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.~~

Student-Student Interaction

- **Email:** Students will be encouraged to email each other to ask questions about the course, including assignments.
Frequency: ~~PO: At least twice per semester FO:~~ At least once every other week.
- **Class discussion board:** Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.
Frequency: ~~Fully online only:~~ Minimum weekly
- **Chat:** Students will use the class chatroom to discuss assignments and course material in realtime.
Frequency: ~~Fully At online only:~~ least once every other week .
- **Other:**
Frequency: ~~PO:~~ Students will interact during on-campus weekly labs ~~FO: Student will interact~~ and online in chat.

Student-Content Interaction

- **Class discussion board:** Students will post to the discussion board, answering questions on course content posed by the instructor.
Frequency: ~~Fully online only:~~ weekly
- **Quizzes, tests/exams:** Quizzes will be used to make sure students completed assigned material and understood it.
Frequency: ~~PO and FO:~~ Quizzes: at least one quiz per section/chapter. Weekly. Exams: at least two per semester.
- **Lecture:** Students will attend or access synchronous or asynchronous lectures on course content.
Frequency: ~~PO:~~ At least once per week ~~FO: At least once per week~~
- **Simulations:** Simulations will be used by students so they can participate in and learn from processes.
Frequency: ~~FO:~~ Weekly
- **Projects:** Students will complete projects that demonstrate their mastery of outcomes of the course.

Frequency: ~~PO:~~ Weekly, in on-campus labs ~~FO:~~ Weekly recorded by student and completed using online software.

- **Other:**

Frequency: ~~Both PO and FO:~~ Homework, assigned weekly

General Education/Transfer Request

General Education/Transfer Request -

~~CSU Transfer~~

- ~~Transfers to CSU~~

Codes and Dates

Course CB Codes

CB00: State ID

CCC000621890

CB03: TOP Code

094800 - Automotive Technology

CIP Code

47.0604 - Automobile/Automotive Mechanics Technology/Technician.

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Credit for Prior Learning

Credit for Prior Learning . Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam . Yes

Credit-by-Portfolio . No

Please list the requirements/criteria/possible materials for a student to submit in their portfolio. .

Curriculum Committee Approval Date .

Effective Term .

Credit-by-Military-JST . No

Please list the ACE course(s) equivalent to this course .

Curriculum Committee Approval Date .

Effective Term .

Credit-by-Industry-Recognized-Training . No

Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses (including this one) for which a student will earn credit.

Curriculum Committee Approval Date .

Additional Detail (List articulated courses, etc.) . *No*

Please list the articulated courses. Also, we ask that you upload any relevant docs (e.g., exams) via Attached Files. .

Curriculum Committee Approval Date .

Effective Term .

Curriculum Committee Approval Date .

Effective Term .

Course Modification: NAUT A7 - Automotive Heating and Air Conditioning

Course Modification: NAUT A7 - Automotive Heating and Air Conditioning (Launched - Implemented 09-24-2025)

compared with

NAUT A7 - Automotive Heating and Air Conditioning (Active - Implemented 08-15-2021)

**Admin Outline for Noncredit Automotive Technology A7
Automotive Heating and Air Conditioning**
Effective: Fall ~~2021~~ 2026

Catalog Description:
**NAUT A7 - Automotive Heating and Air Conditioning
216 Hours**

Diagnosing, evaluation, testing, adjustment, and repair of heating, ventilation and air conditioning (HVAC). Includes heat and energy, psychometrics, air flow, refrigerant recycling, equipment and controls. Student will be prepared to pass a nationally recognized HVAC certificate program, required by all California HVAC repair shops. Students are strongly recommended to enroll in Automotive Lab concurrently.

Prerequisite: ~~AUTO~~ ~~NAUT~~ ~~INFR~~ ~~INTL~~ with a minimum grade of C; ~~or~~ ~~and~~ NAUT ~~INFR~~ ~~INT~~ with a minimum grade of C, or AUTO INTL with a minimum grade of C and AUTO ~~INFR~~ ~~INT~~ with a minimum grade of C, INT and INTL may be taken concurrently.

 Course Grading: ~~Pass/No-Pass~~ Optional

Total Lecture Hours	36
Total Lab Hours	108
Total Inside of Class Hours	144
Total Outside of Class Hours	72
Total Noncredit Hours	216

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:
Course Objectives:

Upon completion of this course, the student should be able to:

- A. Obtain and interpret Service Information, Tools, Safety;
- B. Diagnose the causes of HVAC system concerns resulting from malfunctions in the computerized HVAC control system with or without diagnostic trouble codes;
- C. Chart, inspect, and test computerized HVAC control system sensors, HVAC control module, actuators, and circuits using a digital-multi-meter (DMM) on board diagnostic scan tool, and perform necessary action;
- D. Access and use service information to perform step-by-step diagnosis;
- E. Evaluate and adjust HVAC system controls;
- F. Assess cooling system performance;
- G. Outline common repairs to the engine cooling systems;
- H. Perform Air conditioning (AC) evacuation and recharge;
- I. Diagnose malfunctions of vacuum and motor driven mode door;
- J. Pass HVAC certification test;
- K. Outline hazardous waste handling;
- L. Distinguish safe shop environment.

Course Content:
Lab:

1. Service Information, Tools and Safety

 1. ~~Interpretation of information~~

 1. ~~Factory-set procedures~~

 2. ~~Develop own diagnostic procedures~~

 2. ~~Environmental and Hazardous Materials~~

3. Heating and Air Conditioning [Principles](#) [Diagnosis](#)
4. [_ HVAC Parts and Operation](#) [identification](#)
5. A/C Compressors and Clutches
6. Refrigerant and Oil Types and Handling
7. [_ A/C System Operation](#)
8. [Air Flow Management](#)
9. [_ HVAC Electrical Circuits and Schematics](#)
10. [Advanced Electrical HVAC diagnosis](#)
11. [_ Engine Cooling System Parts and Operation](#)
12. [Automatic Temperature Control Systems](#)
13. [Maintenance and Light Repair HVAC Inspection](#)
14. [Refrigerant Recovery, Recycling and Handling](#)
15. [A/C System Diagnosis and Service](#)

Lecture:

1. [Service Information, Tools and Safety](#)
 1. [_ Interpretation of information](#)
 1. [_ Factory set procedures](#)
 2. [_ Develop own diagnostic procedures](#)
2. [Environmental and Hazardous Materials](#)
3. [Heating and Air Conditioning Principles](#)
4. [_ HVAC Parts and Operation](#)
5. [A/C Compressors and Clutches](#)
6. [Refrigerant and Oil Types and Handling](#)
7. [_ A/C System Components and Operation](#)
8. Air Flow Management System
9. [_ HVAC Electrical Circuits and Schematics](#)
10. Advanced Electrical HVAC systems
11. [_ Engine Cooling System Parts and Operation](#)
12. [_ Heater System Operation and Diagnosis](#)
13. Automatic Temperature Control Systems
14. Hybrid Electric Vehicle HVAC Systems
15. Maintenance and Light Repair HVAC Inspection
16. Refrigerant Recovery, Recycling and Handling
17. A/C System Diagnosis and Service
18. [_ Nationally Recognized HVAC Certification Test](#)

1. IMACA
2. ASE

Methods of Instruction:

1. Lecture - Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
2. Lab - Student Hands-on laboratory activities and assignments
3. Audio-visual Activity - PowerPoint presentations, Mockup parts from automotive

Typical Outside-of-Class Assignments

A. ~~Other:~~

Reading:
Read Chapter One in text

A. ~~Lecture-based assignments~~

Research:
Engine Construction research for a personal vehicle

1. ~~Text reading~~

2. ~~Oral presentation~~

3. ~~Class discussion~~

2. ~~Lab-based assignments:~~

1. ~~Completion of applied activities~~

2. ~~Lab activity worksheet~~

3. ~~Diagnosis and debugging~~

4. ~~Student Lab work sheets with emphasis on Hands-on applications~~

5. ~~Review of Lab sheets in both Lab and class settings~~

3. ~~Text reading assignments~~

1. ~~Class discussions of reading assignments~~

2. ~~Demonstrations pertaining to reading assignments~~

Methods of Evaluating Student Progress

- A. Exams/Tests
 1. monthly
- B. Lab Activities
 1. weekly
- C. Quizzes
 1. weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of NAUT A7, the student should be able to apply~~ Apply HVAC safety - _ precautions.
- B. ~~Upon completion of NAUT A7, the student should be able to read~~ Read and interpret HVAC - _ gauges .
- C. Apply service manual procedures to the vehicle .

Textbooks (Typical):

Textbook:

1. Chris Tim Johanson Giles Auto Automotive Heating Service: and Inspection. Air Maintenance. Conditioning Repair. 5 6 ed., Goodheart-Wilcox Cengage , 2021 2020.

2. James D Halderman. *Automotive Technology*. 7 ed., Pearson, 2024 .
3. James Duffy *Modern 2025 ASE Automotive Technology Suite*. 9 ed., Goodheart Wilcox, 2020 2025 .

Other Materials Required of Students

Other Materials Required of Students:

1. Safety Glasses.

Equity Based Curriculum

- Methods of Instruction
Address .
The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
- Methods of Evaluation
Address .
The course materials and evaluations are based on industry standards.
- Typical Texts
Address .
The course materials and evaluations are based on industry standards.

Requisite Skills

Before entering this course, it is required that a student be able to:

- A. ~~AUTO~~ NAUT INTR INTL
1. Utilize and apply hazardous waste handling;
 2. Identify and describe uses of automotive related tools;
 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 5. Discuss braking heating and cooling systems, perform a basic brake cooling inspection; systems identify parts tests ;
 6. Identify different air transmissions conditioning systems , understand theory cycles of operation refrigerant;
 7. Theorize on the future of both the manual automotive and automatic transmissions and fluid requirements; industry.
- B. NAUT INTR INT
1. Utilize and apply hazardous waste handling;
 2. Identify and describe uses of automotive related tools;
 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 5. Discuss braking heating and cooling systems, perform a basic brake cooling inspection; systems identify parts tests ;
 6. Identify different air transmissions conditioning systems , understand theory cycles of operation refrigerant;
 7. Theorize on the future of both the manual automotive and automatic transmissions and fluid requirements; industry.
- C. AUTO INTL
1. Utilize and apply hazardous waste handling;
 2. Identify and describe uses of automotive related tools;
 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 5. Discuss braking heating and cooling systems, perform a basic brake cooling inspection; systems identify parts tests ;
 6. Identify different air transmissions conditioning systems , understand theory cycles of operation refrigerant;
 7. Theorize on the future of both the manual automotive and automatic transmissions and fluid requirements; industry.
- D. AUTO INTR INT
1. Identify and describe uses of automotive related tools;
 2. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 3. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 4. Discuss braking heating and cooling systems, perform a basic brake cooling inspection; systems identify parts tests ;
 5. Identify different air transmissions conditioning systems , understand theory cycles of operation refrigerant;
 6. Theorize on the future of both the manual automotive and automatic transmissions and fluid requirements; industry.

DE Proposal

Delivery Methods

- Fully Online (FO)
- Partially Online

Rationale for DE

Explain why this course should be offered in Distance Education mode.

PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration:

Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. There are exceptions to this as we learned in C-19.

Explain how the decision was made to offer this course in a Distance Education mode.

PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path. FO: Same as above

[California Automotive Teachers have given this recommendation to allow our students to continue on their career path.](#)

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly lab sessions

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: ~~PO:~~ [At Minimum least twice once per every semester.](#) ~~FO:~~ [other Minimum Bi-weekly week.](#)
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: ~~FO-only:~~ Minimum weekly
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: ~~FO:~~ [Minimum](#) ~~Bi-~~ weekly
- **Other:**
Frequency: ~~PO:~~ [Students will interact during on-campus](#) [Minimum](#) weekly ~~-labs~~ ~~FO:~~ [Student will interact online in chat.](#)

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: ~~FO~~ [Minimum](#) ~~only:~~ [Weekly weekly.](#)
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Quizzes: [at least one quiz per section/chapter.](#) Weekly. Exams: ~~Monthly~~ [at least two per semester.](#)
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: Minimum once per week
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: ~~FO:~~ Weekly
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: Weekly
- **Other:**
Frequency: ~~Both PO and FO:~~ Homework, assigned weekly

General Education/Transfer Request

General Education/Transfer Request -

~~CSU Transfer~~

- ~~Transfers to CSU~~

Codes and Dates

Course CB Codes

CB00: State ID

CCC000621983

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Credit for Prior Learning

[Credit for Prior Learning](#) . [Yes](#)

[Please select the method\(s\) of credit for prior learning that students can use to earn credit for this course at Las Positas College.](#)

[Credit-by-Exam](#) . [Yes](#)

[Credit-by-Portfolio](#) . [No](#)

[Please list the requirements/criteria/possible materials for a student to submit in their portfolio.](#) .

[Curriculum Committee Approval Date](#) .

[Effective Term](#) .

[Credit-by-Military-JST](#) . [No](#)

[Please list the ACE course\(s\) equivalent to this course](#) .

[Curriculum Committee Approval Date](#) .

[Effective Term](#) .

[Credit-by-Industry-Recognized-Training](#) . [No](#)

[Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses \(including this one\) for which a student will earn credit.](#)

-
[Curriculum Committee Approval Date](#) .
[Additional Detail \(List articulated courses, etc.\)](#) . [No](#)
[Please list the articulated courses. Also, we ask that you upload any relevant docs \(e.g., exams\) via Attached Files.](#) .
[Curriculum Committee Approval Date](#) .
[Effective Term](#) .
[Curriculum Committee Approval Date](#) .
[Effective Term](#) .

Course Modification: NAUT A8 - Engine Performance

Course Modification: NAUT A8 - Engine Performance (Launched - Implemented 09-24-2025)

compared with

NAUT A8 - Engine Performance (Active - Implemented 01-01-2024)

Admin Outline for Noncredit Automotive Technology A8
Engine PerformanceEffective: Fall ~~2024~~ 2026

Catalog Description:

NAUT A8 - Engine Performance

270 Hours

Principles of automotive fuel induction, ignition and emission control systems, including inspection, diagnosis and repair of fuel and emission control systems/components governed by federal and state laws and standards. Electrical diagnosis of emission control systems. Relation of chassis and body systems to emissions. Students are strongly recommended to enroll in Automotive Lab concurrently.

Prerequisite: ~~AUTO~~ ~~NAUT~~ ~~INTR~~ ~~INTL~~ with a minimum grade of C; ~~or~~ ~~and~~ NAUT ~~INTR~~ ~~INT~~ with a minimum grade of C, or AUTO INTL with a minimum grade of C and AUTO ~~INTR~~ ~~INT~~ with a minimum grade of C, INT and INTL may be taken concurrently.

Course Grading: ~~-Pass/No-Pass~~ Optional

Total Lecture Hours	54
Total Lab Hours	108
Total Inside of Class Hours	162
Total Outside of Class Hours	108
Total Noncredit Hours	270

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

Course Objectives:

Upon completion of this course, the student should be able to:

- Distinguish and explain the different types of fuel delivery systems;
- Distinguish and explain the different types of ignition systems
- Perform tests related to popular fuel systems used on current model cars;
- Perform tests related to popular ignition systems used on current model cars
- Formulate diagnostic patterns, and analyze gas readings to expedite proper repairs
- Manipulate and use hand held diagnostic test equipment
- Demonstrate proficient use of diagnostic information systems;
- Explain theory and functionality of carburetors, throttle body, and port injectors;
- Explain safety procedures and the handling of hazardous waste materials;
- Maintain a clean and professional environment.

Course Content:

Lab:

- Diagnose fuel delivery systems.
- Diagnose types of ignition systems
- Fuel systems testing
- Ignition System Testing
- Diagnostic patterns and analyze gas readings
- Diagnostic test equipment
- Diagnostic information systems.
- Diagnose various Engine Performance concerns

9. [Handling of hazardous waste materials](#)

10. [Professional environment](#)

Lecture:

1. Different types of fuel delivery systems.

1. Describe functionality of Carburetors
2. Describe advantages of Fuel injectors

2. Different types of ignition systems

1. Describe functionality of a points ignition systems
2. Describe functionality of a high energy ignition systems
3. Describe functionality of a coil over plug ignition systems

3. Fuel systems testing

1. Perform pressure test
2. Evaluate volume test and fuel composition
3. Electronic pulse with modulation evaluation
4. Volt drop and scope evaluation

4. Ignition System Testing

1. Ignition Scope theory
2. Ignition Scope Usage
3. Ignition Scope Reading and evaluation

5. Diagnostic patterns, and analyze gas readings

1. Execute diagnostic as described in service information systems
2. Study and evaluate exhaust gas readings

6. Diagnostic test equipment

1. Identify proper tester for application
2. Manipulate hand held scanners to retrieve diagnostic information.

7. Diagnostic information systems

1. Access and extract diagnostic information.
2. Research labor time guides for work determined in diagnostics.

8. Explain theory and functionality

1. List theory of air fuel flow of a carburetor
2. Explain advantages of port injectors and related equipment

9. Diagnose various Engine Performance concerns

10. Explain the difference in the three main automotive systems

11. Handling of hazardous waste materials

1. Storage and handling of gasoline
2. Storage and handling of diesel fuel

12. Professional environment

1. Safety glasses (clear lens) worn in all Laboratory areas
2. No loose clothing (coveralls strongly recommended)
3. Long hair secured
4. No open toe shoes (safety shoes recommended)
5. Work areas maintained: clean free of debris and spills

Methods of Instruction:

1. Lab - - Student Hands-on laboratory activities and assignments
2. Lecture - Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Typical Outside-of-Class Assignments

- A. ~~Other:~~
- Reading:
Read Chapter One in text
- A. ~~Lecture-based assignments~~
- Research:
Engine performance research for a personal vehicle
1. ~~Lecture on scanner operation~~
 2. ~~Lab based assignments~~
 1. ~~Perform diagnosis of MIL~~
 3. ~~Text reading assignments~~
 1. ~~Read Chapter One~~

Methods of Evaluating Student Progress

- A. Exams/Tests
 - 1. monthly
- B. Lab Activities
 - 1. weekly
- C. Quizzes
 - 1. weekly

Student Learning Outcomes

- Upon the completion of this course, the student should be able to:
- A. ~~Upon completion of NAUT A8, the student should be able to apply~~ Apply emission safety - _ precautions.
 - B. ~~Upon completion of NAUT A8, the student should be able to read~~ Read and interpret scanner - _ data.
 - C. Apply service manual techniques.

Textbooks (Typical):

- Textbook:
- 1. ~~Chris James Johanson D Halderman Auto Automotive Engine Performance and Drivability Technology . 5 7~~ ed., Goodheart-Wilcox Pearson , 2021 2024 .
 - 2. James Duffy ~~Modern 2025 ASE Automotive Technology Suite . ,Goodheart Wilcox, 2025.~~
 - 3. Tim Giles. Automotive Service: Inspection, Maintenance, Repair . 9 6 ed., Goodheart-Wilcox Cengage , 2020.

Other Materials Required of Students

- Other Materials Required of Students:
- 1. Safety Glasses.

Equity Based Curriculum

- _ Methods of Instruction
Address _
The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
- _ Methods of Evaluation
Address _
The course materials and evaluations are based on industry standards.
- _ Typical Texts
Address _
The course materials and evaluations are based on industry standards.

Requisite Skills

- Before entering this course, it is required that a student be able to:**
- A. ~~AUTO NAUT INTR INTL~~
 - 1. Utilize and apply hazardous waste handling;
 - 2. Identify and describe uses of automotive related tools;
 - 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 4. Discuss four stroke engine cycle and identify engine parts;
 - 5. Perform basic engine teardown and reassembly;
 - 6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 7. Identify emissions components, understand 5 gas theory;
 - 8. ~~Identify Theorize different on transmissions; the understand theory future of operation the of automotive both manual and automatic transmissions and fluid requirements; industry.~~
 - B. NAUT ~~INTR INT~~
 - 1. ~~Utilize and apply hazardous waste handling;~~
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 - 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
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3. Discuss four stroke engine cycle and identify engine parts;
4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
5. Identify emissions components, understand 5 gas theory;
6. ~~Identify Theorize different on transmissions; the understand theory future of operation the of automotive both manual and automatic transmissions and fluid requirements; industry.~~

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

~~PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.~~

Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs. There are exceptions to this as we learned in C-19.

Explain how the decision was made to offer this course in a Distance Education mode.

~~PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path. FO: Same as above~~

California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
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- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly lab sessions

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: ~~PO:~~ At Minimum twice per semester. ~~FO: Minimum~~ least once every other week.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: ~~FO only:~~ Minimum weekly
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: ~~FO~~ Minimum ~~only: Bi-Weekly~~ weekly

- **Other:**

Frequency: ~~PO: Students will interact during on-campus~~ Minimum weekly ~~-labs FO: Student will interact online in chat:~~

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: ~~FO~~ Minimum ~~only: Weekly~~ weekly.
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Quizzes: at least one quiz per section/chapter. Weekly. Exams: ~~Monthly~~ at least two per semester.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: Minimum once per week
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: ~~FO:~~ Weekly
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: Weekly
- **Other:**
Frequency: ~~Both PO and FO:~~ Homework, assigned weekly

General Education/Transfer Request

General Education/Transfer Request -

~~CSU Transfer~~

- ~~Transfers to CSU~~

Codes and Dates

Course CB Codes

CB00: State ID

CCC000640624

CB03: TOP Code

094800 - Automotive Technology

CIP Code

47.0604 - Automobile/Automotive Mechanics Technology/Technician.

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Credit for Prior Learning

Credit for Prior Learning - Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam . Yes

Credit-by-Portfolio . No

Please list the requirements/criteria/possible materials for a student to submit in their portfolio. .

Curriculum Committee Approval Date .

Effective Term .

Credit-by-Military-JST . No

Please list the ACE course(s) equivalent to this course .

Curriculum Committee Approval Date .

Effective Term .

Credit-by-Industry-Recognized-Training . No

Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses (including this one) for which a student will earn credit.

-

Curriculum Committee Approval Date .

Additional Detail (List articulated courses, etc.) . No

Please list the articulated courses. Also, we ask that you upload any relevant docs (e.g., exams) via Attached Files. .

Curriculum Committee Approval Date .

Effective Term .

Curriculum Committee Approval Date .

Effective Term .

Course Modification: NAUT CA2 - Automatic Transmission/Transaxle Concepts

Course Modification: NAUT CA2 - Automatic Transmission/Transaxle Concepts (Launched - Implemented 09-27-2025)

compared with

NAUT CA2 - Concepts of Automatic Transmission/Transaxle (Active - Implemented 08-15-2021)

Admin Outline for Noncredit Automotive Technology CA2

~~Concepts of~~ Automatic Transmission/Transaxle Concepts

Effective: Fall ~~2021~~ 2026

Catalog Description:

NAUT CA2 - ~~Concepts of~~ Automatic Transmission/Transaxle Concepts

108 Hours

This class is lecture only and non-credit. An in depth study of engine, transmission, transaxles: mechanical, measurement, and assembly. An in-depth study of the above mentioned components including theory, teardown, evaluate, qualifying, and rebuilding.

Course Grading: ~~-Pass/No Pass~~ Optional

Total Lecture Hours	36
Total Inside of Class Hours	36
Total Outside of Class Hours	72
Total Noncredit Hours	108

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

Course Objectives:

Upon completion of this course, the student should be able to:

- Demonstrate the basic safety procedures of handling hazardous waste materials.
- Explain the history of powertrain evolution.
- Explain transmission gear ratio and hydraulic theory.
- Demonstrate Ohm's law in practice

Course Content:

- Safety
 - Tool usage and nomenclature
 - Proper disposal procedures
 - Environmentally conscious decisions
- Powertrain evolution
 - Horsepower and emission trade offs
 - Environmental decisions driving design
 - The first automatic transmissions
 - Current automatic transmissions
 - More gear ratios
 - Different fluids
 - Internal design improvements

3. Measurement tools

1. Micrometer

1. Vernier
2. Caliper

2. Dial bore gauge

3. Snap gauges

4. Straight edge

5. Feeler gauges

6. Hole gauges

4. Automatic Transmission Theory

1. Gear Ratios

1. Shift Points
2. Planetary gear sets
3. Valves
4. Clutches
5. Sprags

2. Hydraulics

1. Basic and advanced hydraulics
2. Hydraulic control components
3. Fluid pressures
 1. Line
 2. Apply
 3. Release
 4. Clutch
 5. Accumulator
 6. Torque
 7. Servo
 8. D4_D3_D2_D1

3. Other Components

1. Final Drives

2. [Torque converters](#)
3. [Apply systems](#)
4. [Differential components](#)
5. [Electrical components](#)
 1. [TCM, THECM, PCM](#)
 2. [Fluid temperature sensor](#)
 3. [TISS and TOSS](#)
 4. [TCC](#)
 5. [PRNDL](#)

5. [Transmission Teardown](#)

1. [Removal and identification of FWD](#)
 1. [Special procedures](#)
2. [Removal and identification of RWD](#)
 1. [Special procedures](#)

6. [Component measurement](#)

1. [Specification lookup](#)
2. [Comparison](#)
 1. [Component diagnosis](#)
 1. [Failure analysis](#)

7. [Qualification of replacement components](#)

1. [Correct component?](#)
2. [New and used part comparison](#)

8. [Transmission rebuilding](#)

1. [Manufacturer Procedures](#)
 1. [Component sequence](#)
 2. [Torque specifications](#)
 3. [Tightening sequences](#)

4. Special concerns

2. Assembly lube

3. Gaskets and sealers

9. Ohm's law

10. Valve body diagnosis

11. Professionalism

1. Safety glasses

2. Working shop expectations

3. Attitude

4. Cleanliness

5. Maintenance of work areas and tools

Methods of Instruction:

1. Lecture ~~– Group and individual lecture activities. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.~~

Typical Outside-of-Class Assignments

A. ~~Other:~~

Reading:
Read Chapter One in text.

1. ~~Lecture-based assignments~~

1. ~~Lecture on Automatic transmission clutch packs~~

2. ~~Text-reading assignments~~

1. ~~Read Chapter One:~~

Methods of Evaluating Student Progress

A. Exams/Tests

1. monthly

B. Quizzes

1. weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of AUTO A2, the student should be able to, obtain~~ Obtain and interpret powertrain data related to the transmission.
- B. ~~Upon completion of AUTO A2, the student should be able to apply~~ Apply transmission/Transaxle repair safety precautions .
- C. Use service information to research a repair .

Textbooks (Typical):

Textbook:

1. James ~~Duffy~~ D Halderman ~~Modern~~ *Automotive Technology*. 9 ~~7~~ ed. .Pearson, 2024.
2. James Duffy. 2025 ASE Automotive Suite. , Goodheart Wilcox, ~~2020~~ 2025 .

Other Learning Materials: .

1. ~~Chris No~~ Johanson ~~Automatic Transmissions and transaxles: -5 ed.,~~ Goodheart Wilcox, 2021: Textbook

Other Materials Required of Students

Other Materials Required of Students:

1. Computer with internet access.

Equity Based Curriculum

- [. Methods of Instruction](#)
[Address .](#)
[The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.](#)
- [. Methods of Evaluation](#)
[Address .](#)
[The course materials and evaluations are based on industry standards.](#)

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

Lecture only and non-credit. Does not qualify students for careers in automotive.

Explain how the decision was made to offer this course in a Distance Education mode.

This class is NC and lecture only. It is based off of the credit classes and just pulls the lecture. It is made for non-traditional students. Being lecture only it will appeal to those who do not want a career in "wrenching" or those who "just want to know about their car" or "services related to automotive but not wrenching"

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Minimum once per week
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum Once per week
- **Chat:** *The instructor will use chat to interact with students, textually and/or graphically, in realtime.*
Frequency: Minimum once per week

Student-Student Interaction

- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Minimum once per week
- **Web conferencing:** *Students will interact in real time with each other to discuss coursework and assignments.*
Frequency: Minimum Once per week

Student-Content Interaction

- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Quizzes: at least one quiz per section/chapter. Weekly. - Exams: Monthly.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: At least once per week
- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*
Frequency: Minimum once per week
- **Other:**
Frequency: Homework, assigned weekly

General Education/Transfer Request

General Education/Transfer Request -

CSU Transfer

- ~~Transfers to CSU~~

Codes and Dates

Course CB Codes

CB00: State ID

CCC000621987

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

D - Possibly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: NAUT CA3 - Manual Drive Train and Axles Concepts

Course Modification: NAUT CA3 - Manual Drive Train and Axles Concepts (Launched - Implemented 09-27-2025)

compared with

NAUT CA3 - Concepts of Manual Drive Train and Axles (Active - Implemented 08-15-2021)

Admin Outline for Noncredit Automotive Technology CA3

~~Concepts of~~ Manual Drive Train and Axles Concepts

Effective: Fall ~~2021~~ 2026

Catalog Description:

NAUT CA3 - ~~Concepts of~~ Manual Drive Train and Axles Concepts

108 Hours

This class is lecture only and non-credit. An in-depth study of rear axle, front axle, and transfer cases: mechanical, measurement, and assembly. Including theory, teardown, qualifying, and rebuilding.

Course Grading: ~~-Pass/No-Pass~~ Optional

Total Lecture Hours	36
Total Inside of Class Hours	36
Total Outside of Class Hours	72
Total Noncredit Hours	108

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Explain the history of powertrain evolution.
- B. Explain rear axle gear theory;
- C. Explain front axle gear theory;
- D. Explain transfer case gear and power flow theory;
- E. Qualify new and used rear axle components.

Course Content:

1. Safety

2. Powertrain evolution

1. The first axle assemblies

2. Current axle assemblies

1. Internal design improvements

3. Environmental decisions driving design

3. Measurement tools

1. Micrometer

1. Vernier

2. Caliper

2. Dial bore gauge
3. Snap gauges
4. Straight edge
5. Feeler gauges
6. Hole gauges

4. Rear Axle theory

1. Gear Design

1. Straight Cut
2. Hypoid Cut
3. Diagonal Cut
4. Street vs. racing

2. Pinion Design

3. Ring Gear Design
4. Locking/Non-Locking Design
5. Full/Free Floating Design

5. Front Axle theory

1. Gear Design

1. Straight Cut
2. Hypoid Cut
3. Diagonal Cut
4. Street vs. racing

2. Pinion Design

3. Ring Gear Design
4. Locking/Non-Locking Design

6. Transfer Case theory

1. Gear Design

1. Straight Cut

2. Hypoid Cut
3. Diagonal Cut
4. Street vs. Off Road

2. Drive Chain Design
3. Active/Passive Design
4. 4wd Hi/4WD Lo Design and usage

7. Two speed axles
8. Electrical theory and application to axles
9. Professionalism

Methods of Instruction:

1. Lecture - Group and individual lecture activities. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Typical Outside-of-Class Assignments

A. ~~Other:~~

Reading:
Read Chapter One of text

1. ~~Lecture-based assignments~~

1. ~~Lecture on pinion depth measurements~~

2. ~~Text-based assignments~~

1. ~~Read Chapter One~~

Methods of Evaluating Student Progress

- A. Exams/Tests
 1. monthly
- B. Quizzes
 1. weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of AUTO A3, the student should be able to, obtain~~ Obtain and interpret powertrain data related to manual gearboxes and axles.
- B. ~~Upon completion of AUTO A3, the student should be able to apply~~ Apply Manual Drive Train and axle repair safety precautions .
- C. Use service information to research a repair .

Textbooks (Typical):

Textbook:

1. ~~Chris James Johanson Duffy Manual 2025 Drivetrains ASE and Automotive Axles Suite . 5-ed.~~, Goodheart Wilcox, ~~2021~~ 2025 .
2. James ~~Duffy D Halderman Modern~~ Automotive Technology, 9 ~~7~~ ed., ~~Goodheart Wilcox Pearson~~ , ~~2020~~ 2024 .

Other Learning Materials: -

1. No Textbook

Other Materials Required of Students

Other Materials Required of Students:

1. Computer with internet access.

Equity Based Curriculum

- [_ Methods of Instruction](#)
[Address _](#)
[The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.](#)
- [_ Methods of Evaluation](#)
[Address _](#)
[The course materials and evaluations are based on industry standards.](#)

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

Lecture only and non-credit. Does not qualify students for careers in automotive.

Explain how the decision was made to offer this course in a Distance Education mode.

This class is NC and lecture only. It is based off of the credit classes and just pulls the lecture. It is made for non-traditional students. Being lecture only it will appeal to those who do not want a career in "wrenching" or those who "just want to know about their car" or "services related to automotive but not wrenching"

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Minimum once per week
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week
- **Chat:** *The instructor will use chat to interact with students, textually and/or graphically, in realtime.*
Frequency: Minimum once per week

Student-Student Interaction

- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Minimum once per week
- **Web conferencing:** *Students will interact in real time with each other to discuss coursework and assignments.*
Frequency: Minimum once per week

Student-Content Interaction

- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Quizzes: at least one quiz per section/chapter. Weekly. Exams: Monthly.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: At least once per week
- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*

Frequency: Minimum once per week

- **Other:**

Frequency: Homework, assigned weekly

General Education/Transfer Request

General Education/Transfer Request -

~~CSU Transfer~~

- ~~Transfers to CSU~~

Codes and Dates

Course CB Codes

CB00: State ID

CCC000621988

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

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CB09: SAM Code

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CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: NAUT CA4 - Suspension and Steering Concepts

Course Modification: NAUT CA4 - Suspension and Steering Concepts (Launched - Implemented 09-27-2025)

compared with

NAUT CA4 - Concepts of Suspension and Steering (Active - Implemented 08-15-2021)

Admin Outline for Noncredit Automotive Technology CA4

~~Concepts of~~ Suspension and Steering Concepts

Effective: Fall ~~2021~~ 2026

Catalog Description:

NAUT CA4 - ~~Concepts of~~ Suspension and Steering Concepts

108 Hours

This class is lecture only and non-credit. Diagnosis, evaluation, testing, adjustment, alignment and repair of steering and suspension systems. Including all common automotive steering and suspension systems both car and truck. Future systems will also be covered.

Course Grading: ~~Pass/No Pass~~ Optional

Total Lecture Hours	36
Total Inside of Class Hours	36
Total Outside of Class Hours	72
Total Noncredit Hours	108

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

Course Objectives:

Upon completion of this course, the student should be able to:

- Identify and describe uses of automotive related tools;
- Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
- Differentiate between suspension and steering system types, inspect and qualify components;
- Theorize on the future of the automotive industry.

Course Content:

- Fundamentals and theory of automotive steering and suspension systems
 - System geometry and alignment specifications
 - Fundamental principals of aelectrical flow and component operation
- Applied principal competencies
 - Perform alignment
 - Diagnosis vibration, electrical, and mechanical concerns
- Electronic components
 - Identify and list functionality of electronic components
 - Test and verify functionality of components
 - Demonstrate use of a scanner, and volt/ohm testers

4. Alignments

1. Perform two wheel alignments
2. Perform four-wheel alignments
3. Conduct toe only adjustments
4. Check cradle adjustments

5. Tire and wheel problems

1. Check radial and lateral variations on both tires and wheels
2. Make bearing pre-load adjustments
3. Perform vibration correction tests to isolate customer concerns

6. Vibration concerns

1. Perform vibration correction tests
2. Isolate vibrations
3. Identify type, frequency, and order of vibrations

7. McPherson strut and "A" –Arm type suspension systems

1. Identify types of suspensions
2. Perform adjustments pertaining to type of system
3. Describe safety precautions and warning
4. List benefits for each type system

8. Electronic Theory

9. Electrical Steering systems

10. Electrical Suspension systems

11. Professional environment

1. Safety glasses (Clear lens) worn in all Laboratory areas
2. No loose clothing (Coveralls strongly recommended).
3. Long Hair secured
4. No open toe shoes (safety shoes recommended).
5. Work areas maintained; clean free of debris and spills

Methods of Instruction:

1. Lecture – Group and individual lecture activities. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Typical Outside-of-Class Assignments

- A. ~~Other:~~

Reading:
[Read Chapter One](#)

1. ~~Lecture-based assignments~~
 1. ~~Lecture on Alignment procedures-~~
2. ~~Text-based assignments~~
 1. ~~Read Chapter One~~

Methods of Evaluating Student Progress

- A. Exams/Tests
 1. monthly
- B. Quizzes
 1. weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of AUTO A4, the student should be able to apply~~ [Apply](#) steering and suspension repair safety precautions.
- B. ~~Upon completion of AUTO A4, the student should be able to obtain~~ [Obtain](#) and interpret powertrain data related to the steering and suspension system .
- C. [Use service information to research a repair](#) .

Textbooks (Typical):

Textbook:

1. ~~Chris James Johanson Duffy~~ [Auto 2025 Suspension ASE and Automotive Steering Suite](#) . -5ed., Goodheart Wilcox, ~~2021~~ [2025](#) .
2. James ~~Duffy~~ [D Halderman](#) ~~Modern~~ [Automotive Technology](#) . 9 ~~7~~ ed., ~~Goodheart Wilcox~~ [Pearson](#) , ~~2020~~ [2024](#) .

[Other Learning Materials:](#) .

1. [No Textbook](#)

Other Materials Required of Students

Other Materials Required of Students:

1. Computer with internet access.

Equity Based Curriculum

- [Methods of Instruction](#)
[Address](#) .
[The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.](#)
- [Methods of Evaluation](#)
[Address](#) .
[The course materials and evaluations are based on industry standards.](#)

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

Lecture only and non-credit. Does not qualify students for careers in automotive.

Explain how the decision was made to offer this course in a Distance Education mode.

This class is NC and lecture only. It is based off of the credit classes and just pulls the lecture. It is made for non-traditional students. Being lecture only it will appeal to those who do not want a career in "wrenching" or those who "just want to know about their car" or "services related to automotive but not wrenching"

Accessibility:

- Closed captioning for videos.
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- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.

- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Minimum once per week
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week
- **Chat:** *The instructor will use chat to interact with students, textually and/or graphically, in realtime.*
Frequency: Minimum once per week

Student-Student Interaction

- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Minimum once per week
- **Web conferencing:** *Students will interact in real time with each other to discuss coursework and assignments.*
Frequency: Minimum once per week

Student-Content Interaction

- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Quizzes: at least one quiz per section/chapter. Weekly. - _ Exams: ~~at least two per semester~~ [Monthly](#).
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: Minimum once per week
- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*
Frequency: Minimum once per week
- **Other:**
Frequency: Homework, assigned weekly

General Education/Transfer Request

General Education/Transfer Request -

~~CSU Transfer~~

- ~~Transfers to CSU~~

Codes and Dates

Course CB Codes

CB00: State ID

CCC000621989

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

D - Possibly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: NAUT CA5 - Brakes Concepts

Course Modification: NAUT CA5 - Brakes Concepts (Launched - Implemented 09-27-2025)

compared with

NAUT CA5 - Concepts of Brakes (Active - Implemented 08-15-2021)

Admin Outline for Noncredit Automotive Technology CA5

~~Brakes~~ Concepts ~~of Brakes~~Effective: Fall ~~2021~~ 2026

Catalog Description:

NAUT CA5 - ~~Brakes~~ Concepts ~~of Brakes~~

108 Hours

This class is lecture only and non-credit. Diagnosis, evaluation, inspection, adjustment, and repair of braking, antilock braking systems, traction control and related devices. Class will involve California State law regarding brake and safety inspections. Includes the material on the California Brake Adjuster's Licensing Examination.

Course Grading: ~~Pass/No Pass~~ Optional

Total Lecture Hours	36
Total Inside of Class Hours	36
Total Outside of Class Hours	72
Total Noncredit Hours	108

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Describe the theory and fundamentals of automotive brake, anti-lock brake electronic traction control, and steering stability systems;
- B. Use basic testing and diagnostic tools and equipment in the inspection, diagnosis and repair of automotive braking systems;
- C. Demonstrate the ability to access the vehicle computer and various sensors relating to brakes and suspension systems;
- D. Demonstrate safe and appropriate handling of hazardous material;
- E. Accurately investigate and catalogue consumer concerns;
- F. Maintain a clean and professional environment.

Course Content:

1. Automotive brakes

1. Foundation brake systems

1. Hydraulic servo, dual-servo, advanced leading trailing and leading trailing
2. Caliper and piston front
3. Caliper and piston rear

2. Anti-Lock systems and sub-systems

1. Wheel speed sensors
2. Vehicle speed sensors
3. Hydraulic control units
4. Electrical control units

3. Traction control systems, and sub-systems.

1. Wheel speed sensors
2. Vehicle speed sensors
3. Hydraulic control units
4. Electrical control units

4. Steering Stability systems and subsystems

1. Wheel speed sensors
2. Vehicle speed sensors
3. Hydraulic control units
4. Electrical control units
5. Yaw Sensors
6. Pitch Sensors
7. Decelerometers
8. Steering input sensors

2. Testing and diagnostic tools and equipment

1. Proper and safe tool use procedures
2. Diagnostic safety precautions
3. Analysis of test results
4. Digital volt, ohm meter reading (DVOM)
5. Digital storage oscilloscope hook-up and reading

3. Computer access

1. Access vehicle on board computer
2. Refer to diagnostic service information
3. Evaluate sensor data

4. Hazardous material handling

5. Consumer concerns

1. Research customer concerns, evaluate steps needed to repair concern
2. Catalogue concern
3. Repair Procedures

6. Electrical Concerns

1. Base Brakes
2. ABS
3. Traction Control
4. Collision avoidance

7. Professional environment

Methods of Instruction:

1. Lecture - [Group lecture assignments.](#)

Typical Outside-of-Class Assignments

A. ~~Other:~~

[Reading:](#)
[Read Chapter One](#)

1. ~~Lecture-based assignments~~

1. ~~Lecture on ABS:~~

Methods of Evaluating Student Progress

- A. Exams/Tests
1. monthly
- B. Quizzes
1. weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of AUTO A5, the student should be able to apply~~ [Apply](#) brakes repair safety precautions.
- B. ~~Upon completion of AUTO A5, the student should be able to obtain~~ [Obtain](#) and interpret powertrain data related to the brake system .
- C. [Use service information to research a repair](#) .

Textbooks (Typical):

Textbook:

1. California ~~James State Duffy Department~~ [2025](#) . ~~Consumer ASE Affairs Brake Automotive Inspection Manual Suite . , .~~ [2003](#) .
2. ~~Chris Johanson Auto Brakes: 5 ed.~~ , Goodheart Wilcox, ~~2021~~ [2025](#) .
3. James ~~Duffy D Halderman Modern~~ Automotive Technology. ~~9~~ [Z](#) ed, ~~Goodheart-Wilcox Pearson~~ , ~~2020~~ [2024](#) .

Other Materials Required of Students

Other Materials Required of Students:

1. Computer with internet access.

Equity Based Curriculum

- [Methods of Instruction](#)
[Address](#) .
[The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate guest lecturers will represent a cross culture of gender ethnicity age and sexual orientation.](#)
- [Methods of Evaluation](#)
[Address](#) .
[The course materials and evaluations are based on industry standards.](#)
- [Typical Texts](#)
[Address](#) .
[The course materials and evaluations are based on industry standards.](#)

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

Lecture only and non-credit. Does not qualify students for careers in automotive.

Explain how the decision was made to offer this course in a Distance Education mode.

This class is NC and lecture only. It is based off of the credit classes and just pulls the lecture. It is made for non-traditional students. Being lecture only it will appeal to those who do not want a career in "wrenching" or those who "just want to know about their car" or "services related to automotive but not wrenching"

Accessibility:

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- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

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Frequency: Minimum once per week
- **Announcements:** Regular announcements that are academic in nature will be posted to the class.
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Student-Student Interaction

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Frequency: Minimum once per week
- **Other:**
Frequency: Homework, assigned weekly

General Education/Transfer Request

General Education/Transfer Request -

~~CSU Transfer~~

- ~~Transfers to CSU~~

Codes and Dates

Course CB Codes

CB00: State ID

CCC000621990

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CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

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C - Not transferable

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N - Not Basic Skills

CB09: SAM Code

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CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: NAUT CA6 - Electrical/Electronic Systems Concepts

Course Modification: NAUT CA6 - Electrical/Electronic Systems Concepts (Launched - Implemented 09-28-2025)

compared with

NAUT CA6 - Concepts of Electrical/Electronic Systems (Active - Implemented 08-15-2021)

Admin Outline for Noncredit Automotive Technology CA6

~~Concepts of~~ Electrical/Electronic Systems Concepts

Effective: Fall ~~2021~~ 2026

Catalog Description:**NAUT CA6 - ~~Concepts of~~ Electrical/Electronic Systems Concepts**

162 Hours

This class is lecture only and non-credit. Automotive electrical/electronic systems, including electrical circuits, Ohm's Law, battery, starting, charging, ignition, fuel, accessories, brakes, chassis, suspension, steering, HVAC, and wiring systems. Emphasis on diagnosis of electrical troubles, assembly, repair of components, and diagnostic equipment usage.

Course Grading: ~~-Pass/No Pass~~ Optional

Total Lecture Hours	54
Total Inside of Class Hours	54
Total Outside of Class Hours	108
Total Noncredit Hours	162

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:**Course Objectives:**

Upon completion of this course, the student should be able to:

- Use problem-solving skills to categorize systems faults in automotive circuits and make needed repairs;
- Identify types of ignition systems;
- Describe and evaluate fuel control circuits for proper operation;
- Explain the fundamentals of electronic and electrical theories;
- Demonstrate safe and appropriate hazardous material handling;

Course Content:

- Diagnosing and repair
 - Outline and perform procedures for the testing of batteries, charging systems, starting systems
 - Categorize type of problem, isolate cause and make needed repairs
- Electrical test equipment
 - Digital volt meters for diagnosing electrical and electronic components and systems
 - Volt Amp Tester (VAT), for diagnosing Batteries, Charging systems, starting systems
- Problem solving
 - Classify type of electrical faults
 - Evaluate needed diagnostic procedure
 - Research proper diagnostic path as outlined by the manufacture or industry standards and make needed repairs
 - Perform needed test to confirm repairs

4. Identifying types of ignition systems

1. Standard, electronic, high energy, distributor, non-distributor
2. Safety precautions while diagnosing
3. Identify circuitry, current theory and concepts

5. Fuel control: operation and evaluation

1. Identify type of controller
2. Describe trigger mechanism
3. Categorize type of injectors used
4. Evaluate proper operation of system
5. Perform pressure checks
6. Explain scanner readings, meter readings and scope readings

6. Fundamentals of electronics and electrical theory

1. Explain Ohm's Law
2. Perform Electrical Conversion factors
3. Demonstrate a working knowledge of meter usage
4. Research and list manufactures specifications
5. Identify proper diagnostic steps for a proper conclusion for repairs needed

7. Diagnosis of connected system

1. Brakes and ABS system
2. Steering
3. Suspension
4. HVAC

8. Circuit and wire repairs

1. Lay out and perform solder repairs
2. Lay out and perform splice repairs
3. Lay out and perform terminal and connector repairs
4. Produce sound diagnostic approach to identify faults

9. Hazardous material handling

1. Explain safety precautions concerning battery acid (electrolyte) hazards
2. List steps to help someone that has been exposed to battery acid (electrolyte)

10. Professional environment

1. Safety glasses (Clear lens) worn in all Laboratory areas
2. No loose clothing (Coveralls strongly recommended).
3. Long Hair secured
4. No open toe shoes (safety shoes recommended).
5. Work areas maintained; clean free of debris and spills

Methods of Instruction:

1. Lecture - Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Typical Outside-of-Class Assignments

A. ~~Other:~~

Research:

Vehicle electrical Construction research for a personal vehicle

1. ~~Lecture-based assignments~~

1. ~~Lecture on Ohm's Law~~

2. ~~Text reading~~

1. ~~Read Chapter One~~

Methods of Evaluating Student Progress

A. Exams/Tests

1. monthly

B. Quizzes

1. weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of AUTO A6, the student should be able to apply~~ Apply electrical precautions.
- B. ~~Upon completion of AUTO A6, the student should be able to obtain~~ Obtain and interpret data related to the electrical system
- C. Use service information to research a repair.

Textbooks (Typical):

Textbook:

1. ~~Chris James Johanson Duffy. 2025 ASE Automotive Electricity and Electronics Suite. -5-ed.~~, Goodheart Wilcox, ~~2021~~ 2025.
2. James ~~Duffy~~ D Halderman ~~Modern~~ Automotive Technology. 9 ~~7~~ ed., ~~Goodheart Wilcox~~ Pearson, ~~2020~~ 2024.

Other Materials Required of Students

Other Materials Required of Students:

1. Computer with internet access.

Equity Based Curriculum

- Methods of Instruction
Address

The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

- Methods of Evaluation
Address

[The course materials and evaluations are based on industry standards.](#)

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

Lecture only and non-credit. Does not qualify students for careers in automotive.

Explain how the decision was made to offer this course in a Distance Education mode.

This class is NC and lecture only. It is based off of the credit classes and just pulls the lecture. It is made for non-traditional students. Being lecture only it will appeal to those who do not want a career in "wrenching" or those who "just want to know about their car" or "services related to automotive but not wrenching"

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Minimum once per week
- **Discussion board:** *The instructor will regularly participate in discussions that deal with academic content, will consistently provide substantive feedback, and will facilitate all discussions.*
Frequency: [Weekly](#)
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week
- **Chat:** *The instructor will use chat to interact with students, textually and/or graphically, in realtime.*
Frequency: Minimum once per week

Student-Student Interaction

- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Minimum once per week
- **Web conferencing:** *Students will interact in real time with each other to discuss coursework and assignments.*
Frequency: Minimum once per week

Student-Content Interaction

- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Quizzes: Weekly. Exams: Monthly
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: Minimum once per week
- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*
Frequency: Minimum once per week
- **Other:**
Frequency: Homework, assigned weekly

General Education/Transfer Request

General Education/Transfer Request -
CSU Transfer

- **Transfers to CSU**

Codes and Dates

Course CB Codes

CB00: State ID

CCC000621991

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

D - Possibly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

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CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: NAUT CA7 - Automotive Heating and Air Conditioning Concepts

Course Modification: NAUT CA7 - Automotive Heating and Air Conditioning Concepts (Launched - Implemented 09-28-2025)

compared with

NAUT CA7 - Concepts of Automotive Heating and Air Conditioning (Active - Implemented 08-15-2021)

Admin Outline for Noncredit Automotive Technology CA7

~~Concepts of~~ Automotive Heating and Air Conditioning Concepts

Effective: Fall ~~2021~~ 2026

Catalog Description:

NAUT CA7 - ~~Concepts of~~ Automotive Heating and Air Conditioning Concepts

108 Hours

This class is lecture only and non-credit. Diagnosing, evaluation, testing, adjustment, and repair of heating, ventilation and air conditioning (HVAC). Includes heat and energy, psychometrics, air flow, refrigerant recycling, equipment and controls. Student will be prepared to pass a nationally recognized HVAC certificate program, required by all California HVAC repair shops.

Course Grading: ~~-Pass/No-Pass~~ Optional

Total Lecture Hours	36
Total Inside of Class Hours	36
Total Outside of Class Hours	72
Total Noncredit Hours	108

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:**Course Objectives:**

Upon completion of this course, the student should be able to:

- A. Obtain and interpret Service Information, Tools, Safety;
- B. Chart, inspect, and test computerized HVAC control system sensors, HVAC control module, actuators, and circuits using a digital-multi-meter (DMM) on board diagnostic scan tool, and perform necessary action;
- C. Access and use service information to perform step-by-step diagnosis;
- D. Diagnose malfunctions of vacuum and motor driven mode door;
- E. Pass HVAC certification test;
- F. Outline hazardous waste handling;

Course Content:

1. Service Information, Tools and Safety
2. Environmental and Hazardous Materials
3. Heating and Air Conditioning Principles
4. HVAC Parts and Operation
5. A/C Compressors and Clutches
6. Refrigerant and Oil Types and Handling
7. A/C System Components and Operation
8. Air Flow Management System
9. HVAC Electrical Circuits and Schematics
10. Advanced Electrical HVAC systems
11. Engine Cooling System Parts and Operation
12. Heater System Operation and Diagnosis

13. Automatic Temperature Control Systems
14. Hybrid Electric Vehicle HVAC Systems
15. Refrigerant Recovery, Recycling and Handling
16. Nationally Recognized HAVC Certification Test
17. IMACA
18. ASE

Methods of Instruction:

1. Lecture ~~.- Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.~~

Typical Outside-of-Class Assignments

A. ~~Other:~~

~~Reading:~~
~~Read Chapter One in text~~

1. ~~Lecture-based assignments~~
2. ~~Text-reading assignments~~

1. ~~Class discussion on reading assignment~~

Methods of Evaluating Student Progress

- A. Exams/Tests
 1. monthly
- B. Quizzes
 1. weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of AUTO A7, the student should be able to apply~~ Apply. HVAC safety precautions.
- B. ~~Upon completion of AUTO A7, the student should be able to read~~ Read and interpret HVAC gauges.
- C. Explain HVAC heat cycles

Textbooks (Typical):

Textbook:

1. James Duffy ~~Modern~~ 2025 ASE Automotive ~~Technology Suite~~ 9 ed., Goodheart Wilcox, ~~2020~~ 2025.
2. ~~Chris James Johanson D Halderman~~ Auto Automotive Heating and Air Conditioning Technology. ~~5~~ 7 ed., ~~Goodheart-Wilcox Pearson~~, ~~2021~~ 2024.

Other Learning Materials: .

1. No Textbook

Other Materials Required of Students

Other Materials Required of Students:

1. Computer with internet access.

Equity Based Curriculum

- Methods of Instruction
Address .
The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
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Address .
The course materials and evaluations are based on industry standards.

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

Lecture only and non-credit. Does not qualify students for careers in automotive.

Explain how the decision was made to offer this course in a Distance Education mode.

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General Education/Transfer Request -

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J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: NAUT CA8 - Engine Performance Concepts

Course Modification: NAUT CA8 - Engine Performance Concepts (Launched - Implemented 09-28-2025)

compared with

NAUT CA8 - Concepts of Engine Performance (Active - Implemented 08-15-2021)

Admin Outline for Noncredit Automotive Technology CA8

~~Concepts of~~ Engine Performance ConceptsEffective: Fall ~~2021~~ 2026

Catalog Description:

NAUT CA8 - ~~Concepts of~~ Engine Performance Concepts

162 Hours

This class is lecture only and non-credit. Principles of automotive fuel induction, ignition and emission control systems, including inspection, diagnosis and repair of fuel and emission control systems/components governed by federal and state laws and standards. Electrical diagnosis of emission control systems. Relation of chassis and body systems to emissions.

Course Grading: ~~-Pass/No Pass~~ Optional

Total Lecture Hours	54
Total Inside of Class Hours	54
Total Outside of Class Hours	108
Total Noncredit Hours	162

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Distinguish and explain the different types of fuel delivery systems;
- B. Distinguish and explain the different types of ignition systems
- C. Formulate diagnostic patterns, and analyze gas readings to expedite proper repairs
- D. Explain theory and functionality of carburetors, throttle body, and port injectors;
- E. Explain safety procedures and the handling of hazardous waste materials;

Course Content:

1. Different types of fuel delivery systems.
 1. Describe functionality of Carburetors
 2. Describe advantages of Fuel injectors
2. Different types of ignition systems
 1. Describe functionality of a points ignition systems
 2. Describe functionality of a high energy ignition systems
 3. Describe functionality of a coil over plug ignition systems
3. Fuel systems testing
4. Ignition System Testing
 1. Ignition Scope theory

5. Diagnostic patterns, and analyze gas readings
 1. Execute diagnostic as described in service information systems
 2. Study and evaluate exhaust gas readings
6. Diagnostic test equipment
 1. Identify proper tester for application
7. Diagnostic information systems
 1. Access and extract diagnostic information.
 2. Research labor time guides for work determined in diagnostics.
8. Explain theory and functionality
 1. List theory of air fuel flow of a carburetor
 2. Explain advantages of port injectors and related equipment
9. Explain the difference in the three main automotive systems
10. Handling of hazardous waste materials
11. Professional environment

Methods of Instruction:

1. Lecture – Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.

Typical Outside-of-Class Assignments

- A. ~~Other:~~
 - Reading:
 - Reach Chapter One of text
- A. ~~Lecture-based assignments~~
 - Research:
 - Engine performance research for a personal vehicle
1. ~~Lecture on scanner operation~~
2. ~~Text reading assignments~~
 1. ~~Read Chapter One~~

Methods of Evaluating Student Progress

- A. Exams/Tests
 1. monthly
- B. Quizzes

1. weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of AUTO A8, the student should be able to apply~~ Apply emission safety precautions.
- B. ~~Upon completion of AUTO A8, the student should be able to read~~ Read and interpret scanner data .
- C. Use service information to research a repair .

Textbooks (Typical):

Textbook:

1. ~~Chris James Johanson D Halderman Auto Automotive Engine Performance and Drivability Technology~~ . 5 ~~7~~ ed., ~~Goodheart Wilcox Pearson~~ , 2021 2024 .
2. James Duffy Modern 2025 ASE Automotive Technology Suite . 9 ed., Goodheart Wilcox, 2020 2025 .

Other Learning Materials: .

1. No Textbook

Other Materials Required of Students

Other Materials Required of Students:

1. Computer with Internet access.

Equity Based Curriculum

- Methods of Instruction
Address .
The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
- Methods of Evaluation
Address .
The course materials and evaluations are based on industry standards.

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

Lecture only and non-credit. Does not qualify students for careers in automotive.

Explain how the decision was made to offer this course in a Distance Education mode.

This class is NC and lecture only. It is based off of the credit classes and just pulls the lecture. It is made for non-traditional students. Being lecture only it will appeal to those who do not want a career in "wrenching" or those who "just want to know about their car" or "services related to automotive but not wrenching"

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Minimum once per week
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week
- **Chat:** *The instructor will use chat to interact with students, textually and/or graphically, in realtime.*
Frequency: Minimum once per week

Student-Student Interaction

- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Minimum once per week
- **Web conferencing:** *Students will interact in real time with each other to discuss coursework and assignments.*
Frequency: Minimum once per week

Student-Content Interaction

- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Quizzes: Weekly. Exams: Monthly.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: Minimum once per week
- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*
Frequency: Minimum once per week
- **Other:**
Frequency: Homework, assigned weekly

General Education/Transfer Request

General Education/Transfer Request -

~~CSU Transfer~~

- ~~Transfers to CSU~~

Codes and Dates

Course CB Codes

CB00: State ID

CCC000621993

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

D - Possibly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status
N - Course is not a support course
CB27: Upper Division Status

Course Modification: NAUT CSDR - Specified Diagnostic and Repair Concepts

Course Modification: NAUT CSDR - Specified Diagnostic and Repair Concepts (Launched - Implemented 09-28-2025)

compared with

NAUT CSDR - Concepts of Specified Diagnostic and Repair (Active - Implemented 08-17-2022)

Admin Outline for Noncredit Automotive Technology CSDR

~~Concepts of~~ Specified Diagnostic and Repair Concepts

Effective: Fall ~~2022~~ 2026

Catalog Description:

NAUT CSDR - ~~Concepts of~~ Specified Diagnostic and Repair Concepts

216 Hours

This class is lecture - only and non-credit. This class does not count towards a person's smog license; this class is aimed at people who would like to learn more about smog but are not interested in taking the State test. This class is also good for working technicians who have a difficult time passing ASE A6, A8, and L1 and would like a review. This is a Bureau of Automotive Repair alternative to the ASE A6, A8 and L1 ~~certification~~ certifications. This class is intended to allow California drivers to understand the training and laws of the smog check program. Student will not qualify for the license exam after taking this class. For more information see www.smogcheck.ca.gov

Course Grading: ~~Pass/No Pass~~ Optional

Total Lecture Hours	72
Total Inside of Class Hours	72
Total Outside of Class Hours	144
Total Noncredit Hours	216

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

Course Objectives:

Upon completion of this course, the student should be able to:

- Explain fuel management theory, testing, and diagnosis including computerized controls;
- Explain ignition theory, testing and diagnosis including diagnosis of emissions problems caused by the ignition system;
- Explain on board computer theory, testing, and diagnosis diagnostic trouble code deciphering.
- Thoroughly understand and explain four cycle engine basics: compression, ignition, fuel, air, and vacuum;
- Explain the function of sensors and actuators and their interaction with the computer as well as proper diagnostic procedures for each
- Explain and the theory and proper diagnostic procedures for the understanding of how long and short term fuel trim work;
- Retrieve, interpret, and apply diagnostic trouble codes
- Explain Ohm's Law;
 - Read a wiring diagram including standard industry symbol identification;
 - Use common industry terminology and abbreviations related to the course material

Course Content:

-

1. Intermittent electrical problems

- Diagnostic Strategy
- Collection Information
- Attacking problem

2. Ohm's Law and electrical theory

- Ohm's Law

2. Computing Ohm's Law
3. Using Ohm's Law with aftermarket accessories

3. Voltage drops

1. What do they mean?
2. Better than Ohms?

4. Wiring diagrams

1. Schematic Icons
2. Reading Charts

5. Diagnostic Flow Charts

6. Four cycle engine basics: compression, ignition, fuel, air, and vacuum
7. Operation of diagnostic tools: DSO, scanner, and emissions analyzer
8. Function of sensors and actuators, their interaction with the PCM, and their effect on drivability and emissions
9. Theory and diagnostic procedures for injected and carbureted fuel control systems
10. OBD II diagnostics and diagnostic trouble codes
11. Industry and BAR terminology, abbreviations, standards, and procedures
12. Fuel management theory
13. Ignition theory
14. Onboard computer theory

- _

Methods of Instruction:

1. Lecture
2. ~~Audio~~ - ~~visual~~ ~~Activity~~ [Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.](#)
3. Discussion - [Group lecture assignments](#)

Typical Outside-of-Class Assignments

- A. ~~Other:~~
 - [Reading:](#)
[Read Chapter One in text](#)
 - A. ~~Read each chapter in the text and be prepared to seek clarification and ask questions in class-~~
[Research:](#)
[Engine Construction research for a personal vehicle](#)
 2. ~~Orally discuss the material covered in each chapter-~~
 3. ~~Complete the review questions and related lab exercises for each chapter-~~
 1. ~~Explain how the computer is used to control the alternator-~~
 2. ~~Why do voltage regulators include temperature compensation-~~

Methods of Evaluating Student Progress

- A. Class Participation
 - 1. daily
- B. Home Work
 - 1. weekly
- C. Quizzes
 - 1. weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of AUTO SDR, the student should be able to, obtain~~ Obtain and interpret scan tool data.
- B. ~~Upon completion of AUTO SDR, student should be able to apply~~ Apply safety - _ precautions in shop lab exercises
- C. Use service information to research a repair.

Textbooks (Typical):

Textbook:

1. ~~State CA of California BAR Smog Check Manual~~ . https://www.bar.ca.gov/pdf/2017_Smog_Check_Manual_smog-check-manual.pdf : ~~2017~~ ed., ~~State CA Department of California Consumer Affairs~~ , ~~2017~~ 2021 .
2. James Halderman *ASE Test Preparation and Study Guide*. ~~2~~ 3 ed., Pearson, ~~2017~~ 2019 .

Other Learning Materials: _

1. ~~James D Halderman Automotive Maintenance Any and Light all Repair. current 4 and ed., past Pearson; "BAR 2014 Blasts"~~ these are informational releases from the State about the smog check program .

Other Materials Required of Students

Other Materials Required of Students:

1. Internet access.

Equity Based Curriculum

- ~~Course Methods Content of Instruction~~
Address
Help The minorities methods with of information instruction about can programs be for intentional smog to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
- _ Typical Texts
Address _
Smog Tests are offered in multiple languages

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

Lecture only and non-credit. Does not qualify students for careers in automotive.

Explain how the decision was made to offer this course in a Distance Education mode.

This class is NC and lecture only. It is based off of the credit classes and just pulls the lecture. It is made for non-traditional students. Being lecture only it will appeal to those who do not want a career in "wrenching" or those who "just want to know about their car" or "services related to automotive but not wrenching"

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Minimum Once per week
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum Once per week
- **Chat:** *The instructor will use chat to interact with students, textually and/or graphically, in realtime.*
Frequency: Minimum Once per week

Student-Student Interaction

- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Minimum Once per week
- **Web conferencing:** *Students will interact in real time with each other to discuss coursework and assignments.*
Frequency: Minimum Once per week

Student-Content Interaction

- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Quizzes: at least one quiz per section/chapter. Weekly. Exams: Monthly.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: Minimum Once per week
- **Other:**
Frequency: Homework, assigned weekly

General Education/Transfer Request

General Education/Transfer Request -

~~CSU Transfer~~

- ~~Transfers to CSU~~

Codes and Dates

Course CB Codes

CB00: State ID

CCC000629250

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

2 - Not Program Applicable
CB25: Course General Education Status
Y. Not Applicable

CB26: Course Support Course Status
N - Course is not a support course

CB27: Upper Division Status

Course Modification: NAUT CSMG - Smog Level One and Level Two Concepts

Course Modification: NAUT CSMG - Smog Level One and Level Two Concepts (Launched - Implemented 09-28-2025)

compared with

NAUT CSMG - Concepts of Smog Level One and Level Two (Active - Implemented 08-17-2022)

Admin Outline for Noncredit Automotive Technology CSMG

~~Concepts of~~ Smog Level One and Level Two Concepts

 Effective: Fall ~~2022~~ 2026

Catalog Description:

 NAUT CSMG - ~~Concepts of~~ Smog Level One and Level Two Concepts

270 Hours

 This class is lecture only and non-credit. This class will include Level One and Level Two smog lectures only. This class is intended to allow California drivers to understand the training and laws of the smog check program. At the end of the class students will not qualify for either EI or EO smog license. See www.smogcheck.ca.gov for more information.

Course Grading: Pass/No Pass

Total Lecture Hours	90
Total Inside of Class Hours	90
Total Outside of Class Hours	180
Total Noncredit Hours	270

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Incorporate the concepts, techniques, principles, and legal requirements of the California Smog Check Program, including changes and updates published in the latest edition of the Smog Check Manual;
- B. Analyze a vehicle with emission control problems to a criterion established by the instructor based on Bureau of Automotive Repair and industry standards by using the newest in automotive and emission control theory;
- C. Analyze vehicle emission systems applications for theory, operation and diagnosis, to a standard set by the Bureau of Automotive Repair, through manipulative, oral, or written assignments, and/or class discussion;
- D. Apply automotive computer system theory to evaluate an emissions malfunction caused by a component of the computer system;
- E. Discuss the operating theory of wide band oxygen sensor and the ion transfer between platinum zirconium electrodes.
- F. Analyze and diagnose a vehicle with emission control problems, including NOx problems, to a criterion established by the instructor based on Bureau of Automotive Repair and industry standards
- G. Discuss loaded mode emissions base lining techniques and use of diagnostic flow charts
- H. Explain catalytic converter theory, operation, and efficiency.
 - I. Explain the differences in emissions testing procedures between the BAR90 and the BAR97 gas analyzer systems including dynamometer use of the Enhanced Smog Check Program
 - J. Explain the rules and regulations guiding the smog check program and technician duties

Course Content:

Lab:
Lecture:

1. The Level One Course is divided into seven parts called modules which correspond with the State Examination modules:

1. Rules and Regulations
2. Automotive Theory
3. Emission Control Theory and Operations
4. Vehicle Emission Systems Applications
5. TAS Operation and Testing Procedures
6. Computer Systems Theory

2. [Monitor setting](#)
3. [Five gas theory](#)
4. [Emission system theory](#)
5. [The 2003 Update Course covers smog testing procedures and new rules and regulations in the latest Smog Check Manual.](#)
6. [The 2005 Update course covers wide band oxygen sensors theory.](#)
7. [The 2007 Update course covers catalytic converter theory.](#)
8. [The 2011 Update course covers wide band oxygen sensors theory.](#)
9. [Level Two training including Dynamometer, State computer, laws and regulations.](#)
10. [BAR specified Diagnostic and Repair Training](#)
11. [DAD training and requirements](#)
12. [Any new content the State of California Smog training requires.](#)

Methods of Instruction:

1. Lecture - [Group and individual lecture activities. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.](#)
2. Audio-visual Activity - [Group and individual lecture activities](#)
3. Discussion - [Group and individual lecture activities](#)

Typical Outside-of-Class Assignments

A. ~~Other:~~

[Reading:](#)
[Read Chapter One in text](#)

1. ~~Read each module in the text and be prepared to seek clarification and ask questions in class.~~
2. ~~Orally discuss the material covered in each module:~~
3. ~~Complete the review questions for each module in the student workbook:~~

1. ~~(Example) Base spark advance is calculated using what 2 inputs?~~
2. ~~(Example) True or False? Potentiometers are used to measure throttle position.~~

Methods of Evaluating Student Progress

- A. Class Participation
 1. Daily
- B. Home Work
 1. weekly
- C. Quizzes
 1. Weekly

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of NAUT L1L2, the student should be able to perform~~ [Perform](#) an OIS test.
- B. ~~Upon completion of NAUT L1L2, the student should be able to obtain~~ [Obtain](#) and interpret powertrain data .
- C. [Use service information to research a repair](#) .

Textbooks (Typical):

Textbook:

1. James Halderman *ASE Test Preparation and Study Guide*. 2 ed., Pearson, 2017.
2. Bureau of Automotive Repair, *Clean Air Car Course Training Manual*, Department of Consumer Affairs, 1993.
3. Bureau of Automotive Repair, *Clean Air Car Course Student Workbook*., Department of Consumer Affairs, 1993.
4. State of California *Smog Check Inspection Manual*. ~~2017~~ [2021](#) ed., Department of Consumer Affairs, ~~2017~~ [2021](#) .
5. Bureau of Automotive Repair, *Write It Right*., Department of Consumer Affairs, 1999.
6. Bureau of Automotive Repair, *Laws and Regulation*., Department of Consumer Affairs, ~~2004~~ [2025](#) .
7. Maurseth, M., E. K. Smith, *BD II Generic On-Board Diagnostic Second Generation*., California Institute of Automotive Technology , 2009.

Other Materials Required of Students

Other Materials Required of Students:

1. Internet access.

Equity Based Curriculum

- [Course Methods Content of Instruction](#)

Address

[Help The minorities methods with of information instruction about can programs be for intentional smog to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.](#)

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

Lecture only and non-credit. Does not qualify students for careers in automotive.

Explain how the decision was made to offer this course in a Distance Education mode.

This class is NC and lecture only. It is based off of the credit classes and just pulls the lecture. It is made for non-traditional students. Being lecture only it will appeal to those who do not want a career in "wrenching" or those who "just want to know about their car" or "services related to automotive but not wrenching"

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Minimum once per week
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum once per week
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week
- **Chat:** *The instructor will use chat to interact with students, textually and/or graphically, in realtime.*
Frequency: Minimum once per week

Student-Student Interaction

- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Minimum once per week
- **Web conferencing:** *Students will interact in real time with each other to discuss coursework and assignments.*
Frequency: Minimum once per week

Student-Content Interaction

- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Quizzes: at least one quiz per section/chapter. Weekly. Exams: Monthly.

- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*
Frequency: Minimum once per week
- **Other:**
Frequency: Homework, assigned weekly

General Education/Transfer Request

General Education/Transfer Request -

CSU Transfer

- ~~Transfers to CSU~~

Codes and Dates

Course CB Codes

CB00: State ID

CCC000629251

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0612 - Vehicle Emissions Inspection and Maintenance Technology/Technician.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: NAUT LAB - Automotive Lab

Course Modification: NAUT LAB - Automotive Lab (Launched - Implemented 09-24-2025)

compared with

NAUT LABA - Automotive Lab (Active - Implemented 08-15-2021)

**Admin Outline for Noncredit Automotive Technology LABA LAB
Automotive Lab**
Effective: Fall ~~2021~~ 2026

Catalog Description:
**NAUT LABA LAB - Automotive Lab
108 Hours**

Automotive Lab is an open laboratory class for basic automotive students. This class is for students desiring to expand their hands-on experience using their own vehicle. ~~Instructor~~ The ~~instructor~~ will provide technical and supervisory support to guide students in the completion of their self - initiated projects. Service information via computer service manuals will be available for students to use for vehicle information and research.

Prerequisite: ~~AUTO NAUT INTR INTL~~ with a minimum grade of C; ~~or and~~ NAUT ~~INTR INT~~ with a minimum grade of C, or AUTO INTL with a minimum grade of C and AUTO ~~INTZ INT~~ with a minimum grade of C, INT and INTL may be taken concurrently.

 Course Grading: ~~Pass/No-Pass~~ Optional

Total Lecture Hours	0
Total Lab Hours	108
Total Inside of Class Hours	108
Total Outside of Class Hours	0
Total Noncredit Hours	108

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:
Course Objectives:

Upon completion of this course, the student should be able to:

- A. Apply and Maintain a Safe work environment
 - A. Practice proper vehicle lifting techniques
 2. ~~Practice correct tool usage~~
 - C. Analyze and categorize hazardous waste disposal
- B. Practice correct tool usage
- C. Demonstrate a good example of professionalism in the work place
 - A. Use proper judgement when working with peers
 - B. Evaluate and apply instructions while working under a shop foreman (Instructor/head student)
 - C. Judge when to ask for help or guidance
- D. Revise hands-on experience to further their career in the automotive field
- E. Construct and adapt critical thinking skills to diagnose and repair vehicles
 - A. Measure and create time and labor estimates using Alldata and Shopkey.

Course Content:

1. Shop safety and Handling of hazardous waste materials
 1. Occupational Safety Health Administration (OSHA) Shop standards applied
 2. Industry safety standards applied
 3. Hazardous material handling; waste oil, as well as other chemicals related to the automobile
2. Professional environment
 1. Safety glasses (Clear lenses) worn in all Laboratory areas

2. No loose clothing (Coveralls strongly recommended)
 3. Long hair secured
 4. No open toe shoes (safety shoes recommended)
 5. Work areas maintained; clean free of debris and spills
 6. Working with and next to other students in a shop environment
3. Hands-on experience

1. Using hand tools and diagnostic equipment to repair vehicles for example

1. Proper repair of intake manifold leak
2. Replacement of air conditioning compressor
3. Brake pad/shoe service
4. Diagnosis of Service Engine Soon Light using scanner
5. Evaluation of computer data stream using scanner

4. Critical Thinking

1. Reading diagnostic equipment and interpreting data
2. Reading shop manual information and applying technical reading to repairing vehicles

5. Receiving guidance from other students
6. Using Alldata to find and apply time and labor guides for estimates

Methods of Instruction:

1. ~~Observation~~
2. Lab - Safety Presentation and Laboratory assignment, Collaborative lab projects and exercises, Individual lab projects and exercises, Individual Learning Contract

Typical Outside-of-Class Assignments

A. ~~Other~~ Laboratory :

1. ~~Collaborative Learning~~

1. ~~Safety Test~~

1. Perform Safety Test
2. ~~Overview of Safety test with correct answers and explanation of answers~~
3. Laboratory tour and assignment, showing exits, evacuation plan, fire extinguishers, MSDS location, and location of shop equipment
4. Overview of Safety test with correct answers and explanation of answers

B. Project:

1. Individual Learning Contract

1. What does the student wish to accomplish?
2. ~~Are the units taken sufficient to complete the project(s)?~~

Methods of Evaluating Student Progress

- A. Class Participation
 - 1. daily
- B. Exams/Tests
 - 1. Safety Test
- C. Group Projects
 - 1. weekly
- D. Lab Activities
 - 1. daily

Student Learning Outcomes

- Upon the completion of this course, the student should be able to:
- A. ~~Upon completion of NAUT LABA, the student should be able to apply~~ Apply safety in all lab conditions.
 - B. ~~Upon completion of NAUT LABA, the student should be able to work~~ Work autonomously in a shop - _ environment ,
 - C. ~~Apply service manual procedures to the vehicle .~~

Textbooks (Typical):

- ~~Textbook: -~~
- 1. ~~Tim Gilles- Automotive Service:Inspection and Maintenance: -6 ed., Cengage, 2020:~~
 - 2. ~~chris Johanson- Auto Heating and Air Conditioning: -4 ed., Goodheart-Wilcox, 2015:~~
 - 3. ~~James Halderman- ASE Test Preparation and Study Guide: -2 ed., Pearson, 2017:~~

- Software:
- 1. Alldata. Alldata, (Current/e).

Other Materials Required of Students

- Other Materials Required of Students:
- 1. Safety Glasses.

Equity Based Curriculum

- _ Methods of Instruction Address _
Methods of instruction provide diverse ways to meet needs of different learning styles.

Requisite Skills

Before entering this course, it is required that a student be able to:

- A. ~~AUTO~~ NAUT ~~INTR~~ INTL
 - 1. Utilize and apply hazardous waste handling;
 - 2. Identify and describe uses of automotive related tools;
 - 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 - 4. Discuss four stroke engine cycle and identify engine parts ;
 - 5. Perform basic engine teardown and reassembly ;
 - 6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 - 7. Identify emissions components, understand 5 gas theory;
 - 8. Discuss heating and cooling systems, perform basic cooling systems tests;
 - 9. Identify air conditioning systems, understand cycles of refrigerant;
 - 10. Discuss braking systems, perform a brake inspection, identify parts;
 - 11. Differentiate between suspension and steering system types, inspect and qualify components;
 - 12. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
 - 13. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
 - 14. Theorize on the future of the automotive industry.
- B. ~~NAUT~~ ~~INTR~~
 - 1. ~~Utilize and apply hazardous waste handling;~~
 - 2. ~~Identify and describe uses of automotive related tools;~~
 - 3. ~~Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;~~
 - 4. ~~Discuss four stroke engine cycle and identify engine parts;~~
 - 5. ~~Apply Ohm's law, read basic schematics, test automotive electrical systems;~~
 - 6. ~~Identify emissions components, understand 5 gas theory;~~
 - 7. ~~Discuss heating and cooling systems, perform basic cooling systems tests;~~
 - 8. ~~Identify air conditioning systems, understand cycles of refrigerant;~~
 - 9. ~~Discuss braking systems, perform a brake inspection, identify parts;~~
 - 10. ~~Differentiate between suspension and steering system types, inspect and qualify components;~~
 - 11. ~~Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;~~
 - 12. ~~Restraints system identification, know safety concerns of each system and inspection of restraint systems;~~
- C. ~~AUTO-INTL~~
 - 1. ~~Utilize and apply hazardous waste handling;~~
 - 2. ~~Identify and describe uses of automotive related tools;~~
 - 3. ~~Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;~~
 - 4. ~~Discuss four stroke engine cycle and identify engine parts;~~
 - 5. ~~Apply Ohm's law, read basic schematics, test automotive electrical systems;~~

6. ~~Identify emissions components, understand 5 gas theory;~~
 7. ~~Discuss heating and cooling systems, perform basic cooling systems tests;~~
 8. ~~Identify air conditioning systems, understand cycles of refrigerant;~~
 9. ~~Discuss braking systems, perform a brake inspection, identify parts;~~
 10. ~~Differentiate between suspension and steering system types, inspect and qualify components;~~
 11. ~~Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;~~
 12. ~~Restraints system identification, know safety concerns of each system and inspection of restraint systems;~~
- D. ~~AUTO INTZ~~ INT
1. Identify and describe uses of automotive related tools;
 2. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 3. Discuss four stroke engine cycle and identify engine parts;
 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 5. Identify emissions components, understand 5 gas theory;
 6. Discuss heating and cooling systems, perform basic cooling systems tests;
 7. Identify air conditioning systems, understand cycles of refrigerant;
 8. Discuss braking systems, perform a brake inspection, identify parts;
 9. Differentiate between suspension and steering system types, inspect and qualify components;
 10. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
 11. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
 12. Theorize on the future of the automotive industry.
- E. ~~AUTO INTL~~ INTL
1. Utilize and apply hazardous waste handling;
 2. Identify and describe uses of automotive related tools;
 3. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 4. Discuss four stroke engine cycle and identify engine parts;
 5. Perform basic engine teardown and reassembly;
 6. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 7. Identify emissions components, understand 5 gas theory;
 8. Discuss heating and cooling systems, perform basic cooling systems tests;
 9. Identify air conditioning systems, understand cycles of refrigerant;
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 11. Differentiate between suspension and steering system types, inspect and qualify components;
 12. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
 13. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
 14. Theorize on the future of the automotive industry.
- F. ~~AUTO INT~~ INT
1. Identify and describe uses of automotive related tools;
 2. Describe the importance of preventative maintenance and inspection procedures as they relate to the automobile;
 3. Discuss four stroke engine cycle and identify engine parts;
 4. Apply Ohm's law, read basic schematics, test automotive electrical systems;
 5. Identify emissions components, understand 5 gas theory;
 6. Discuss heating and cooling systems, perform basic cooling systems tests;
 7. Identify air conditioning systems, understand cycles of refrigerant;
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 9. Differentiate between suspension and steering system types, inspect and qualify components;
 10. Identify different transmissions, understand theory of operation of both manual and automatic transmissions and fluid requirements;
 11. Restraints system identification, know safety concerns of each system and inspection of restraint systems;
 12. Theorize on the future of the automotive industry.

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs.

FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.

Explain how the decision was made to offer this course in a Distance Education mode.

PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

FO: Same as above.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.

- Proper color contrast.

Syllabus:

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: PO: At least twice per semester. FO: At least once every other week.
- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in.
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week.
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week.
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Minimum once per week.
- **Chat:** *The instructor will use chat to interact with students, textually and/or graphically, in realtime.*
Frequency: Fully online only: once every other week.
- **Other:**
Frequency: PO: Student interaction, fulfillment of SLO's and measurable objectives will be done on campus in the labs, weekly. - FO: Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.

Student-Student Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: Fully online only: Minimum weekly.
- **Other:**
Frequency: PO: Students will interact during on-campus weekly labs.

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: Fully online only: weekly.
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Safety test, once per semester.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: FO: At least once per week.
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: FO: Weekly.
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: PO: Weekly, in on-campus labs. - FO: Weekly recorded by student and completed using online software.
- **Other:**
Frequency: Homework -~~Both PO and FO~~: assigned weekly.

General Education/Transfer Request

General Education/Transfer Request -

CSU Transfer

- ~~Transfers to CSU~~

Codes and Dates

Course CB Codes

CB00: State ID

CCC000612344

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0604 - Automobile/Automotive Mechanics Technology/Technician.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Credit for Prior Learning

Credit for Prior Learning . Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam . Yes

Credit-by-Portfolio . No

Please list the requirements/criteria/possible materials for a student to submit in their portfolio. .

Curriculum Committee Approval Date .

Effective Term .

Credit-by-Military-JST . No

Please list the ACE course(s) equivalent to this course .

Curriculum Committee Approval Date .

Effective Term .

Credit-by-Industry-Recognized-Training . No

Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses (including this one) for which a student will earn credit.

-

Curriculum Committee Approval Date .

Additional Detail (List articulated courses, etc.) . No

Please list the articulated courses. Also, we ask that you upload any relevant docs (e.g., exams) via Attached Files. .

Curriculum Committee Approval Date .

Effective Term .

Curriculum Committee Approval Date .

Effective Term .

Course Modification: NAUT SDR - Specified Diagnostic and Repair

Course Modification: NAUT SDR - Specified Diagnostic and Repair (Launched - Implemented 09-24-2025)

compared with

NAUT SDR - Specified Diagnostic and Repair (Active - Implemented 08-15-2020)

Admin Outline for Noncredit Automotive Technology SDR
Specified Diagnostic and RepairEffective: Fall ~~2020~~ 2026

Catalog Description:

NAUT SDR - Specified Diagnostic and Repair

270 Hours

This is a Bureau of Automotive Repair approved alternative to the ASE A6, A8 and L1 certification required for obtaining and maintaining smog technician licenses. This course will follow BAR guidelines for smog license prep. Student may or may not qualify for license exam after taking this class. For more information see www.smogcheck.ca.gov

Course Grading: ~~-Pass/No Pass~~ Optional

Total Lecture Hours	72
Total Lab Hours	54
Total Inside of Class Hours	126
Total Outside of Class Hours	144
Total Noncredit Hours	270

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Explain and apply fuel management theory, testing, and diagnosis including computerized controls;
- B. Explain and apply ignition theory, testing and diagnosis including use of an ignition scope and diagnosis of emissions problems caused by the ignition system;
- C. Explain and apply on board computer theory, testing, and diagnosis including demonstrated use of a scan tool and diagnostic trouble code deciphering.
- D. Thoroughly understand and explain four cycle engine basics: compression, ignition, fuel, air, and vacuum;
- E. Use an emissions gas analyzer, scanner, and Digital Storage Oscilloscope and apply test results to aid in diagnosing a vehicle;
- F. Explain the function of sensors and actuators and their interaction with the computer as well as proper diagnostic procedures for each
- G. Explain and demonstrate the theory and proper diagnostic procedures for understanding of how long and short term fuel trim work;
- H. Correctly diagnose emissions control system failures
 - I. Retrieve, interpret, and apply diagnostic trouble codes
- J. Explain and apply four cycle engine theory including compression, air, fuel, ignition, vacuum, and the interaction between them
- K. Diagnose and repair automotive battery, starting, and charging systems using meters, test lights, and logic probes;
- L. Diagnose open, short, and grounded circuits;
- M. Explain Ohm's Law and apply in lab exercises;
- N. Perform a voltage drop test;
- O. Read and utilize a wiring diagram including standard industry symbol identification;
- P. Successfully apply diagnostic flow charts in order to achieve accurate diagnostic results of electronic components.
- Q. Use common industry terminology and abbreviations related to the course material

Course Content:

Lab:

1. Voltage drop testing
2. Wiring diagrams reading and application
3. Diagnostic Flow Charts reading and application
4. Four cycle engine testing: compression, ignition, fuel, air, and vacuum
5. Operation of diagnostic tools: DSO, scanner, and emissions analyzer
6. Testing of sensors and actuators, their interaction with the PCM, and their effect on drivability and emissions

7. [Diagnostic procedures for injected and carbureted fuel control systems](#)
8. [OBD II diagnostics and diagnostic trouble codes](#)
9. [Industry and BAR procedures](#)
10. [Fuel management testing, and diagnosis](#)
11. [Ignition testing, and diagnosis](#)
12. [On board computer testing, and diagnosis](#)

Lecture:

1. Use of meters, test lights, and logic probes in diagnosing battery, starting, and charging systems
2. Circuit Problems
 1. Opens, causes and corrections
 2. Shorts, causes and corrections
 3. Grounds, causes and corrections
3. Intermittent electrical problems
 1. Diagnostic Strategy
 2. Collection Information
 3. Attacking problem
4. Ohm's Law and electrical theory
 1. Ohms Law
 2. Computing Ohms Law
 3. Using Ohms Law in stock vehicles
 4. Using Ohms Law with aftermarket accessories
5. Voltage drops
 1. What do they mean?
 2. Better than Ohms?
6. Wiring diagrams
 1. Schematic Icons
 2. Reading Charts
7. Diagnostic Flow Charts
8. Four cycle engine basics: compression, ignition, fuel, air, and vacuum
9. Operation of diagnostic tools: DSO, scanner, and emissions analyzer

10. Function of sensors and actuators, their interaction with the PCM, and their effect on drivability and emissions
 11. Theory and diagnostic procedures for injected and carbureted fuel control systems
 12. OBD II diagnostics and diagnostic trouble codes
 13. Industry and BAR terminology, abbreviations, standards, and procedures
 14. Fuel management theory, testing, and diagnosis
 15. Ignition theory, testing, and diagnosis
 16. On board computer theory, testing, and diagnosis
- _

Methods of Instruction:

1. Lecture - Group lecture assignments. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
2. Lab - Hands-On lab Exercises
3. ~~Audio-visual Activity~~
4. ~~Discussion~~

Typical Outside-of-Class Assignments

- A. ~~Other:~~
- Reading:
Read Chapter One in text
- A. ~~Read each chapter in the text and be prepared to seek clarification and ask questions in class-~~
- Research:
Engine Construction research for a personal vehicle
2. ~~Orally discuss the material covered in each chapter-~~
 3. ~~-Complete the review questions and related lab exercises for each chapter-~~
 1. ~~Explain how the computer is used to control the a alternator-~~
 2. ~~Why do voltage regulators include temperature compensation-~~
 4. ~~Complete lab activity worksheets for diagnosis and debugging using electrical/electronic diagnostic equipment. Show competence when entering data into California smog equipment~~
 1. ~~Charging voltage check~~
 2. ~~Lighting system troubleshooting~~

Methods of Evaluating Student Progress

- A. Class Participation
1. daily
- B. Exams/Tests
1. Comprehensive from State
- C. Lab Activities
1. daily

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of NAUT SDR, the student should be able to apply~~ Apply safety precautions in shop lab - _ exercises.
- B. ~~Upon completion of NAUT SDR, the student should be able to obtain~~ Obtain and interpret scan tool data
- C. Apply electrical theory to battery systems.

Textbooks (Typical):

Textbook:

1. State of California https://www.bar.ca.gov/pdf/2017_Smog_Check_Manual.pdf. 2017 ed., State of California, 2017.

2. James ~~D Halderman~~ *Automotive Maintenance and Light Repair*. ~~1 ed.~~, Pearson, 2014.
3. ~~James~~ Halderman *ASE Test Preparation and Study Guide*. ~~2 ed.~~, Pearson, ~~2017~~ 2019 .

Other Learning Materials: .

1. ~~Tim Any. Giles~~ and *Automotive all . Service, current . 5 and . ed., past . Cengage.* "BAR . 2015 Blasts" these are informational releases from the State about the smog check program .

Other Materials Required of Students

Other Materials Required of Students:

1. Internet access.
2. Safety Glasses.

Equity Based Curriculum

- [. Methods of Instruction](#)
[Address .](#)
[The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.](#)
- [. Typical Texts](#)
[Address .](#)
[Smog Tests are offered in multiple languages.](#)

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs.

FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.

Explain how the decision was made to offer this course in a Distance Education mode.

PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path.

FO: Same as above.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Weekly, as assignments or labs are turned in.
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: Minimum Once per week.
- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*
Frequency: Minimum once per week.
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: Weekly lab sessions.
- **Other:**
Frequency: PO: Student interaction, fulfillment of SLO's and measurable objectives will be done on campus in the labs, weekly. FO: Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: PO: At least twice per semester. FO: At least once every other week.
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: Fully online only: Minimum weekly.
- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*
Frequency: Fully online only: once every other week.
- **Other:**
Frequency: PO: Students will interact during on-campus weekly labs.

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: Fully online only: weekly.
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: ~~PO and FO:~~ Exams: at least three per semester.
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: ~~PO: At least once per week. FO:~~ At least once per week.
- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*
Frequency: FO: Weekly.
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: PO: Weekly, in on-campus labs. - FO: Weekly recorded by student and completed using online software.
- **Other:**
Frequency: Homework: ~~Both PO and FO:~~ assigned weekly.

General Education/Transfer Request

General Education/Transfer Request -

~~CSU Transfer~~

- ~~Transfers to CSU~~

Codes and Dates

Course CB Codes

CB00: State ID

CCC000612346

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0612 - Vehicle Emissions Inspection and Maintenance Technology/Technician.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

C - Clearly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

2 - Not Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Credit for Prior Learning

Credit for Prior Learning . Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam . Yes

Credit-by-Portfolio . No

Please list the requirements/criteria/possible materials for a student to submit in their portfolio. .

Curriculum Committee Approval Date .

Effective Term .

Credit-by-Military-JST . No

Please list the ACE course(s) equivalent to this course .

Curriculum Committee Approval Date .

Effective Term .

Credit-by-Industry-Recognized-Training . Yes

Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses (including this one) for which a student will earn credit.

-

1. Completed a BAR certified SDR (Specified Diagnostic and Repair) class. May be taken as one, two or three classes. Classes may be taken in any form and from any BAR certified school. To receive credit for SDR student must have taken A6 alternative, A8 alternative and L1 alternative. Must have been completed in the last five years with a passing grade.

or

2. Current and valid California smog licence. Must have both EI and EQ.

Curriculum Committee Approval Date .

Additional Detail (List articulated courses, etc.) . No

Please list the articulated courses. Also, we ask that you upload any relevant docs (e.g., exams) via Attached Files. .

Curriculum Committee Approval Date .

Effective Term .

Curriculum Committee Approval Date .

Effective Term .

Course Modification: NAUT SMOG - Smog Level One and Level Two

Course Modification: NAUT SMOG - Smog Level One and Level Two (Launched - Implemented 09-27-2025)

compared with

NAUT L1L2 - Smog Level One and Level Two (Active - Implemented 08-15-2020)

**Admin Outline for Noncredit Automotive Technology ~~L1L2~~ SMOG
Smog Level One and Level Two**
Effective: Fall ~~2020~~ 2026

Catalog Description:
NAUT ~~L1L2~~ SMOG - Smog Level One and Level Two
297 Hours

This course includes classes/modules the State of California's requires for a student/automotive technician to be prepared to take their Smog License Test. This class will include Level One and Level Two smog training only. At the end of the class students may or may not qualify for either EI or EO smog license. See www.smogcheck.ca.gov for more information.

Course Grading: ~~-Pass/No Pass~~ Optional

Total Lecture Hours	90
Total Lab Hours	27
Total Inside of Class Hours	117
Total Outside of Class Hours	180
Total Noncredit Hours	297

Justification for course proposal

Discipline:

Automotive Technology

Number of Times Course May Be Taken for Credit:
Course Objectives:

Upon completion of this course, the student should be able to:

- A. Incorporate the concepts, techniques, principles, and legal requirements of the California Smog Check Program, including changes and updates published in the latest edition of the Smog Check Manual;
- B. Analyze a vehicle with emission control problems to a criterion established by the instructor based on Bureau of Automotive Repair and industry standards by using the newest in automotive and emission control theory;
- C. Analyze vehicle emission systems applications for theory, operation and diagnosis, to a standard set by the Bureau of Automotive Repair, through manipulative, oral, or written assignments, and/or class discussion;
- D. Demonstrate proper operating procedures and safety precautions using a 5-Gas Analyzer to conduct a complete smog inspection;
- E. Apply automotive computer system theory to evaluate, diagnose, and repair an emissions malfunction caused by a component of the computer system;
- F. Perform advanced diagnostic and repair procedures on vehicles equipped with 2nd Generation On Board Diagnostics (OBD II) using the latest electronic interface equipment;
- G. Discuss and apply the operating theory of wide band oxygen sensor by interpreting scan tool data and the ion transfer between platinum zirconium electrodes.
- H. Analyze and diagnose a vehicle with emission control problems, including NOx problems, to a criterion established by the instructor based on Bureau of Automotive Repair and industry standards
- I. Demonstrate setup and operation of diagnostic and testing equipment including but not limited to Digital Storage Oscilloscope, BAR97 smog machine, and a dynamometer. Explain results obtained during operation of said equipment.
- J. Demonstrate loaded mode emissions base lining techniques and use of diagnostic flow charts
- K. Explain catalytic converter theory, operation, and efficiency testing procedures
- L. Explain and demonstrate the differences in emissions testing procedures between the BAR90 and the BAR97 gas analyzer systems including dynamometer use of the Enhanced Smog Check Program
- M. Perform 5 gas diagnostics
- N. Explain the rules and regulations guiding the smog check program and technician duties

Course Content:
Lab:

1. [Fuel delivery systems.](#)
2. [Ignition systems](#)
3. [Fuel systems testing](#)
4. [Ignition System Testing](#)
5. [Diagnostic patterns and analyze gas readings](#)

6. [Diagnostic test equipment](#)
7. [Diagnostic information systems](#)
8. [Diagnose various Engine Performance concerns](#)
9. [Handling of hazardous waste materials](#)
10. [Professional environment](#)

Lecture:

1. The Level One Course is divided into seven parts called modules which correspond with the State Examination modules:
 1. Rules and Regulations
 2. Automotive Theory
 3. Emission Control Theory and Operations
 4. Vehicle Emission Systems Applications
 5. TAS Operation and Testing Procedures
 6. Computer Systems Theory
 7. Diagnosis and Repair of Computerized Vehicles
2. The OBD II Training covers advanced diagnostic and repair procedures on 2nd Generation On Board Diagnostics (OBD II vehicles using the latest electronic interface equipment.
3. Monitor setting and training
4. Five gas training
5. Emission system diagnosis
6. The 2003 Update Course covers smog testing procedures and new rules and regulations in the latest Smog Check Manual.
7. The 2005 Update course covers wide band oxygen sensors testing and theory
8. The 2007 Update course covers catalytic converter testing and theory.
9. The 2011 Update course covers wide band oxygen sensors testing and theory
10. Level Two training including Dynamometer usage, State computer usage, laws and regulations.
11. BAR specified Diagnostic and Repair Training
12. DAD training and requirements
13. Any new content the State of California Smog training requires.

Methods of Instruction:

1. Lecture - [Group and individual activities. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.](#)
2. Lab - Hands-On lab exercises
3. Audio-visual Activity - [Group and individual activities](#)
4. Discussion - [Group and individual activities](#)

Typical Outside-of-Class Assignments

- A. ~~Other:~~
 - [Reading:](#)
 - [Read Chapter One in text](#)
- A. ~~Read each module in the text and be prepared to seek clarification and ask questions in class.~~

Research:
Engine Construction research for a personal vehicle

2. ~~Orally discuss the material covered in each module:~~
3. ~~Complete the review questions for each module in the student workbook:~~
 1. (Example) Base spark advance is calculated using what 2 inputs?
 2. (Example) True or False? Potentiometers are used to measure throttle position.
4. ~~Complete the related lab exercises for each (relevant) module:~~
 1. (Example) Customize an engine diagnostic scanner for troubleshooting purposes.
 2. (Example) Perform a complete Smog Check inspection on at least two computer-controlled vehicles, one foreign and one domestic.

Methods of Evaluating Student Progress

A. Class Participation

1. weekly

B. Exams/Tests

~~1. One final from State of California~~

1. One final from State of California. Passing final exam with a minimum of 70% correct

C. Lab Activities

~~1. Weekly~~

1. Weekly, demonstrating competency when performing required lab assignments.

D. Quizzes

1. Weekly

E. ~~Passing final exam with a minimum of 70% correct; Demonstrating competency when performing required lab assignments; Meeting mandatory attendance criteria;~~

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of NAUT L1L2, the student should be able to perform~~ Perform an OIS test.
- B. ~~Upon completion of NAUT L1L2, the student should be able to obtain~~ Obtain and interpret powertrain data.
- C. Perform smog test

Textbooks (Typical):

Textbook:

1. James Halderman *ASE Test Preparation and Study Guide*. 2 ed., Pearson, 2017.
2. Bureau of Automotive Repair, *Clean Air Car Course Training Manual*, Department of Consumer Affairs, 1993.
3. Bureau of Automotive Repair, *Clean Air Car Course Student Workbook*, Department of Consumer Affairs, 1993.
4. State of California *Smog Check Inspection Manual*. ~~2017~~ 2021 ed., Department of Consumer Affairs, ~~2017~~ 2021.
5. Bureau of Automotive Repair, *Write It Right*, Department of Consumer Affairs, 1999.
6. Bureau of Automotive Repair, *Laws and Regulation*, Department of Consumer Affairs, ~~2004~~ 2025.
7. Maurseth, M., E. K. Smith, *BD II Generic On-Board Diagnostic Second Generation*, California Institute of Automotive Technology, 2009.

Other Materials Required of Students

Other Materials Required of Students:

1. Safety Glasses.

Equity Based Curriculum

- Methods of Instruction
Address
The methods of instruction can be intentional to incorporate real life experiences of diverse automotive technicians. The lectures and other assignments can be modified to encourage participation and universal learning. When appropriate, guest lecturers will represent a cross culture of gender, ethnicity, age, and sexual orientation.
- Methods of Evaluation

[Address](#) .

[The course materials and evaluations are based on industry standards.](#)

- [Typical Texts](#)

[Address](#) .

[The course materials and evaluations are based on industry standards.](#)

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

PO: Lectures can be done in person or as DE. Labs should be completed in person even in an emergency. To meet the hours of lab enforced by NATEF/ASE (our accreditation agency) we must complete in-person labs.

FO: Same as above, however specialized software can be used to simulate labs online (case by case approved by NATEF). This was done Spring 20 and worked well however students become very frustrated very quickly when they are not getting their hands dirty. 90% of Spring 2020 students stated they would not return to a fully online semester for Fall 2020. Fully online should only be used in extreme situations and for a very short duration.

Explain how the decision was made to offer this course in a Distance Education mode.

~~PO: California Automotive Teachers have given this recommendation to allow our students to continue on their career path. FO: Same as above:~~

[California Automotive Teachers have given this recommendation to allow our students to continue on their career path.](#)

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*

Frequency: Weekly, as assignments or labs are turned in.

- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*

Frequency: Minimum Once per week.

- **Web conferencing:** *The instructor will use web conferencing to interact with students in real time.*

Frequency: Minimum once per week.

- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*

Frequency: Weekly lab sessions.

- **Other:**

Frequency: PO: Student interaction, fulfillment of SLO's and measurable objectives will be done on campus in the labs, weekly. - FO: Student interaction, fulfillment of SLO's and measurable objectives will be monitored through the accounting set up in the online lab software, weekly.

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*

Frequency: PO: At least twice per semester. FO: At least once every other week.

- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*

Frequency: Fully online only: Minimum weekly.

- **Chat:** *Students will use the class chatroom to discuss assignments and course material in realtime.*

Frequency: Fully online only; once every other week.

- **Other:**

Frequency: PO: Students will interact during on-campus weekly labs.

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*

Frequency: Fully online only; weekly.

- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*

Frequency: ~~PO and FO:~~ Quizzes: at least one quiz per section/chapter. Weekly. Exams: One final from State of California.

- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*

Frequency: ~~PO: At least once per week. FO:~~ At least once per week.

- **Simulations:** *Simulations will be used by students so they can participate in and learn from processes.*

Frequency: FO: Weekly.

- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*

Frequency: PO: Weekly, in on-campus labs. FO: Weekly recorded by student and completed using online software.

- **Other:**

Frequency: Homework: ~~Both PO and FO:~~ assigned weekly.

General Education/Transfer Request

General Education/Transfer Request -

~~CSU Transfer~~

- ~~Transfers to CSU~~

Codes and Dates

Course CB Codes

CB00: State ID

CCC000612343

CB03: TOP Code

094800 - Automotive Technology

CIP Code

[47.0612 - Vehicle Emissions Inspection and Maintenance Technology/Technician.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

B - Advanced Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

[Credit for Prior Learning](#)

Credit for Prior Learning . Yes

Please select the method(s) of credit for prior learning that students can use to earn credit for this course at Las Positas College.

Credit-by-Exam . Yes

Credit-by-Portfolio . No

Please list the requirements/criteria/possible materials for a student to submit in their portfolio. .

Curriculum Committee Approval Date .

Effective Term .

Credit-by-Military-JST . No

Please list the ACE course(s) equivalent to this course .

Curriculum Committee Approval Date .

Effective Term .

Credit-by-Industry-Recognized-Training . Yes

Please state the license / certification / credential / coursework, the required recency, and the agency having jurisdiction, along with a list of the courses (including this one) for which a student will earn credit.

-

1. Completed a BAR certified Level one and Level two class. May be taken as one or two classes. Classes may be taken in any form and from any BAR certified school. To receive credit for L1L2 student must have taken both Level 1 and Level 2. Must have been completed in the last five years with a passing grade.

or

2. Current and valid California smog license. Must have both EI and EO.

Curriculum Committee Approval Date .

Additional Detail (List articulated courses, etc.) . No

Please list the articulated courses. Also, we ask that you upload any relevant docs (e.g., exams) via Attached Files. .

Curriculum Committee Approval Date .

Effective Term .

Curriculum Committee Approval Date .

Effective Term .

Course Modification: NBUS 202 - Attitude in the Workplace

Course Modification: NBUS 202 - Attitude in the Workplace (Launched - Implemented 10-10-2025)

compared with

NBUS 202 - Attitude in the Workplace (Active - Implemented 01-01-2020)

**Admin Outline for Noncredit Business 202
Attitude in the Workplace**

Effective: ~~Spring~~ ~~Fall~~ ~~2020~~ 2026

Catalog Description:

NBUS 202 - Attitude in the Workplace

27 Hours

This course introduces the key elements for attitude in the professional workplace. This course is beneficial for students seeking to improve their ability to communicate a positive attitude while at work. Not applicable to associate degree.

Course Grading: Pass/No Pass

Total Lecture Hours	9
Total Inside of Class Hours	9
Total Outside of Class Hours	18
Total Noncredit Hours	27

Justification for course proposal

Discipline:

Vocational (short-term): Noncredit

Number of Times Course May Be Taken for Credit:

Course Objectives:

Upon completion of this course, the student should be able to:

- Examine the primary causes of a bad attitude and identify strategies to counteract them in order to develop a more positive outlook.
- Identify primary causes of a bad attitude and possible solutions on a simulation or role-play.
- Identify methods of obtaining a positive attitude.
- Explain multiple methods for adjusting your attitude.
- ~~[Correspondence Ed course] (i.) The same standards of course quality identified in the course outline of record can be applied. (ii.) The content identified in the course outline of record can be presented effectively & with same degree of rigor. (iii.) A student can achieve the same goals and objectives identified in the COR. (iv.) Same assignments in COR can be completed by student, guided by instr. (v.) Same assessments and level of student accountability can be achieved.~~

Course Content:

1. What is attitude?

- Where attitudes come from
- Common attitude problems at work
- How attitudes are communicated

2. How to adjust your attitude

- Listen to your self-talk
- Pursue happiness
- Seek comfort with change
- Value relationships
- Stop "should-ing" yourself
- Practice an attitude of gratitude

3. How to maintain a positive attitude

1. Start each day fresh
2. Clarify and prioritize your life
3. Enjoy the moment
4. Express, don't suppress, your feelings
5. Surround yourself with positive influences

4. Primary causes of a bad attitude

1. Low self-esteem
2. Fear
3. Unresolved conflict
4. Inability to accept change
5. Boredom
6. Resentment
7. Symptoms of all these bad attitudes in the workplace
8. How do these bad attitudes affect your workplace?
9. Turnaround strategies to battle them

Methods of Instruction:

1. Classroom Activity - Written scenarios analysis evaluated for completion and accuracy.
2. Projects - Analysis of case scenarios (oral presentations and/or short paper) evaluated for correct - _ identification of causes of a bad attitude and appropriate identification of strategies to - _ counteract them in order to develop a more positive outlook.
3. Written Exercises - Journal entries evaluated for completion.
4. Lecture - ~~{Correspondence; At Instructor-Student Interaction}~~ Students will access asynchronous written lectures on course content. Frequency: ~~least 3 asynchronous~~ per course semester
5. Written Exercises - Written Papers- [Correspondence, Student-Content Interaction] Papers will be written on various topics. Frequency: 1 per course
6. ~~Individualized Instruction -~~ Feedback on Assignments -
7. ~~Foster {Correspondence; a Instructor-Student classroom Interaction} culture The that instructor encourages will open provide dialogue regular and substantive; respect academic for feedback diverse viewpoints. Create spaces for students to students share on their assignments own experiences and assessments: insights Students will know the reason for the grade they received and what they can do related to improve entrepreneurship . Frequency: Feedback on every homework; and quiz weekly~~
8. ~~Quizzes, Tests/Exams - [Correspondence, Student-Content Interaction] Quizzes, Tests/Exams- Quizzes and/or tests/exams will be used to make sure students completed assigned material and understood it. Frequency: Minimum of 2 quizzes per course~~

Typical Outside-of-Class Assignments

A. ~~Other~~ Writing :

1. ~~Reading Assignments~~

1. ~~Selected handouts from the instructor covering attitudes, strategies, and ways to develop a more positive outlook:~~
2. ~~Current articles from newspapers and magazines as assigned:~~

2. ~~Projects, Activities, and other Assignments~~

1. ~~Analyze case scenarios and situations that highlight primary causes of bad attitude and strategies for handling them:~~

3. ~~Writing Assignments~~

1. Written scenario analysis on key skills in attitude adjustment.
2. Worksheets to reinforce how attitudes are communicated.
3. Journal entries on how student applied techniques learned in class to various environments including the workplace and at home.

D. ~~Reading:~~

1. Selected handouts from the instructor covering attitudes, strategies, and ways to develop a more positive outlook.
2. Current articles from newspapers and magazines as assigned.

E. ~~Project:~~

1. Analyze case scenarios and situations that highlight primary causes of bad attitude and strategies for handling them.

Methods of Evaluating Student Progress

- A. Class Work
 1. Daily
- B. Papers
 1. 1 per semester
- C. Projects
 1. 1 per semester

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of NBUS-202, the student should be able to examine~~ Examine the primary causes of a bad - _ attitude and identify strategies to counteract them in order to develop a more positive outlook.
- B. ~~Upon Describe completion multiple of strategies NBUS for 202, the student should be able to identify methods of obtaining~~ cultivating a positive - _ attitude in personal and professional contexts.
- C. Identify and explain at least three distinct strategies for adjusting personal attitude in response to challenging situations .

Textbooks (Typical):

OER: _

1. Paynton and Hahn, Introduction to Communication, _Libre Texts, 2025, [https://socialsci.libretexts.org/Bookshelves/Communication/Introduction_to_Communication/Introduction_to_Communication_\(Paynton_and_Hahn\)](https://socialsci.libretexts.org/Bookshelves/Communication/Introduction_to_Communication/Introduction_to_Communication_(Paynton_and_Hahn)).
2. J. Stewart Black, Organizational Behavior, _OpenStax textbooks, 2025, <https://openstax.org/details/books/organizational-behavior>.

Other Materials Required of Students

Equity Based Curriculum

- _ Methods of Instruction
Address _
Foster a classroom culture that encourages open dialogue and respect for diverse viewpoints. Create spaces for students to share their own experiences and insights related to entrepreneurship.
- _ Typical Texts
Address _
OER, or low cost textbooks help reduce barriers to completing the course.

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

The subject matter lends itself to online instruction. There are no labs and all of the assignments, assessments, and activities can be completed remotely. By offering online it allows convenience and flexibility to all students including those that have a family or are working full-time. Offering this class DE would be beneficial if there was a safety emergency matter for

example: wildfire, earthquake, or health crisis. Lastly, as a noncredit class it increases the appeal to new students or students who primarily are seeking skill based learning.

Explain how the decision was made to offer this course in a Distance Education mode.

The decision was made discussing with fellow faculty, students, and our advisory board. Additionally, we spoke to the Livermore Adult School and they expressed interest in these classes to run in parallel with their courses.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Each student will be emailed at least once per course
- **Discussion board:** *The instructor will regularly participate in discussions that deal with academic content, will consistently provide substantive feedback, and will facilitate all discussions.*
Frequency: Participate in 1 discussion board per semester, and provide feedback to each student on a per course basis
- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Feedback on every homework, and quiz
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: 2 announcements per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: At least once per course

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: Weekly
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: 1 per course
- **Group work:** *Students will work in teams to complete group projects. The projects will then be shared with the rest of the class.*
Frequency: 1 per course

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: 1 per course
- **Group work:** *Students will collaborate in private groups to solve problems, become experts on certain topics, etc. They will then present their findings to the class.*
Frequency: 1 per course
- **Written papers:** *Papers will be written on various topics.*
Frequency: 1 per course
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Minimum of 2 quizzes
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: 2 asynchronous per course
- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*
Frequency: 1 short video per semester
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: 1 per course

General Education/Transfer Request

General Education/Transfer Request

Codes and Dates

Course CB Codes

CB00: State ID

CCC000606923

CB03: TOP Code

050630 - Management Development and Supervision

CIP Code

[52.0204 - Office Management and Supervision.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

D - Possibly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: NBUS 203 - Decision Making and Problem Solving

Course Modification: NBUS 203 - Decision Making and Problem Solving (Launched - Implemented 10-10-2025)

compared with

NBUS 203 - Decision Making and Problem Solving (Active - Implemented 01-01-2019)

**Admin Outline for Noncredit Business 203
Decision Making and Problem Solving**

Effective: ~~Spring~~ ~~Fall~~ ~~2020~~ 2026

Catalog Description:

**NBUS 203 - Decision Making and Problem Solving
27 Hours**

This noncredit course introduces the key elements for decision making and problem solving in the professional workplace. This course is beneficial for students seeking to improve their decision making and problem solving skills. Not applicable to associate - _ degree.

Course Grading: Pass/No Pass

Total Lecture Hours	9
Total Inside of Class Hours	9
Total Outside of Class Hours	18
Total Noncredit Hours	27

Justification for course proposal

Discipline:

Vocational (short-term): Noncredit

Number of Times Course May Be Taken for Credit:

Course Objectives:

Upon completion of this course, the student should be able to:

- Differentiate between decision making and problem solving.
- Acquired the knowlege to recognize the importance of creativity in problem solving, and identifying various blocks to problem solving.
- Perform one of the problem solving techniques in a role-play.
- Perform secondary data research to help your analysis of a decision.
- Identify at least two of the blocks to decision making.
- ~~[Correspondence Ed course] (i.) The same standards of course quality identified in the course outline of record can be applied. (ii.) The content identified in the course outline of record can be presented effectively & with same degree of rigor. (iii.) A student can achieve the same goals and objectives identified in the COR. (iv.) Same assignments in COR can be completed by student-guided by instr. (v.) Same assessments and level of student accountability can be achieved~~

Course Content:

Lab:

Lecture:

- What is problem-solving and decision making?
 - Is there a difference?
 - Differentiating between decision making and problem-solving.
- Steps in the decision-making process
 - Define the problem
 - Gather facts and data
 - Sources of data
 - Primary data
 - b. Secondary data

4. [Organize information](#)
5. [Alternative solutions](#)
6. [Make a decision](#)
7. [Evaluate the solution](#)
8. [Individual vs. group decisions](#)

1. [Advantages](#)
2. [Disadvantages](#)

9. [Examine the steps of decision making](#)

3. [Blocks to problem-solving](#)

1. [Perceptual](#)
2. [Cultural](#)
3. [Environmental](#)
4. [Emotional](#)
5. [Problem-solving blocks in your workplace](#)
6. [Identify various blocks to problem-solving](#)

4. [Problem-solving techniques](#)

1. [Force field analysis](#)
2. [Affinity diagram](#)
3. [Input form co-workers and supervisors](#)
4. [Analyze different problem-solving techniques](#)

5. [Creativity and problem solving](#)

1. [Why creativity?](#)
2. [Barriers to creativity](#)
 1. [Fear of failure](#)
 2. [Lack of support](#)
 3. [Being practical](#)
 4. [Supervisor's shadow](#)
 5. [Distractions](#)
3. [Recognize the importance of creativity in problem-solving](#)

1. Classroom Activity - Short paper critiqued for mastery of creativity in problem solving.
2. Observation - Oral presentation and/or written case analysis evaluated by rubric for clarity, application of appropriate decision making and problem solving skills.
3. Audio-visual Activity - Video showcases bad and good examples of problem-solving
4. Lecture - ~~{Correspondence, Instructor-Student Interaction}~~ Students will access asynchronous written lectures Lectures on course content ~~-Frequency: 3 asynchronous per course~~
5. Written Exercises - ~~Written Papers- {Correspondence, Student-Content Interaction}~~ Papers will be written on various topics. Frequency: 1 per course
6. Feedback Foster on a Assignments classroom - culture ~~{Correspondence, that Instructor-Student encourages Interaction} open The dialogue instructor and will respect provide for regular diverse substantive; viewpoints. academic Create feedback spaces for students to students share on their assignments own experiences~~ and assessments: insights Students will know the reason for the grade they received and what they can do related to improve entrepreneurship . ~~-Frequency: Feedback on every homework, and quiz weekly~~
7. Quizzes, Tests/Exams- {Correspondence, Student-Content Interaction} Quizzes, Tests/Exams- Quizzes and/or tests/exams will be used to make sure students completed assigned material and understood it. ~~Frequency: Minimum of 2 quizzes per course~~

Typical Outside-of-Class Assignments

A. ~~Other~~ Reading :

1. ~~Reading Assignments~~

1. Selected handouts from the instructor showing how to differentiate between decision making and problem-solving.
2. ~~Projects, Activities, and other Assignments~~

1. ~~Role-playing problem solving and decision-making techniques:~~
2. ~~Discussions regarding decision making and problem-solving:~~
3. ~~Oral presentations to identify various blocks to problem-solving:~~

C. Writing ~~Assignments~~

:

1. Short paper- case analysis to examine the steps of decision making.

D. Project:

1. Role-playing problem solving and decision-making techniques.
2. Discussions regarding decision making and problem-solving.
3. Oral presentations to identify various blocks to problem-solving.

Methods of Evaluating Student Progress

- A. Class Participation
 1. Daily
- B. Group Projects
 1. 1 per semester
- C. Role-Playing -1 per semester

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of NBUS 203, the student should be able to differentiate~~ Differentiate between decision making and - problem solving.
- B. ~~Upon completion of NBUS 203, the student should acquire~~ Acquire the knowledge to recognize the - importance of creativity, and identify various blocks to problem solving
- C. ~~Upon completion of NBUS 203, the student should be able to apply~~ Apply problem - solving techniques in a role-play
- D. ~~Upon completion of NBUS 203, the student should be able to use~~ Use primary and - secondary sources in their decision making process.

Textbooks (Typical):

OER: :

1. J. Stewart Black. *Organizational Behavior*. ,OpenStax textbooks, 2025. <https://openstax.org/details/books/organizational-behavior>.
2. Paynton and Hahn. *Introduction to Communication*. ,Libre Texts, 2025. [https://socialsci.libretexts.org/Bookshelves/Communication/Introduction to Communication/Introduction to Communication \(Paynton and Hahn\)](https://socialsci.libretexts.org/Bookshelves/Communication/Introduction%20to%20Communication/Introduction%20to%20Communication%20(Paynton%20and%20Hahn)).

Other Materials Required of Students

Equity Based Curriculum

- [_ Methods of Instruction](#)
[Address](#) _
[Foster a classroom culture that encourages open dialogue and respect for diverse viewpoints. Create spaces for students to share their own experiences and insights related to entrepreneurship.](#)
- [_ Typical Texts](#)
[Address](#) _
[no textbook, OER, or low cost textbooks to reduce barriers to completing the course.](#)

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

The subject matter lends itself to online instruction. There are no labs and all of the assignments, assessments, and activities can be completed remotely. By offering online it allows convenience and flexibility to all students including those that have a family or are working full-time. Offering this class DE would be beneficial if there was a safety emergency matter for example: wildfire, earthquake, or health crisis. Lastly, as a noncredit class it increases the appeal to new students or students who primarily are seeking skill based learning.

Explain how the decision was made to offer this course in a Distance Education mode.

The decision was made discussing with fellow faculty, students, and our advisory board. Additionally, we spoke to the Livermore Adult School and they expressed interest in these classes to run in parallel with their courses.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Each student will be emailed at least once per course
- **Discussion board:** *The instructor will regularly participate in discussions that deal with academic content, will consistently provide substantive feedback, and will facilitate all discussions.*
Frequency: Participate in 1 discussion board per semester, and provide feedback to each student on a per course basis
- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Feedback on every homework, and quiz
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: 2 announcements per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: At least once per course

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: Weekly
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: 1 per course
- **Group work:** *Students will work in teams to complete group projects. The projects will then be shared with the rest of the class.*

Frequency: 1 per course

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: 1 per course
- **Group work:** *Students will collaborate in private groups to solve problems, become experts on certain topics, etc. They will then present their findings to the class.*
Frequency: 1 per course
- **Written papers:** *Papers will be written on various topics.*
Frequency: *Minimum of 1*
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Minimum of 2 quizzes
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: 2 asynchronous per course
- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*
Frequency: 1 short video per course
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: *1 group project per semester*
- **Role playing:** *Students will be divided into groups and assigned roles to "play" in a real-world situation.*
Frequency: *1 per course*
- **Student presentations:** *Students will prepare and present on a topic being studied.*
Frequency: 1 per course

General Education/Transfer Request

General Education/Transfer Request

Codes and Dates

Course CB Codes

CB00: State ID

CCC000606503

CB03: TOP Code

050630 - Management Development and Supervision

CIP Code

[52.0204 - Office Management and Supervision.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

D - Possibly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: NBUS 205 - Team Building

Course Modification: NBUS 205 - Team Building (Launched - Implemented 10-10-2025)

compared with

NBUS 205 - Team Building (Active - Implemented 01-01-2019)

**Admin Outline for Noncredit Business 205
Team Building**

Effective: ~~Spring~~ ~~Fall~~ ~~2020~~ 2026

Catalog Description:

NBUS 205 - Team Building

27 Hours

This course is designed to provide students with an understanding of how - _ teams work together, and common problems teams encounter and how to solve them. Not applicable to associate degree.

Course Grading: Pass/No Pass

Total Lecture Hours	9
Total Inside of Class Hours	9
Total Outside of Class Hours	18
Total Noncredit Hours	27

Justification for course proposal

Discipline:

Vocational (short-term): Noncredit

Number of Times Course May Be Taken for Credit:

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Implement the best practices for building a team including, but not limited to, effective communication and problem solving.
- B. Identify different personalities in the workplace through video observation.
- C. Explain some of the common team problems and what to do about them.
- D. Identify different characteristics of an efficient team.
- E. ~~[Correspondence Ed course] (i.) The same standards of course quality identified in the course outline of record can be applied. (ii.) The content identified in the course outline of record can be presented effectively & with same degree of rigor. (iii.) A student can achieve the same goals and objectives identified in the COR. (iv.) Same assignments in COR can be completed by student, guided by instr. (v.) Same assessments and level of student accountability can be achieved~~

Course Content:

1. What is a team?

1. The role of a team
2. The importance of good teamwork

2. Personalities in the workplace

1. Popular
2. Powerful
3. Peaceful
4. Perfect
5. Understanding our own personality strengths and weaknesses
6. Appreciating other types of personalities

3. Characteristics of an effective team

1. Balanced participation
2. Communication and listening
3. Team diversity
4. Constructive conflict
5. Self-evaluation
6. Clear Purpose

4. Common team problems and what to do about them

1. Lack of participation
2. Gossiping
3. Poor communication
4. Infighting
5. Floundering
6. Lack of clear purpose

-

-

Methods of Instruction:

1. Observation - Evaluation of participation in discussions and role playing evaluated for application of - _ critical thinking skills, demonstration of an understanding of key team building - _ concepts such as communication and problem solving, and quality of - _ contributions.
2. Written Exercises - Short paper evaluated for content and a demonstrated understanding of the role of a team - _ and the importance of teamwork in implementing best practices.
3. Student Presentations - Oral presentation(s) evaluated for content (such as the correct identification of factors - _ that define the characteristics of building an effective team that may include clear - _ communication and problem solving.)
4. Classroom Activity - Quizzes covering the characteristics of building an effective team.
5. Lecture - {Correspondence, Instructor-Student Interaction} Students will access asynchronous written lectures Lectures on course content -Frequency: 3 asynchronous per course
6. Written Exercises - Written Papers- [Correspondence, Student-Content Interaction] Papers will be written on various topics. Frequency: 1 per course
7. Feedback Foster on a Assignments classroom - culture {Correspondence, that Instructor-Student encourages Interaction} open The dialogue instructor and will respect provide for regular diverse substantive, viewpoints. academic Create feedback spaces for students to students share on their assignments own experiences and assessments: insights Students will know the reason for the grade they received and what they can do related to improve entrepreneurship . -Frequency: Feedback on every homework, and quiz weekly
8. Quizzes, Tests/Exams-[Correspondence, Student-Content Interaction] Quizzes, Tests/Exams-Quizzes and/or tests/exams will be used to make sure students completed assigned material and understood it. Frequency: Minimum of 2 quizzes per course

Typical Outside-of-Class Assignments

A. Other Reading :

1. Reading Assignments
 1. Selected handouts from the instructor.
 2. Current articles in newspapers and magazines.
2. Projects, Activities, and other Assignments
 1. Case scenario role playing that analyzes the role of different personalities in the workplace:
 2. Discussion(s) of methods to solve common team problems:
 3. Oral presentations that define the characteristics of an effective team:

C. Writing ~~Assignments~~

:

1. Short paper on how to define the role of a team and why teamwork is important

D. Other:

1. Case scenario role-playing that analyzes the role of different personalities in the workplace.
2. Discussion(s) of methods to solve common team problems.
3. Oral presentations that define the characteristics of an effective team .

Methods of Evaluating Student Progress

- A. Class Participation
 1. Daily
- B. Oral Presentation
 1. 1 per semester
- C. Quizzes
 1. Short Quizzes Daily

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of NBUS-205, the student should be able to implement~~ Implement the best practices for building a - _ team including, but not limited to, effective communication and problem solving.
- B. ~~Upon completion of NBUS-205, the student should be able to identify~~ Identify different personalities in the - _ workplace.
- C. ~~Upon completion of NBUS-205, the student should be able to explain~~ Explain some of the common team - _ problems and form solutions.
- D. ~~Upon completion of NBUS-205, the student should be able to identify~~ Identify different characteristics of an - _ efficient team.

Textbooks (Typical):

OER: _

1. J. Stewart Black Organizational Behavior, _OpenStax textbooks, 2025. <https://openstax.org/details/books/organizational-behavior>.
2. Paynton and Hahn Introduction to Communication, _Libre Texts, 2025. [https://socialsci.libretexts.org/Bookshelves/Communication/Introduction_to_Communication/Introduction_to_Communication_\(Paynton_and_Hahn\)](https://socialsci.libretexts.org/Bookshelves/Communication/Introduction_to_Communication/Introduction_to_Communication_(Paynton_and_Hahn)).

Other Materials Required of Students

Equity Based Curriculum

- _ Methods of Instruction
Address _
Foster a classroom culture that encourages open dialogue and respect for diverse viewpoints. Create spaces for students to share their own experiences and insights related to entrepreneurship.
- _ Typical Texts
Address _
No textbook, OER, or low cost textbooks reduce barriers to completing the course.

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

The subject matter lends itself to online instruction. There are no labs and all of the assignments, assessments, and activities can be completed remotely. By offering online it allows convenience and flexibility to all students including those that have a family or are working full-time. Offering this class DE would be beneficial if there was a safety emergency matter for example: wildfire, earthquake, or health crisis. Lastly, as a noncredit class it increases the appeal to new students or students who primarily are seeking skill based learning.

Explain how the decision was made to offer this course in a Distance Education mode.

The decision was made discussing with fellow faculty, students, and our advisory board. Additionally, we spoke to the Livermore Adult School and they expressed interest in these classes to run in parallel with their courses.

Accessibility:

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- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Each student will be emailed at least once per course
- **Discussion board:** *The instructor will regularly participate in discussions that deal with academic content, will consistently provide substantive feedback, and will facilitate all discussions.*
Frequency: Participate in 1 discussion board per semester, and provide feedback to each student on a per course basis
- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Feedback on every homework, and quiz
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: 2 announcements per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: At least once per course

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: Weekly
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: 1 per course
- **Group work:** *Students will work in teams to complete group projects. The projects will then be shared with the rest of the class.*
Frequency: 1 per course

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: 1 per course
- **Group work:** *Students will collaborate in private groups to solve problems, become experts on certain topics, etc. They will then present their findings to the class.*
Frequency: 1 per course
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Short quizzes daily
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: 2 asynchronous per course
- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*
Frequency: 1 short video per course
- **Other Student presentations :** [Students will prepare and present on a topic being studied.](#)
Frequency: 1 per course

General Education/Transfer Request

General Education/Transfer Request

Codes and Dates

Course CB Codes

CB00: State ID

CCC000606505

CB03: TOP Code

050630 - Management Development and Supervision

CIP Code

52.0204 - Office Management and Supervision.

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

D - Possibly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: NBUS 206 - Time Management

Course Modification: NBUS 206 - Time Management (Launched - Implemented 10-10-2025)

compared with

NBUS 206 - Time Management (Active - Implemented 01-01-2019)

**Admin Outline for Noncredit Business 206
Time Management**

 Effective: ~~Spring~~ ~~Fall~~ ~~2020~~ 2026
Catalog Description:
NBUS 206 - Time Management
27 Hours

This course is designed to introduce students to time management principles - _ and specific tools that assist in making the most efficient use of time. This course is - _ beneficial for students seeking to improve their time management skills. Not applicable - _ to associate degree.

Course Grading: Pass/No Pass

Total Lecture Hours	9
Total Inside of Class Hours	9
Total Outside of Class Hours	18
Total Noncredit Hours	27

Justification for course proposal

Discipline:

Vocational (short-term): Noncredit

Number of Times Course May Be Taken for Credit:
Course Objectives:

Upon completion of this course, the student should be able to:

- A. Create goals that are specific, measurable, attainable, realistic, and timely (SMART) and evaluate the role goal setting plays in the workplace.
- B. Use prioritization, elimination of time wasters, and effective scheduling practices through the development of a comprehensive time management strategy.
- C. Create a plan for approaching a team member regarding the delegation of a group project.
- D. ~~[Correspondence Ed course] (i.) The same standards of course quality identified in the course outline of record can be applied. (ii.) The content identified in the course outline of record can be presented effectively & with same degree of rigor. (iii.) A student can achieve the same goals and objectives identified in the COR. (iv.) Same assignments in COR can be completed by student, guided by instr. (v.) Same assessments and level of student accountability can be achieved~~

Course Content:

1. What is time management
 1. Dangers of poor time management
 2. Benefits of good time management
 3. Working smarter to enhance productivity
2. How good is your time management?
 1. Identifying time Wasters
 2. Workplace time wasters and what to do about them
 1. Visitors
 2. Telephone calls
 3. Email
 4. Social Media

5. Interruptions

3. Self-generated time wasters and what to do about them

1. Disorganization
2. Procrastination
3. Inability to say no
4. Perfection

3. Time management tips and techniques

1. To do lists

1. Importance of prioritization
2. Relativity
3. Estimating task timing

2. How to deal with large tasks

1. Making hors d'oeuvres out of elephants

3. Goal Setting – SMART Goals

1. Specific
2. Measurable
3. Attainable
4. Realistic
5. Timely
6. Value of goal setting in the workplace

4. Managing distractions

1. Minimize distractions
2. Manage interruptions
3. Improve your concentration
4. Managing email efficiently

5. The Art of scheduling

1. Contingency time
2. Discretionary time
3. Understanding your body clock

6. Delegation

1. How well do you delegate?

2. Tips for effective delegation

1. Know your subordinates
2. Delegate work evenly
3. Follow up on delegated tasks
4. Delegate with consistency
5. Reinforce good performance
6. Pitfalls of do-it-yourself managers

Methods of Instruction:

1. Demonstration - Oral Presentation evaluated for ability to explain time management techniques including - _ goal setting, and identify ways to best implement them.
2. Classroom Activity - Evaluation of journal entries for completion and the demonstration of understanding of - _ the value of goal setting, prioritization and elimination of time wasters, for efficient use - _ of time in the workplace.
3. Projects - Case analysis evaluated for completion and for clear explanation of the importance of using self-diagnostic tools for identifying areas for improvement in time management skills in an effort to improve those areas.
4. Lecture - ~~{Correspondence, Instructor-Student Interaction}~~ Students will access asynchronous written lectures Lectures on course content. ~~Frequency: 3 asynchronous per course~~
5. Written Exercises - ~~Written Papers~~ ~~{Correspondence, Student-Content Interaction}~~ Papers will be written on various topics. Frequency: 1 per course
6. Feedback Foster on a Assignments classroom - culture ~~{Correspondence, that Instructor-Student encourages Interaction}~~ open The dialogue instructor and will respect provide for regular diverse substantive; viewpoints. academic Create feedback spaces for students to students share on their assignments own experiences and assessments: insights Students will know the reason for the grade they received and what they can do related to improve entrepreneurship . ~~Frequency: Feedback on every homework, and quiz weekly~~
7. Quizzes, Tests/Exams ~~{Correspondence, Student-Content Interaction}~~ Quizzes, Tests/Exams ~~Quizzes and/or tests/exams will be used to make sure students completed assigned material and understood it. Frequency: Minimum of 2 quizzes per course~~

Typical Outside-of-Class Assignments

A. ~~Other~~ Reading :

1. ~~Reading Assignments~~

1. Selected handouts from the instructor.
2. Current articles in newspapers and magazines.

B. ~~Projects~~; Writing:

1. Journal Activities; entries addressing the importance of setting priorities and other establishing Assignments goals and reflecting on the use and effectiveness of this practice in the workplace

C. Project:

1. Case analysis of real-world situations demonstrating the importance of self-diagnostic tools for improving time management.
2. Oral presentation explaining various time management techniques and identifying ways to implement them.

4. ~~Writing Assignments~~

1. ~~Journal entries addressing the importance of setting priorities and establishing goals and reflecting on the use and effectiveness of this practice in the workplace.~~

Methods of Evaluating Student Progress

A. Class Participation

1. Daily

B. Class Work

1. Daily

C. Oral Presentation

1. 1 per semester

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of NBUS-206, the student should be able to create~~ **Create** goals that are specific, measurable, - _ attainable, realistic, and timely (SMART) and evaluate the role goal setting plays in the workplace.
- B. ~~Upon completion of NBUS-206, the student should be able to use~~ **Use** prioritization, elimination of time - _ wasters, and effective scheduling practices through the development of a comprehensive time - _ management strategy
- C. ~~Upon completion of NBUS-206, the student should be able to create~~ **Create** a plan for approaching a team - _ member regarding the delegation of a group project.

Textbooks (Typical):

OER: _

1. [J. Stewart Black. *Organizational Behavior*. ,OpenStax textbooks, 2025. https://openstax.org/details/books/organizational-behavior.](https://openstax.org/details/books/organizational-behavior)
2. [Paynton and Hahn. *Introduction to Communication*. , Libre Texts, 2025. https://socialsci.libretexts.org/Bookshelves/Communication/Introduction to Communication/Introduction to Communication \(Paynton and Hahn\).](https://socialsci.libretexts.org/Bookshelves/Communication/Introduction%20to%20Communication/Introduction%20to%20Communication%20(Paynton%20and%20Hahn).)

Other Materials Required of Students

Equity Based Curriculum

- [_ *Methods of Instruction*](#)
[Address _](#)
[Foster a classroom culture that encourages open dialogue and respect for diverse viewpoints. Create spaces for students to share their own experiences and insights related to entrepreneurship.](#)
- [_ *Typical Texts*](#)
[Address _](#)
[No textbook. OER, or low cost textbooks to reduce barriers to completing the course.](#)

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

The subject matter lends itself to online instruction. There are no labs and all of the assignments, assessments, and activities can be completed remotely. By offering online it allows convenience and flexibility to all students including those that have a family or are working full-time. Offering this class DE would be beneficial if there was a safety emergency matter for example: wildfire, earthquake, or health crisis. Lastly, as a noncredit class it increases the appeal to new students or students who primarily are seeking skill based learning.

Explain how the decision was made to offer this course in a Distance Education mode.

The decision was made discussing with fellow faculty, students, and our advisory board. Additionally, we spoke to the Livermore Adult School and they expressed interest in these classes to run in parallel with their courses.

Accessibility:

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- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Each student will be emailed at least once per course
- **Discussion board:** *The instructor will regularly participate in discussions that deal with academic content, will consistently provide substantive feedback, and will facilitate all discussions.*
Frequency: Participate in 1 discussion board per semester, and provide feedback to each student on a per course basis
- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Feedback on every homework, and quiz
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: 2 announcements per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: At least once per course

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: Weekly
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: 1 per course
- **Group work:** *Students will work in teams to complete group projects. The projects will then be shared with the rest of the class.*
Frequency: 1 per course

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: 1 per course
- **Group work:** *Students will collaborate in private groups to solve problems, become experts on certain topics, etc. They will then present their findings to the class.*
Frequency: 1 per course
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Minimum of 2 quizzes
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: 2 asynchronous per course
- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*
Frequency: 1 short video per course
- **Other Student presentations :** *Students will prepare and present on a topic being studied.*
Frequency: 1 per course

General Education/Transfer Request

General Education/Transfer Request

Codes and Dates

Course CB Codes

CB00: State ID

CCC000606506

CB03: TOP Code

050630 - Management Development and Supervision

CIP Code

[52.0204 - Office Management and Supervision.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

D - Possibly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: NBUS 207 - Conflict Resolution**Course Modification: NBUS 207 - Conflict Resolution (Launched - Implemented 10-10-2025)**

compared with

NBUS 207 - Conflict Resolution (Active - Implemented 01-01-2019)**Admin Outline for Noncredit Business 207
Conflict Resolution****Effective:** ~~Spring~~ ~~Fall~~ ~~2020~~ 2026**Catalog Description:****NBUS 207 - Conflict Resolution****27 Hours**

This course is designed to introduce students to the meaning of conflict, the causes of conflict, and strategies for resolving interpersonal conflict. This course is beneficial for students seeking to improve their conflict resolution skills. Not applicable to associate degree.

Course Grading: Pass/No Pass

Total Lecture Hours	9
Total Inside of Class Hours	9
Total Outside of Class Hours	18
Total Noncredit Hours	27

Justification for course proposal

Discipline:

Vocational (short-term): Noncredit

Number of Times Course May Be Taken for Credit:**Course Objectives:**

Upon completion of this course, the student should be able to:

- A. Describe the meaning of conflict, recognize the causes of conflict, and design conflict resolution strategies.
- B. Determine one's own conflict style and develop skills for resolving interpersonal conflict.
- C. Identify different conflict styles and how they affect the workplace.
- D. Define the six steps in resolving conflict with customers.

Course Content:

1. What is conflict?

1. How does conflict make you feel?

2. Where do we experience conflict?

2. What is your conflict style?

1. How do different styles affect the workplace?

2. Causes of conflict

3. Recognizing the causes of conflict

4. Skills for resolving interpersonal conflict

3. Bringing out the best in yourself and others

1. Concern

2. Compliment

3. Consideration
4. Companionship
5. Consent

4. Conflict with customers

1. Let them vent
2. Avoid getting trapped in a negative filter
3. Express empathy
4. Begin active problem solving
5. Mutually agree on the solution
6. Follow up

Methods of Instruction:

1. Classroom Activity - Short term paper on personal conflict style evaluated for completion and accuracy.
2. Demonstration - Group presentations evaluated for accuracy, and effective application of concepts and - _ strategies in dealing with conflict.
3. Simulations - Role-play scenario participation evaluated for application of critical thinking skills and - _ problem solving in designing strategies for interpersonal conflict management .
4. Foster a classroom culture that encourages open dialogue and respect for diverse viewpoints. Create spaces for students to share their own experiences and insights related to entrepreneurship .

Typical Outside-of-Class Assignments

A. ~~Other~~ Reading :

1. ~~Reading Assignments~~

1. Handouts as assigned by the instructor.
2. Current articles in newspapers and magazines that explain various types of conflict.

B. ~~Projects~~; Writing:

1. ~~Short Activities~~; term paper that compares and contrasts one's own conflict style with other Assignments styles.

C. Project:

1. Group presentations to determine facts, identify reasons and causes of conflict, and apply the concepts and strategies learned in dealing with conflict.
2. Role-play scenarios that cover key concepts and strategies in dealing with interpersonal conflicts.

4. ~~Writing Assignments~~

1. ~~Short-term paper that compares and contrasts one's own conflict style with other styles-~~

Methods of Evaluating Student Progress

- A. Class Work
 1. Daily
- B. Oral Presentation
 1. 1 per semester
- C. Papers
 1. 1 per semester

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of NBUS 207, the student should be able to describe~~ Describe the meaning of conflict, recognize - _ the causes of conflict, and design conflict resolution strategies.
- B. ~~Upon completion of NBUS 207, the student should be able to determine~~ Determine one's own conflict style and - _ develop skills for resolving interpersonal conflict.
- C. ~~Upon completion of NBUS 207, the student should be able to identify~~ Identify different conflict styles and how - _ they affect the workplace.

D. Upon completion of NBUS-207, the student should be able to define Define the six steps in resolving conflict with - _ customers.

Textbooks (Typical):

OER: _

1. J. Stewart Black Organizational Behavior, _OpenStax textbooks, 2025. <https://openstax.org/details/books/organizational-behavior>.
2. Paynton and Hahn Introduction to Communication, _Libre Texts, 2025. [https://socialsci.libretexts.org/Bookshelves/Communication/Introduction_to_Communication/Introduction_to_Communication_\(Paynton_and_Hahn\)](https://socialsci.libretexts.org/Bookshelves/Communication/Introduction_to_Communication/Introduction_to_Communication_(Paynton_and_Hahn)).

Textbook: _

1. _

Other Materials Required of Students

Equity Based Curriculum

- _ Methods of Instruction
Address _
Foster a classroom culture that encourages open dialogue and respect for diverse viewpoints. Create spaces for students to share their own experiences and insights related to entrepreneurship.
- _ Typical Texts
Address _
No textbook, OER, or low cost textbooks to reduce barriers to completing the course.

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

The subject matter lends itself to online instruction. There are no labs and all of the assignments, assessments, and activities can be completed remotely. By offering online it allows convenience and flexibility to all students including those that have a family or are working full-time. Offering this class DE would be beneficial if there was a safety emergency matter for example: wildfire, earthquake, or health crisis. Lastly, as a noncredit class it increases the appeal to new students or students who primarily are seeking skill based learning.

Explain how the decision was made to offer this course in a Distance Education mode.

The decision was made discussing with fellow faculty, students, and our advisory board. Additionally, we spoke to the Livermore Adult School and they expressed interest in these classes to run in parallel with their courses.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
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Frequency: Participate in 1 discussion board per semester, and provide feedback to each student on a per course basis
- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Feedback on every homework, and quiz
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: 2 announcements per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: At least once per course

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: Weekly
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: 1 per course
- **Group work:** *Students will work in teams to complete group projects. The projects will then be shared with the rest of the class.*
Frequency: 1 per course

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: 1 per course
- **Group work:** *Students will collaborate in private groups to solve problems, become experts on certain topics, etc. They will then present their findings to the class.*
Frequency: 1 per course
- **Written papers:** *Papers will be written on various topics.*
Frequency: 1 per course
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Minimum of 2 quizzes
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: 2 asynchronous per course
- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*
Frequency: 1 short video per course
- **Other Student presentations :** *Students will prepare and present on a topic being studied.*
Frequency: 1 per course

General Education/Transfer Request

General Education/Transfer Request

Codes and Dates

Course CB Codes

CB00: State ID

CCC000606507

CB03: TOP Code

050630 - Management Development and Supervision

CIP Code

[52.0204 - Office Management and Supervision.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

D - Possibly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status
Y. Not Applicable

CB26: Course Support Course Status
N - Course is not a support course

CB27: Upper Division Status

Course Modification: NBUS 210 - Customer Service

Course Modification: NBUS 210 - Customer Service (Launched - Implemented 10-10-2025)

compared with

NBUS 210 - Customer Service (Active - Implemented 01-01-2020)

**Admin Outline for Noncredit Business 210
Customer Service**

Effective: Spring Fall 2020 2026

Catalog Description:

NBUS 210 - Customer Service

27 Hours

This noncredit course covers key skills and attitudes necessary to effectively meet the - _ customer's need and teaches students best practices for the importance of values and - _ ethics in the workplace. Not applicable to associate degree.

Course Grading: Pass/No Pass

Total Lecture Hours	9
Total Inside of Class Hours	9
Total Outside of Class Hours	18
Total Noncredit Hours	27

Justification for course proposal

Discipline:

Vocational (short-term): Noncredit

Number of Times Course May Be Taken for Credit:

Course Objectives:

Upon completion of this course, the student should be able to:

- A. Practice and apply outstanding customer service skills including clear communication and relationship building to improve customer satisfaction and retention.
- B. Differentiate among internal and external customers to determine and meet their unique needs.
- C. Examine and apply the key elements of outstanding customer service including reliability, assurance, tangibles, empathy, and responsiveness.
- D. Identify what is customer service and who are your customers.
- E. Develop a plan and strategy for customer retention.
- F. ~~[Correspondence Ed course] (i.) The same standards of course quality identified in the course outline of record can be applied. (ii.) The content identified in the course outline of record can be presented effectively & with same degree of rigor. (iii.) A student can achieve the same goals and objectives identified in the COR. (iv.) Same assignments in COR can be completed by student guided by instr. (v.) Same assessments and level of student accountability can be achieved~~

Course Content:

1. What is customer service?

1:

1. Why customer service is important.

2:

2. What's the difference between good customer service and outstanding customer service.

2. Who are your customers?

1:

1. Defining internal and external customers

2:

2. Team effort in customer service

3. Key elements of outstanding customer service

~~4.~~

1. Reliability

~~a.~~

1. Keep your promises to your customers

~~2.~~

2. Assurance

~~a.~~

1. Listen to your customers and note body language

~~3.~~

3. Tangibles

~~a.~~

1. Know the physical location of your business and ~~products~~

~~b.~~ product

2. Be aware of your appearance

~~c.~~

3. Proofread what you hand out to customers.

~~4.~~

4. Empathy

~~a.~~

1. Customers don't care what you know until they know that you care

~~5.~~

5. Responsiveness

~~a.~~

1. Respond to customers in a timely manner

~~b.~~

2. Acknowledge customers who are waiting

~~6.~~

6. Ethics and values

~~a.~~

1. We are here because of our customers

~~b.~~

2. Work hard to solve any problems

~~c.~~

3. Maintain a positive attitude

~~d.~~

4. Policies and procedures that encourage ethical action builds a positive corporate culture

4. Customer expectations

~~4.~~

1. What do we expect as customers?

~~2:~~

2. What do our customers expect?

~~a:~~

1. What baggage do customers bring with them?

~~b:~~

2. What unrealistic expectations do customers have?

5. Customer retention

~~4:~~

1. The importance of customer service and customer loyalty

~~2:~~

1. The value of long term customers

~~3:~~

2. Why customers leave

Methods of Instruction:

1. Classroom Activity - Review of journal entries evaluated for completion, application of key customer service - _ skills, and timeliness.
2. Projects - Scenario analysis for Action Plan evaluated for content, appropriateness of identified - _ actions, and timeliness.
3. Individualized Instruction - Short term paper evaluated for content, application of critical thought, and timeliness.
4. Lecture - ~~{Correspondence, Instructor-Student Interaction}~~ Students will access asynchronous written lectures **Lectures** on course content. ~~-Frequency: 3 asynchronous per course~~
5. Written Exercises - ~~Written Papers - {Correspondence, Student-Content Interaction}~~ Papers will be written on various topics. Frequency: 1 per course
6. **Feedback Foster on a Assignments classroom - culture** ~~{Correspondence, that Instructor-Student encourages Interaction}~~ **open The dialogue instructor and will respect provide for regular diverse substantive; viewpoints. academic Create feedback spaces for students to students share on their assignments own experiences and assessments: insights** Students will know the reason for the grade they received and what they can do **related** to improve **entrepreneurship**. ~~-Frequency: Feedback on every homework, and quiz weekly~~
7. **Quizzes, Tests/Exams - {Correspondence, Student-Content Interaction}** Quizzes, Tests/Exams-Quizzes and/or tests/exams will be used to make sure students completed assigned material and understood it. ~~Frequency: Minimum of 2 quizzes per course~~

Typical Outside-of-Class Assignments

A. ~~Other~~ **Reading** :

1. **Reading Assignments**

1. Selected readings from instructor handouts to identify and define outstanding customer service.
2. Current articles in newspapers and magazines, to show differentiation among internal and external customers.

2. **Projects, Activities, and other Assignments**

1. ~~Using case problems to determine facts, identify reasons, and apply the concepts learned in making decisions about Customer Service.~~
2. ~~Role-playing that exposes students to several Customer service situations such as reliability, assurance, tangibles, empathy and responsiveness.~~

C. **Writing** ~~Assignments~~

~~:~~

1. Written scenario analysis for a Customer Service Action Plan that details the meaning of how to differentiate among internal and external customers.
2. Short term paper that demonstrates an understanding and recognition of the key elements of customer service including reliability, assurance, tangibles, empathy, and responsiveness.

- Journal entries on how students can apply techniques learned in class to various environments including the workplace and at home.

D. Project:

- Using case problems to determine facts, identify reasons, and apply the concepts learned in making decisions about Customer Service.
- Role-playing that exposes students to several Customer service situations such as reliability, assurance, tangibles, empathy and responsiveness.

Methods of Evaluating Student Progress

- A. Class Participation
 - Daily
- B. Class Work
 - Daily
- C. Projects
 - 1 per semester

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of NBUS 210, the student should be able to practice~~ Practice and apply outstanding customer - _ service skills, including clear communication and relationship building to improve customer satisfaction - _ and retention.
- B. ~~Upon completion of NBUS 210, the student should be able to differentiate~~ Differentiate among internal and external - _ customers to determine and meet their unique needs.
- C. ~~Upon completion of NBUS 210, the student should be able to examine~~ Examine and apply the key elements of - _ outstanding customer service, including reliability, assurance, tangibles, empathy, and responsiveness.
- D. ~~Upon completion of NBUS 210, the student should be able to define~~ Define customer service and - _ identify their customers.

Textbooks (Typical):

OER: _

- Paynton and Hahn. *Introduction to Communication*. 1 /e. Libre Texts, 2025. [https://socialsci.libretexts.org/Bookshelves/Communication/Introduction to Communication/Introduction to Communication \(Paynton and Hahn\).](https://socialsci.libretexts.org/Bookshelves/Communication/Introduction%20to%20Communication/Introduction%20to%20Communication%20(Paynton%20and%20Hahn))
- Kerri Shields. *Customer Centric Strategy*. _Open Textbook Library, 2025. [https://open.umn.edu/opentextbooks/textbooks/1217.](https://open.umn.edu/opentextbooks/textbooks/1217)

Other Materials Required of Students

Equity Based Curriculum

- _ *Methods of Instruction* *Address* _ *Foster a classroom culture that encourages open dialogue and respect for diverse viewpoints. Create spaces for students to share their own experiences and insights related to entrepreneurship.*
- _ *Typical Texts* *Address* _ *No textbook, OER, or low cost textbooks to reduce barriers to completing the course.*

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

The subject matter lends itself to online instruction. There are no labs and all of the assignments, assessments, and activities can be completed remotely. By offering online it allows convenience and flexibility to all students including those that have a family or are working full-time. Offering this class DE would be beneficial if there was a safety emergency matter for example: wildfire, earthquake, or health crisis. Lastly, as a noncredit class it increases the appeal to new students or students who primarily are seeking skill based learning.

Explain how the decision was made to offer this course in a Distance Education mode.

The decision was made discussing with fellow faculty, students, and our advisory board. Additionally, we spoke to the Livermore Adult School and they expressed interest in these classes to run in parallel with their courses.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.

- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Each student will be emailed at least once per course
- **Discussion board:** *The instructor will regularly participate in discussions that deal with academic content, will consistently provide substantive feedback, and will facilitate all discussions.*
Frequency: Participate in 1 discussion board per semester, and provide feedback to each student on a per course basis
- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Feedback on every homework, and quiz
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: 2 announcements per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: At least once per course

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: Weekly
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: 1 per course
- **Group work:** *Students will work in teams to complete group projects. The projects will then be shared with the rest of the class.*
Frequency: 1 per course

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: 1 per course
- **Group work:** *Students will collaborate in private groups to solve problems, become experts on certain topics, etc. They will then present their findings to the class.*
Frequency: 1 per course
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Minimum of 2 quizzes
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: 2 asynchronous per course
- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*
Frequency: 1 short video per course
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: 1 per course

General Education/Transfer Request

General Education/Transfer Request

Codes and Dates

Course CB Codes

CB00: State ID
CCC000606881

CB03: TOP Code
050630 - Management Development and Supervision

CIP Code

[52.0204 - Office Management and Supervision.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

D - Possibly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: NBUS 211 - Design Thinking for the Entrepreneur

Course Modification: NBUS 211 - Design Thinking for the Entrepreneur (Launched - Implemented 10-10-2025)

compared with

NBUS 211 - Design Thinking for the Entrepreneur (Active - Implemented 01-01-2020)

**Admin Outline for Noncredit Business 211
Design Thinking for the Entrepreneur**

Effective: ~~Spring~~ ~~Fall 2020~~ 2026

Catalog Description:**NBUS 211 - Design Thinking for the Entrepreneur****27 Hours**

This course introduces students to the decision making process called Design Thinking. Design Thinking emphasizes deep user understanding, intentional iteration and a focus on possibilities as a way to improve people's lives and enhance and create value for stakeholders. Design Thinking draws on methods from engineering and design and combines them with ideas from the arts, social services and the business world. Emphasis will be placed on experiential learning, identifying specific behaviors and skills that enable design thinkers to meet customer demands in all types of organizations including for-profits, non-profits, healthcare, arts and education.

Course Grading: Pass/No Pass

Total Lecture Hours	9
Total Inside of Class Hours	9
Total Outside of Class Hours	18
Total Noncredit Hours	27

Justification for course proposal

Discipline:

Vocational (short-term): Noncredit

Number of Times Course May Be Taken for Credit:**Course Objectives:**

Upon completion of this course, the student should be able to:

- Develop rapid prototypes that allow for meaningful feedback in a real-world environment.
- Define opportunities into actionable innovation possibilities and recommendations for organizations.
- Translate broadly defined opportunities into actionable innovation possibilities.
- Formulate Design Thinking activities in terms of market impact, value creation, and speed.
- Create a storyboard for the prototype that was created earlier in the course or provided by instructor.

Course Content:**1. Introduction to Design Thinking****1. Relevance and Significance of Design Thinking****2. The Four Questions of Design Thinking****2. Introduction to Design Research Strategies & Techniques****1. Research strategies:****1. Identifying Insights****2. Draft a Design Brief****2. Design Research Techniques****1. Secondary Research**

2. Direct Observation
3. Ethnographic Interviews
4. Identify Insights

3. Identification and Scoping of Opportunities

1. Problems are Opportunities
2. Simple Solutions
3. Opportunistic Adaptations

4. Ideation

1. Establish Design Criteria
2. Brainstorming
3. Develop Concepts

5. User Testing, Prototypes, Iteration, and Communicating

1. Surface Key Assumptions
2. Make Prototypes
3. Get Feedback from Stakeholders
4. Create Napkin Pitches
5. Storyboarding
6. Connecting different audiences through storytelling

Methods of Instruction:

1. Projects - 1 per semester
2. Classroom Activity - Student Students will research reflect a on specific their area own pertinent experiences and develop ideas on how to design help thinking make and people's create lives a media presentation to be delivered to the class. Once delivered to the class they will be required to answer peers' questions regarding relevance of the research and application to a design thinking problem better .
3. Audio-visual Written Activity Exercises - Videos and podcasts of successful Entrepreneurs and inventors
4. Demonstration - Brainstorming and mind mapping Reflection exercises
5. Reflection Foster exercises a classroom culture that encourages open dialogue and respect for diverse viewpoints. Create spaces for students to share their own experiences and insights related to entrepreneurship.

Typical Outside-of-Class Assignments

A. Other:

1. Students will create at least three "napkin pitches" for their innovative concept.
 1. A napkin pitch provides a simple, consistent format for summarizing and communicating new concepts.
 2. For a given concept each napkin pitch describes the target stakeholders, the unmet needs, and why the student's offer creates novel value for them; the elements the student will make or partner for, the channels the student will use; and potential rivals or other factors to watch.
2. Adaptive Brainstorming
 1. Students will define and redefine innovation challenges by asking the right questions, and not necessarily focusing on the right answers.
 2. Students will gather as much data as possible and work to funnel the data into workable action items.

B. Research:

1. Students will develop "personas" - fictional characters that typify types of stakeholders interested in a particular product or service. Based on research gathered by the student during the "What is" stage, personas represent a synthesis of characteristics of different people that have been interviewed. Students will develop various personas using a three-step process:

1. Study the themes uncovered during the research phase.
2. Identify various dimensions, (usually via a psychographic 2x2 matrix) that the student believes reveal differences between the group of stakeholders.
For example, given the dimension of social behavior on one axis, the student may identify introverted at one extreme and extroverted at the other, and then might cross that dimension with spending - frugal on one extreme and free-spending on the other.
3. Create personas for each archetype in each quadrant. Describe the archetype as fully as possible, focusing on the demographics and psychographics that make the archetype unique.

3. ~~Students will create at least three "napkin pitches" for their innovative concept.~~

1. ~~A napkin pitch provides a simple, consistent format for summarizing and communicating new concepts.~~
2. ~~For a given concept each napkin pitch describes the target stakeholders, the unmet needs, and why the student's offer creates novel value for them; the elements the student will make or partner for, the channels the student will use; and potential rivals or other factors to watch.~~

4. ~~Adaptive Brainstorming~~

1. ~~Students will define and redefine innovation challenges by asking the right questions, and not necessarily focusing on the right answers.~~
2. ~~Students will gather as much data as possible and work to funnel the data into workable action items.~~

Methods of Evaluating Student Progress

- A. Class Participation
 1. Daily
- B. Class Work
 1. Daily
- C. Projects
 1. 1 per semester

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of NBUS 211, the~~ The student should be able to develop rapid prototypes that allow for meaningful feedback in a real-world environment.
- B. ~~Upon completion of NBUS 211, the~~ The student should be able to translate broadly defined opportunities into actionable innovation possibilities.
- C. ~~Upon completion of NBUS 211, the~~ The student should be able to formulate Design Thinking activities in terms of market impact, value creation, and speed.

Textbooks (Typical):

OER:

1. Lawrence J. Gitman. *Introduction to Business*. , Openstax, 2025. <https://openstax.org/details/books/introduction-business>.
2. Stephen J. Skripak. *Fundamentals of Business*. 4 /e, Open Textbook Library, 2025. <https://open.umn.edu/opentextbooks/textbooks/fundamentals-of-business>.

Other Materials Required of Students

Equity Based Curriculum

- Methods of Instruction
Address Foster a classroom culture that encourages open dialogue and respect for diverse viewpoints. Create spaces for students to share their own experiences and insights related to entrepreneurship.
- Typical Texts
Address

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

The subject matter lends itself to online instruction. There are no labs and all of the assignments, assessments, and activities can be completed remotely. By offering online it allows convenience and flexibility to all students including those that have a family or are working full-time. Offering this class DE would be beneficial if there was a safety emergency matter for example: wildfire, earthquake, or health crisis. Lastly, as a noncredit class it increases the appeal to new students or students who primarily are seeking skill based learning.

Explain how the decision was made to offer this course in a Distance Education mode.

The decision was made discussing with fellow faculty, students, and our advisory board. Additionally, we spoke to the Livermore Adult School and they expressed interest in these classes to run in parallel with their courses.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Each student will be emailed at least once per course
- **Discussion board:** *The instructor will regularly participate in discussions that deal with academic content, will consistently provide substantive feedback, and will facilitate all discussions.*
Frequency: Participate in 1 discussion board per semester, and provide feedback to each student on a per course basis
- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Feedback on every homework, and quiz
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: 2 announcements per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: At least once per course

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: Weekly
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: 1 per course
- **Group work:** *Students will work in teams to complete group projects. The projects will then be shared with the rest of the class.*
Frequency: 1 per course

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: 1 per course
- **Group work:** *Students will collaborate in private groups to solve problems, become experts on certain topics, etc. They will then present their findings to the class.*
Frequency: 1 per course
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*

Frequency: Minimum of 2 quizzes

- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*

Frequency: 2 asynchronous per course

- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*

Frequency: 1 short video per course

- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*

Frequency: 1 per course

General Education/Transfer Request

General Education/Transfer Request

Codes and Dates

Course CB Codes

CB00: State ID

CCC000606882

CB03: TOP Code

050640 - Small Business and Entrepreneurship

CIP Code

[52.0701 - Entrepreneurship/Entrepreneurial Studies.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

D - Possibly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: NBUS 212 - Developing Your Business Plan

Course Modification: NBUS 212 - Developing Your Business Plan (Launched - Implemented 10-10-2025)

compared with

NBUS 212 - Developing Your Business Plan (Active - Implemented 01-01-2020)

Admin Outline for Noncredit Business 212 Developing Your Business Plan

Effective: ~~Spring~~ ~~Fall 2020~~ 2026

Catalog Description:

NBUS 212 - Developing Your Business Plan

27 Hours

This is a course designed for students considering starting their own businesses. All major elements of a business plan will be covered, including financial statements, marketing, and competitive strategies.

Course Grading: Pass/No Pass

Total Lecture Hours	9
Total Inside of Class Hours	9
Total Outside of Class Hours	18
Total Noncredit Hours	27

Justification for course proposal

Discipline:

Vocational (short-term): Noncredit

Number of Times Course May Be Taken for Credit:

Course Objectives:

Upon completion of this course, the student should be able to:

- Prepare an outline of the elements that will be in a business plan.
- Identify and describe a business' target market.
- Identify multiple forms of capital attainment for their new business venture.
- ~~[Correspondence Ed course] (i.) The same standards of course quality identified in the course outline of record can be applied. (ii.) The content identified in the course outline of record can be presented effectively & with same degree of rigor. (iii.) A student can achieve the same goals and objectives identified in the COR. (iv.) Same assignments in COR can be completed by student, guided by instr. (v.) Same assessments and level of student accountability can be achieved~~

Course Content:

- A. The basic elements of the business plan will be covered:
 - Executive summary - a short summary of the entire plan
 - Description of company and personnel - Logo, name, people involved, and experience
 - Description of product or service to be sold - identify the industry and the product or service classification
 - Market analysis - competitor analysis, the economic, technological, and political landscape
 - Description of marketing strategy - SWOT analysis, marketing mix, sales, and advertising
 - Description of location - foot/car traffic analysis and cost to rent vs own
 - Financial statements - Cash flow, budget, and initial investment needed

Methods of Instruction:

- Lecture - Importance and detail of a business plan
- Discussion - Pros and cons of previous business plans

3. Audio-visual Activity - Watch - _ videos of successful and not successful business ventures
4. Projects - Create a business plan
5. Lecture - [Correspondence, Instructor-Student Interaction] Students will access asynchronous written lectures on course content. Frequency: 3 asynchronous per course
6. Written Exercises - ~~Written Papers~~—[Correspondence, Student-Content Interaction]- Papers will be written on various topics. Frequency: 1 per course
7. ~~Feedback Foster on a Assignments classroom - culture~~ {Correspondence; ~~that~~ Instructor-Student encourages Interaction} ~~open The dialogue instructor and will respect provide for regular diverse substantive; viewpoints. academic Create feedback spaces for students to students share on their assignments own experiences and assessments: insights~~ Students will know the reason for the grade they received and what they can do ~~related~~ to improve ~~entrepreneurship~~ . -Frequency: Feedback on every homework, and quiz weekly
8. ~~Quizzes, Tests/Exams~~—[Correspondence, Student-Content Interaction]- Quizzes, Tests/Exams—Quizzes and/or tests/exams will be used to make sure students completed assigned material and understood it. Frequency: Minimum of 2 quizzes per course

Typical Outside-of-Class Assignments

A. ~~Other~~ Reading :

1. ~~Reading Assignments~~

1. Sample business plans to read and evaluate
2. Free Websites with resources for small businesses
3. Case studies and group discussions about the cases

B. ~~Projects, Activities, and other Assignments~~

~~Project:~~

1. ~~Development of 30-second elevator pitch:~~

1. ~~How to distill the most important elements for a specific person:~~

3. ~~Writing Assignments~~

1. Students will customize a business plan outline for their proposed ventures. Requires business plan knowledge and theory of the firm knowledge.
2. Development of a marketing plan and a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis.
3. Development of 30-second elevator pitch.
 1. How to distill the most important elements for a specific person.

Methods of Evaluating Student Progress

A. Class Work

1. Participation in group discussions evaluated for quality and quantity of engagement. Daily

B. Exams/Tests

1. ~~Written test comprised of Multiple Choice and True/False questions that cover the elements of a business plan. Daily~~

1. Written test comprised of Multiple Choice and True/False questions that cover the elements of a business plan. Daily.

C. Papers

1. ~~Evaluate written business plan outline for completion of criteria in accordance with rubric. 1 per semester~~

1. Evaluate written business plan outline for completion of criteria in accordance with rubric. 1 per semester

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of NBUS-212, the student should be able to prepare~~ Prepare an outline of the elements in a business plan.
- B. ~~Upon completion of NBUS-212, the student should be able to identify~~ Identify and describe a business' target - _ market.
- C. ~~Upon completion of NBUS-212, the student should be able to identify~~ Identify multiple forms of capital attainment - _ for their new business venture.

Textbooks (Typical):

OER: _

1. Stephen J. Skripak, *Fundamentals of Business*, 4 /e, Open Textbook Library, 2023. <https://open.umn.edu/opentextbooks/textbooks/fundamentals-of-business>.

2. [Lawrence J. Gitman. *Introduction to Business*. ,Openstax, 2023. https://openstax.org/details/books/introduction-business.](https://openstax.org/details/books/introduction-business)

Other Materials Required of Students

Equity Based Curriculum

- [Methods of Instruction](#)
[Address](#) [Foster a classroom culture that encourages open dialogue and respect for diverse viewpoints. Create spaces for students to share their own experiences and insights related to entrepreneurship.](#)
- [Typical Texts](#)
[Address](#) [No textbook. OER, or low cost textbooks to reduce barriers to completing the course.](#)

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

The subject matter lends itself to online instruction. There are no labs and all of the assignments, assessments, and activities can be completed remotely. By offering online it allows convenience and flexibility to all students including those that have a family or are working full-time. Offering this class DE would be beneficial if there was a safety emergency matter for example: wildfire, earthquake, or health crisis. Lastly, as a noncredit class it increases the appeal to new students or students who primarily are seeking skill based learning.

Explain how the decision was made to offer this course in a Distance Education mode.

The decision was made discussing with fellow faculty, students, and our advisory board. Additionally, we spoke to the Livermore Adult School and they expressed interest in these classes to run in parallel with their courses.

Accessibility:

- Closed captioning for videos.
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- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Each student will be emailed at least once per course
- **Discussion board:** *The instructor will regularly participate in discussions that deal with academic content, will consistently provide substantive feedback, and will facilitate all discussions.*
Frequency: Participate in 1 discussion board per semester, and provide feedback to each student on a per course basis
- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Feedback on every homework, and quiz
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: 2 announcements per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*

Frequency: At least once per course

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: Weekly
- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: 1 per course
- **Group work:** *Students will work in teams to complete group projects. The projects will then be shared with the rest of the class.*
Frequency: 1 per course

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: 1 per course
- **Group work:** *Students will collaborate in private groups to solve problems, become experts on certain topics, etc. They will then present their findings to the class.*
Frequency: 1 per course
- **Written papers:** *Papers will be written on various topics.*
Frequency: 1 per course
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Short quiz/test daily
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: 2 asynchronous per course
- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*
Frequency: 1 short video per course

General Education/Transfer Request

General Education/Transfer Request

Codes and Dates

Course CB Codes

CB00: State ID

CCC000606883

CB03: TOP Code

050640 - Small Business and Entrepreneurship

CIP Code

[52.0701 - Entrepreneurship/Entrepreneurial Studies.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

D - Possibly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: NBUS 213 - Legal Aspects of Small Business

Course Modification: NBUS 213 - Legal Aspects of Small Business (Launched - Implemented 10-10-2025)

compared with

NBUS 213 - Legal Aspects of Small Business (Active - Implemented 01-01-2020)

**Admin Outline for Noncredit Business 213
Legal Aspects of Small Business**

Effective: ~~Spring~~ ~~Fall~~ ~~2020~~ 2026

Catalog Description:**NBUS 213 - Legal Aspects of Small Business****27 Hours**

This course is designed for students interested in establishing a business and who need information about the legal issues involved. Legal aspects such as forms of ownership, licensing, and taxes will be covered.

Course Grading: Pass/No Pass

Total Lecture Hours	9
Total Inside of Class Hours	9
Total Outside of Class Hours	18
Total Noncredit Hours	27

Justification for course proposal

Discipline:

Vocational (short-term): Noncredit

Number of Times Course May Be Taken for Credit:**Course Objectives:**

Upon completion of this course, the student should be able to:

- A. Identify and describe the legal forms of ownership, including their advantages and disadvantages.
- B. Identify and describe legal risk issues that will effect the proposed business venture.
- C. Demonstrate the difference between intellectual property, copyright, patent, and trademarks.
- D. List at least five human resource laws or regulations that will impact a business.
- E. Research local city laws for starting a small business in a chosen local city that the student would like to operate in.
- F. ~~[Correspondence Ed course] (i.) The same standards of course quality identified in the course outline of record can be applied. (ii.) The content identified in the course outline of record can be presented effectively & with same degree of rigor. (iii.) A student can achieve the same goals and objectives identified in the COR. (iv.) Same assignments in COR can be completed by student guided by instr. (v.) Same assessments and level of student accountability can be achieved~~

Course Content:

1. Description of legal forms of business ownership
2. Business licenses and other city/state requirements
3. Elements of contracts and leases
4. Human Resource Management
 1. Overview of employee/independent contractor issues
 2. Examination of employer basic licenses, taxation and insurance
 3. Hiring and workplace legal requirements
 4. Sources of important information for the small business operator
5. Overview of intellectual property, copyright, patent, and trademark issues

Methods of Instruction:

1. Audio-visual Activity - Podcast/Video of small business laws, regulations, and their effects
2. Projects - Students must prepare a written report that demonstrates an understanding of the legal issues involved in the student's proposed venture and the appropriate ownership form for that venture.
3. Lecture - Business forms, laws, and regulations
4. Discussion - Group discussions describing the legal forms of ownership, including their advantages and disadvantages.
5. Lecture - [Correspondence, Instructor-Student Interaction] Students will access asynchronous written lectures on course content. Frequency: 3 asynchronous per course
6. Written Exercises - ~~Written Papers~~—[Correspondence, Student-Content Interaction] Papers will be written on various topics. Frequency: 1 per course
7. ~~Feedback~~ Foster on a Assignments classroom - culture [Correspondence, ~~that~~ Instructor-Student encourages Interaction] open The dialogue instructor and will respect provide for regular diverse substantive; viewpoints. academic Create feedback spaces for students to students share on their assignments own experiences and assessments: insights Students will know the reason for the grade they received and what they can do related to improve entrepreneurship. Frequency: Feedback on every homework, and quiz weekly
8. ~~Quizzes, Tests/Exams~~—[Correspondence, Student-Content Interaction] ~~Quizzes, Tests/Exams—Quizzes and/or tests/exams will be used to make sure students completed assigned material and understood it. Frequency: Minimum of 2 quizzes per course~~

Typical Outside-of-Class Assignments

A. ~~Other~~ Reading :

1. ~~Reading Assignments~~

1. Case studies and group discussions about the cases
2. Reading local city websites on small business rules and regulations

B. ~~Projects~~; Writing:

1. Students Activities; must prepare a written report that demonstrates an understanding of the legal issues involved in the student's proposed venture and other the Assignments appropriate ownership form for that venture.

C. Other:

1. Group discussions describing the legal forms of ownership, including their advantages and disadvantages. Students are tasked with learning tax and legal liability consequences of different organizational forms.
2. Class discussions of Intellectual Property. Copyright, patents and trade secrets.

D. Project:

1. Team presentations of legal issues and their impact on different proposed business ventures.
2. ~~Class discussions of Intellectual Property. Copyright, patents and trade secrets:~~

5. ~~Writing Assignments~~

1. ~~Students must prepare a written report that demonstrates an understanding of the legal issues involved in the student's proposed venture and the appropriate ownership form for that venture:~~

Methods of Evaluating Student Progress

A. Class Work

~~1. Evaluating written reports for demonstrated understanding of legal issues and appropriate use of forms in accordance with rubric. Daily~~

1. Evaluating written reports for demonstrated understanding of legal issues and appropriate use of forms in accordance with rubric. Daily.

B. Exams/Tests

~~1. Objective written tests that cover the legal aspects affecting businesses. These tests may include multiple Choice, True/False, matching questions. Daily~~

1. Objective written tests that cover the legal aspects affecting businesses. These tests may include multiple Choice, True/False, matching questions. Daily

C. Oral Presentation

~~1. Evaluating participation in class discussions and team presentations for quality and content of contributions as identified in rubric. 1 per semester~~

1. Evaluating participation in class discussions and team presentations for quality and content of contributions as identified in rubric. 1 per semester

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of NBUS-213, the student should be able to identify~~ Identify and describe the legal forms of - ownership, including their advantages and disadvantages.
- B. ~~Upon completion of NBUS-213, the student should be able to identify~~ Identify and describe legal risk issues that - will affect a proposed business venture.
- C. ~~Upon completion of NBUS-213, the student should be able to explain~~ Explain the difference - between intellectual property, copyright, patent, and trademarks.

D. ~~Upon completion of NBUS-213, the student should be able to list~~ List at least five human resource laws or - _ regulations that will impact a business

Textbooks (Typical):

OER: _

1. Mirande Valbrune. *Business Law I Essentials*. _Openstax, 2024. <https://openstax.org/details/books/business-law-i-essentials/>.
2. Melissa Randall. *Fundamentals of Business Law*. _Open Textbook Library, 2020. <https://open.umn.edu/opentextbooks/textbooks/fundamentals-of-business-law-randall>.

Other Materials Required of Students

Equity Based Curriculum

- _ Methods of Instruction
Address _
Foster a classroom culture that encourages open dialogue and respect for diverse viewpoints. Create spaces for students to share their own experiences and insights related to entrepreneurship.
- _ Typical Texts
Address _
No textbook, OER, or low cost textbooks to reduce barriers to completing the course.

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

The subject matter lends itself to online instruction. There are no labs and all of the assignments, assessments, and activities can be completed remotely. By offering online it allows convenience and flexibility to all students including those that have a family or are working full-time. Offering this class DE would be beneficial if there was a safety emergency matter for example: wildfire, earthquake, or health crisis. Lastly, as a noncredit class it increases the appeal to new students or students who primarily are seeking skill based learning.

Explain how the decision was made to offer this course in a Distance Education mode.

The decision was made discussing with fellow faculty, students, and our advisory board. Additionally, we spoke to the Livermore Adult School and they expressed interest in these classes to run in parallel with their courses.

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- Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- Modifying assignment time limits for students with accommodations.

Syllabus:

- Instructor response time.
- Grade turnaround time.
- Student participation.
- Instructor participation.
- Student rights and responsibilities.
- Student behavior in a DE course.
- Academic Integrity.

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
- **Frequency:** Each student will be emailed at least once per course
- **Discussion board:** *The instructor will regularly participate in discussions that deal with academic content, will consistently provide substantive feedback, and will facilitate all discussions.*

Frequency: Participate in 1 discussion board per semester, and provide feedback to each student on a per course basis

- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*

Frequency: Feedback on every homework, and quiz

- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*

Frequency: 2 announcements per week

- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*

Frequency: At least once per course

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*

Frequency: Weekly

- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*

Frequency: 1 per course

- **Group work:** *Students will work in teams to complete group projects. The projects will then be shared with the rest of the class.*

Frequency: 1 per course

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*

Frequency: 1 per course

- **Group work:** *Students will collaborate in private groups to solve problems, become experts on certain topics, etc. They will then present their findings to the class.*

Frequency: 1 per course

- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*

Frequency: Short quiz/test daily

- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*

Frequency: 2 asynchronous per course

- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*

Frequency: 1 short video per course

- **Other Student presentations :** *Students will prepare and present on a topic being studied.*

Frequency: 1 per course

General Education/Transfer Request

General Education/Transfer Request

Codes and Dates

Course CB Codes

CB00: State ID

CCC000606884

CB03: TOP Code

050640 - Small Business and Entrepreneurship

CIP Code

[52.0703 - Small Business Administration/Management.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

D - Possibly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

Course Modification: NBUS 214 - Success in the Gig Economy**Course Modification: NBUS 214 - Success in the Gig Economy (Launched - Implemented 10-10-2025)**

compared with

NBUS 214 - Success in the Gig Economy (Active - Implemented 01-01-2020)**Admin Outline for Noncredit Business 214
Success in the Gig Economy****Effective:** ~~Spring~~ ~~Fall~~ ~~2020~~ 2026**Catalog Description:****NBUS 214 - Success in the Gig Economy****27 Hours**

This course provides students with a hands-on class experience in starting a side business that can add to a student's income stream or grow into a full-time business. Students will learn to: identify income producing opportunities, develop business and promotion plans, and fund, launch, refine their business and make a profit. Emphasis will be placed on experiential learning, taking action and the iterative refinement process needed to start a new business.

Course Grading: Pass/No Pass

Total Lecture Hours	9
Total Inside of Class Hours	9
Total Outside of Class Hours	18
Total Noncredit Hours	27

Justification for course proposal

Discipline:

Vocational (short-term): Noncredit

Number of Times Course May Be Taken for Credit:**Course Objectives:**

Upon completion of this course, the student should be able to:

- A. Explain the process of how to turn a problem solving idea to a money making opportunity.
- B. Construct low-cost, low resolution prototypes to advance a business idea.
- C. Assemble a portfolio of work product to set them apart from their competition in the job market.
- D. Implement effective teamwork and leadership skills to start a business.
- E. Evaluate various opportunities and determine which to pursue or drop.

Course Content:

1. The work environment today and moving forward
 1. Predict the future
 2. Brainstorm
 3. Become a detective
2. Deciding on a gig to pursue
 1. Weigh the obstacles and opportunities of each idea
 2. Forecast your profit and costs
 3. Have an imaginary coffee with your ideal customer
 4. Select your best ideas
3. Start your gig

1. Transform your idea into an offer
 2. Create your origins story
 3. Assemble the nuts and bolts
 4. Decide how to price your offer
 5. Set up a way to get paid
4. Scheduling, payments, and growth
1. Design your first workflow
 2. Spend 10% more time on the most important tasks
 3. Test, test, and test again
 4. Frame your first dollar
 5. Promote your product or service
5. Moving forward
1. Track your progress and decide on next steps
 2. Grow what works, let go of what doesn't
 3. Get it out of your head
 4. Back to the future

Methods of Instruction:

1. Projects - Experiential project including complete \$5 resource challenge
2. Audio-visual Activity - Videos and podcasts demonstrating successful skills needed to succeed in the gig economy e.g. creativity, financial, and growth mindset.
3. Classroom Activity - Students will reflect on their own experiences and develop ideas on how to help make people's lives better.
4. Reflection exercises

Typical Outside-of-Class Assignments

A. ~~Other~~ Writing :

1. Application assignment
 1. Students will reflect on their own experiences and develop ideas on how to help make people's lives better. Students will complete their own "Origins Story" by answering the following questions:
 1. What have you always been interested in? What did you decide to try because of that interest?
 2. What were/are you frustrated by? What have you done about that? Do you think that will help other people? ____
 1. I started a side business because I noticed (fill in the blank noted here). There didn't seem to be anyone else doing anything about it so I made (fill in the blank noted here).
2. Case studies / written assignment
 1. Presented with real-world examples, students will identify problem-solving opportunities and learn the process by which entrepreneurs with limited resources transform simple ideas into a sustainable and successful business.

B. Project:

1. Simulation assignment

1. Using only \$5 as "startup funding" student teams will be required to start a business. Teams will have one-week to plan, but only two-hours of "doing business time" to make as much money as possible, within the assignment guidelines. Each team will prepare and present their reflection on this assignment and answer the following questions:

1. Describe the problems, frustrations or unmet needs you tried to fill, what did you do?
2. Did other people have this problem?
3. How are they currently solving the problem?
4. How much money did you make?
5. How might you offer better solutions?

• Application assignment

1. ~~Students will reflect on their own experiences and develop ideas on how to help make people's lives better. Students will complete their own "Origins Story" by answering the following questions:-~~

1. ~~What have you always been interested in? What did you decide to try because of that interest?~~
2. ~~What were/are you frustrated by? What have you done about that? Do you think that will help other people?—~~

1. ~~I started a side business because I noticed (fill in the blank noted here). There didn't seem to be anyone else doing anything about it so I made (fill in the blank noted here):~~

• Case studies / written assignment

1. ~~Presented with real-world examples, students will identify problem-solving opportunities and learn the process by which entrepreneurs with limited resources transform simple ideas into a sustainable and successful business:~~

Methods of Evaluating Student Progress

- A. Class Participation
 1. Daily
- B. Class Work
 1. Daily
- C. Projects
 1. 1 per semester

Student Learning Outcomes

Upon the completion of this course, the student should be able to:

- A. ~~Upon completion of NBUS-214, the~~ The student should be able to explain the process of how to turn a problem solving idea to a money-making opportunity.
- B. ~~Upon completion of NBUS-214, the~~ The student should be able to construct low-cost, low-resolution prototypes to advance a business idea.
- C. ~~Upon completion of NBUS-214, the student should be able to construct low-cost, low-resolution prototypes to advance a business idea:~~
- D. ~~Upon completion of NBUS-214, the~~ The student should be able to implement effective teamwork and leadership skills.

Textbooks (Typical):

OER: .

1. Lawrence J. Gitman. *Introduction to Business*. ,Openstax, 2024. <https://openstax.org/details/books/introduction-business>.
2. Stephen J. Skripak. *Fundamentals of Business*. 4 /e. Open Textbook Library, 2025. <https://open.umn.edu/opentextbooks/textbooks/fundamentals-of-business>.

Other Materials Required of Students

- [. Methods of Instruction](#)
[Address .](#)
[Foster a classroom culture that encourages open dialogue and respect for diverse viewpoints. Create spaces for students to share their own experiences and insights related to entrepreneurship.](#)
- [. Typical Texts](#)
[Address .](#)
[no textbook, OER, or low cost textbooks to reduce barriers to completing the course.](#)

Requisite Skills

DE Proposal

Delivery Methods

- **Fully Online (FO)**
- **Partially Online**

Rationale for DE

Explain why this course should be offered in Distance Education mode.

The subject matter lends itself to online instruction. There are no labs and all of the assignments, assessments, and activities can be completed remotely. By offering online it allows convenience and flexibility to all students including those that have a family or are working full-time. Offering this class DE would be beneficial if there was a safety emergency matter for example: wildfire, earthquake, or health crisis. Lastly, as a noncredit class it increases the appeal to new students or students who primarily are seeking skill based learning.

Explain how the decision was made to offer this course in a Distance Education mode.

The decision was made discussing with fellow faculty, students, and our advisory board. Additionally, we spoke to the Livermore Adult School and they expressed interest in these classes to run in parallel with their courses.

Accessibility:

- Closed captioning for videos.
- Transcription for audio.
- Alt-text/ tags for images.
- Utilizing headers/styles for text formatting to make web pages accessible for screen readers.
- [Utilizing headers/styles for text formatting to make Word, PowerPoint, PDF, etc. accessible for screen readers.](#)
- Formatting and coding to make tables accessible for screen readers.
- Exploratory links.
- Proper color contrast.
- [Modifying assignment time limits for students with accommodations.](#)

Syllabus:

- [Instructor response time.](#)
- [Grade turnaround time.](#)
- [Student participation.](#)
- [Instructor participation.](#)
- [Student rights and responsibilities.](#)
- [Student behavior in a DE course.](#)
- [Academic Integrity.](#)

Course Objectives:

- The same standards of course quality identified in the course outline of record can be applied.
- The content identified in the course outline of record can be presented effectively and with the same degree of rigor.
- A student can achieve the same goals and objectives identified in the course outline of record.
- The same assignments in the course outline of record can be completed by the student and graded by the instructor.
- The same assessments and level of student accountability can be achieved.

DE Course Interaction

Instructor-Student Interaction

- **Email:** *The instructor will initiate interaction with students to determine that they are accessing and comprehending course material and are participating regularly in course activities.*
Frequency: Each student will be emailed at least once per course
- **Discussion board:** *The instructor will regularly participate in discussions that deal with academic content, will consistently provide substantive feedback, and will facilitate all discussions.*
Frequency: Participate in 1 discussion board per semester, and provide feedback to each student on a per course basis
- **Feedback on assignments:** *The instructor will provide regular substantive, academic feedback to students on assignments and assessments. Students will know the reason for the grade they received and what they can do to improve.*
Frequency: Feedback on every homework, and quiz
- **Announcements:** *Regular announcements that are academic in nature will be posted to the class.*
Frequency: 2 announcements per week
- **Face-to-face meetings (partially online courses only):** *Students will come to campus during face-to-face sessions (office hours, etc.) to discuss any facet of the course.*
Frequency: At least once per course

Student-Student Interaction

- **Email:** *Students will be encouraged to email each other to ask questions about the course, including assignments.*
Frequency: Weekly

- **Class discussion board:** *Students will post to the discussion board, answering questions posed by the instructor. They will also reply to each other's postings.*
Frequency: 1 per course
- **Group work:** *Students will work in teams to complete group projects. The projects will then be shared with the rest of the class.*
Frequency: 1 per course

Student-Content Interaction

- **Class discussion board:** *Students will post to the discussion board, answering questions on course content posed by the instructor.*
Frequency: 1 per course
- **Group work:** *Students will collaborate in private groups to solve problems, become experts on certain topics, etc. They will then present their findings to the class.*
Frequency: 1 per course
- **Quizzes, tests/exams:** *Quizzes will be used to make sure students completed assigned material and understood it.*
Frequency: Minimum of 2 quizzes
- **Lecture:** *Students will attend or access synchronous or asynchronous lectures on course content.*
Frequency: 2 asynchronous per course
- **Video:** *Video will be used to demonstrate procedures and to help students visualize concepts.*
Frequency: 1 short video per course
- **Projects:** *Students will complete projects that demonstrate their mastery of outcomes of the course.*
Frequency: 1 per course

General Education/Transfer Request

General Education/Transfer Request

Codes and Dates

Course CB Codes

CB00: State ID
CCC000606885

CB03: TOP Code
050640 - Small Business and Entrepreneurship

CIP Code

[52.0701 - Entrepreneurship/Entrepreneurial Studies.](#)

CB04: Credit Status

N - Non Credit

CB05: Transfer Status

C - Not transferable

CB08: Basic Skills Status

N - Not Basic Skills

CB09: SAM Code

D - Possibly Occupational

CB10: Cooperative Work Experience

N - Is not part of a cooperative work experience education program.

CB11: Course Classification Status

CB13: Special Class Status

N - Course is not a special class.

CB21: Course Prior to College

Y - Not applicable

CB22: Non Credit Course Category

J - Workforce Preparation

CB23: Funding Agency Category

Y - Not Applicable (funding not used to develop course)

CB24: Program Status

1 - Program Applicable

CB25: Course General Education Status

Y. Not Applicable

CB26: Course Support Course Status

N - Course is not a support course

CB27: Upper Division Status

5.3. Course Deactivations

- FST 20 CO 2A Human Resource Management for Company Officers
Justification: No longer a market for Company Officer courses now that content is taught in-house at fire departments.
- FST 21 CO 2B General Administrative Functions for Company Officers
Justification: No longer a market for Company Officer courses now that content is taught in-house at fire departments.
- FST 22 CO 2C Fire Inspections and Investigation for Company Officers
Justification: No longer a market for Company Officer courses now that content is taught in-house at fire departments.
- FST 23 CO 2D All – Risk Command Operations for Company Officers
Justification: No longer a market for Company Officer courses now that content is taught in-house at fire departments.
- FST 24 CO 2E Wildland Incident Operations for Company Officers
Justification: No longer a market for Company Officer courses now that content is taught in-house at fire departments.
- FST 25 Instructor 1
Justification: No longer a market for Company Officer courses now that content is taught in-house at fire departments.
- NAVI 202 Drone Aerial Survey, Photography and Videography
Justification: This course has been replaced by NAV.

5.4. New Programs

- Mathematics 2.0, AS-T

New Program: Mathematics 2.0 - Associate in Science Degree for Transfer

Rationale

Replaces the current Mathematics AS-T.

TOP Code

1701.00 - Mathematics, General

CIP Code

27.0101 - Mathematics, General.

1. Statement of Program Goals and Objectives

The Associate in Science in Mathematics 2.0 for Transfer degree is designed to prepare students for a seamless transfer into the CSU system to complete a baccalaureate degree in Mathematics. The Associate in Science in Mathematics 2.0 for Transfer degree is designed to provide students with the common core of lower division courses required to transfer and pursue a baccalaureate degree in Mathematics.

2. Catalog Description

The Las Positas College Mathematics program offers courses that lead to an Associate in Science in Mathematics 2.0 for Transfer Degree. The major requirements for the Associate in Science in Mathematics 2.0 for Transfer Degree align with the Intersegmental Transfer Model Curriculum (TMC) for Mathematics. Students will have guaranteed admission to a California State University (CSU) campus upon successful completion of the program requirements. Students will also have completed UC transfer pathway requirements for Mathematics majors. Students should consult with a counselor to determine whether this degree is the best option for their transfer goals. General education requirements should be selected carefully based on the intended transfer institution.

Completion Requirements: 1. Completion of 60 semester units or 90 quarter units that are eligible for transfer to the California State University, including both of the following: a. The California General Education Transfer Curriculum (Cal-GETC). b. A minimum of 18 semester units in a major or area of emphasis, as determined by the community college district. 2. Obtainment of a minimum grade point average of 2.0. Associate Degrees for Transfer (ADT's) also require that students must earn a "C" (or "P") or better in all courses required for the major or area of emphasis.

Program Title

Mathematics 2.0

Award Type

Associate in Science Degree for Transfer

Effective Term

Fall 2026

Program Description

The Las Positas College Mathematics program offers courses that lead to an Associate in Science in Mathematics 2.0 for Transfer Degree. The major requirements for the Associate in Science in Mathematics 2.0 for Transfer Degree align with the Intersegmental Transfer Model Curriculum (TMC) for Mathematics. Students will have guaranteed admission to a California State University (CSU) campus upon successful completion of the program requirements. Students will also have completed UC transfer pathway requirements for Mathematics majors. Students should consult with a counselor to determine whether this degree is the best option for their transfer goals. General education requirements should be selected carefully based on the intended transfer institution.

Program Requirements

Course	Title	Units	Term
<i>Required Core: (31 units)</i>			
CS 1	Computing Fundamentals I	4.0	
MATH 1	Calculus I	5.0	
MATH 2	Calculus II	5.0	
MATH 3	Multivariable Calculus	5.0	
MATH 5	Ordinary Differential Equations	3.5	
MATH 7	Elementary Linear Algebra	3.5	
PHYS 1A	General Physics I	5.0	
<i>Total Units for the Major</i>		31.0	
<i>Additional General Education and Elective Units</i>		29.0	
See the Las Positas College California General Education Transfer Curriculum (Cal-GETC) pattern for a listing of areas and courses. Double counting courses in GE and the major is permissible. The number of units that may be double counted will depend on the entry point to the degree program and the optional course(s) taken. Elective units must be CSU transferable. Consult with an adviser or a counselor to plan the courses necessary to achieve your academic goal.			

Total: 60.0

The Las Positas College Mathematics program offers courses that lead to an Associate in Science in Mathematics 2.0 for Transfer Degree. The major requirements for the Associate in Science in Mathematics 2.0 for Transfer Degree align with the Intersegmental Transfer Model Curriculum (TMC) for Mathematics. Students will have guaranteed admission to a California State University (CSU) campus upon successful completion of the program requirements. Students will also have completed UC transfer pathway requirements for Mathematics majors. Students should consult with a counselor to determine whether this degree is the best option for their transfer goals. General education requirements should be selected carefully based on the intended transfer institution.

SEMESTER-BY-SEMESTER PROGRAM PLAN FOR FULL-TIME STUDENTS

All plans can be modified to fit the needs of part-time students by adding more semesters

Term 1 - Fall Semester			Units: 14.0
Course		Units	MAJ/GEN/ELEC Semester(s) Offered
MATH 1	Calculus I	5.0	
Arts (Area 3A)		3.0	General Education
English Composition (Area 1A)		3.0	General Education
Social and Behavioral Sciences (Area 4)		3.0	General Education

Term 2 - Spring Semester			Units: 16.0
Course		Units	MAJ/GEN/ELEC Semester(s) Offered
MATH 2	Calculus II	5.0	Major/Required
PHYS 1A	General Physics I	5.0	
Social and Behavioral Sciences (Area 4)		3.0	General Education
Critical Thinking and Composition (Area 1B)		3.0	General Education

Term 3 - Fall Semester			Units: 14.5
Course		Units	MAJ/GEN/ELEC Semester(s) Offered
MATH 7	Elementary Linear Algebra	3.5	Major/Required
MATH 3	Multivariable Calculus	5.0	Major/Required
Oral Communication (Area 1C)		3.0	General Education
Humanities (Area 3B)		3.0	General Education

Term 4 - Spring Semester			Units: 15.5
Course		Units	MAJ/GEN/ELEC Semester(s) Offered
MATH 5	Ordinary Differential Equations	3.5	Major/Required
CS 1	Computing Fundamentals I	4.0	
UC Elective		2.0	Elective
Biological Science (Area 5B)		3.0	General Education
Ethnic Studies (Area 6)		3.0	General Education

Total: 60.0

5.5. Program Modifications

- Anthropology, AA-T
- Chemistry Education, AS
- Environmental Science, AS
- Innovation, Entrepreneurship, and Small Business Management, NCL
- Spanish, AA-T

Program Modification: Anthropology - Associate in Arts Degree for Transfer**Program Modification: Anthropology - Associate in Arts Degree for Transfer (Launched - Implemented 10-27-2025)**

compared with

Anthropology - Associate in Arts Degree for Transfer (Active - Implemented 08-15-2025)**Rationale****TOP Code**

2202.00 - Anthropology

CIP Code

45.0201 - Anthropology, General.

1. Statement of Program Goals and Objectives

The Associate in Arts in Anthropology for Transfer degree is designed to prepare students for a seamless transfer into the CSU system to complete a baccalaureate degree in Anthropology and related fields. The Associate in Arts in Anthropology for Transfer degree is designed to provide students with the common core of lower division courses required to transfer and pursue a baccalaureate degree in Anthropology and related fields.

2. Catalog Description

The Las Positas College Anthropology program offers courses that lead to an Associate in Arts in Anthropology for Transfer degree. The major requirements for the Associate in Arts in Anthropology for Transfer degree align with the Intersegmental Transfer Model Curriculum (TMC) for Anthropology. Students will have guaranteed admission to a California State University (CSU) campus upon successful completion of the program requirements. Students should consult with a counselor to determine whether this degree is the best option for their transfer goals. General education requirements should be selected carefully based on the intended transfer institution.

Completion Requirements: 1. Completion of 60 semester units or 90 quarter units that are eligible for transfer to the California State University, including both of the following: a. The California General Education Transfer Curriculum (Cal-GETC). b. A minimum of 18 semester units in a major or area of emphasis, as determined by the community college district. 2. Obtainment of a minimum grade point average of 2.0. Associate Degrees for Transfer (ADT's) also require that students must earn a "C" (or "P") or better in all courses required for the major or area of emphasis.

Program Title

Anthropology

Award Type

Associate in Arts Degree for Transfer

Effective Term~~Fall 2025~~

Fall 2026

Program Description

The Las Positas College Anthropology program offers courses that lead to an Associate in Arts in Anthropology for Transfer degree. The major requirements for the Associate in Arts in Anthropology for Transfer degree align with the Intersegmental Transfer Model Curriculum (TMC) for Anthropology. Students will have guaranteed admission to a California State University (CSU) campus upon successful completion of the program requirements. Students should consult with a counselor to determine whether this degree is the best option for their transfer goals. General education requirements should be selected carefully based on the intended transfer institution.

Program Requirements

Course

Title

Units

Term

~~Required Core: (9 Units)~~ Required Core: (10 Units)

		3.0
ANTR 1	Biological Anthropology	
<u>ANTR 1L</u>	<u>Biological Anthropology Laboratory</u>	1.0
ANTR 2	Introduction to Archaeology	3.0
ANTR 3	Cultural Anthropology	3.0

List A: Select One (3-4 Units)

ANTR 4	Language and Culture	3.0
<u>STAT C1000</u>	<u>Introduction to Statistics</u>	4.0

List B: Select Two (6-8 Units)

		3.0-4.0	-
<u>Any courses not selected from List A</u>			
ANTR 7	Native American Cultures of North America	3.0	
ANTR 12 <u>8</u>	Magic/Religion/Witchcraft/Healing <u>World Prehistory in an Archaeological Perspective</u>	3.0	
STAT C1000 <u>ANTR 12</u>	Introduction to Statistics	4.0	

List B: Select One to Two (3-8 Units)

		3.0-4.0	-
Any List A course not already used			
		3.0	
GEOL-1	Physical Geology* Must be taken together and count as one course:		
AND			
		1.0	
GEOL-1L	Physical Geology Laboratory*		
		3.0	
GEOG-15	Introduction to GIS** GEOG-15 cannot satisfy List B or C on its own:		

List C: Select One (3-4 Units)

		3.0-4.0	-
Any List A or B course not already used			
ANTR 8	World Prehistory in an Archaeological Perspective <u>Magic/Religion/Witchcraft/Healing</u>	3.0	
ANTR 13	Introduction to Forensic Anthropology	3.0	
ETHS 5	Psychology of Race and Identity	3.0	
ETHS 6	Introduction to Race and Ethnicity	3.0	
HIST 14	History and American Cultures of California	3.0	
HIST 25	American Indian History	3.0	
PCN 13	Multicultural Issues in Contemporary America <u>Cultural Identity and Diversity in Social Work and Human Services</u>	3.0	
PSYC 21	Psychology of Race and Identity	3.0	
SOC 3	Introduction to Race and Ethnicity	3.0	
<u>SOC 13</u>	<u>Research Methods</u>	4.0	

List C: Select One (3-5 Units)

		3.0-4.0	-
<u>Any course not selected from List A or List B</u>			
		5.0	
<u>BIO 7A</u>	<u>Human Anatomy</u>		
		3.0	
<u>GEOG 15</u>	<u>Introduction to GIS</u>		
		3.0	
<u>GEOL 1</u>	<u>Physical Geology</u>		
AND			
		1.0	
<u>GEOL 1L</u>	<u>Physical Geology Laboratory*</u>		

Total Units for the Major

	18	22.0-
	23	26.0

Additional General Education and Electives Units

	37	34.0-
	42	38.0

See the Las Positas College California General Education Transfer Curriculum (Cal-GETC) pattern for a listing of areas and courses. Double counting courses in GE and the major is permissible. The number of units that may be double counted will depend on the entry point to the degree program and the optional course(s) taken. Elective units must be CSU transferable. Consult with an adviser or a counselor to plan the courses necessary to achieve your academic goal.

^{*} Must be taken together and count as one course:

^{**} GEOG 15 cannot satisfy List B or C on its own:

Total: 60 ~~0~~ 61.0

The Las Positas College Anthropology program offers courses that lead to an Associate in Arts in Anthropology for Transfer degree. The major requirements for the Associate in Arts in Anthropology for Transfer degree align with the Intersegmental Transfer Model Curriculum (TMC) for Anthropology. Students will have guaranteed admission to a California State University (CSU) campus upon successful completion of the program requirements. Students should consult with a counselor to determine whether this degree is the best option for their transfer goals. General education requirements should be selected carefully based on the intended transfer institution.

SEMESTER-BY-SEMESTER PROGRAM PLAN FOR FULL-TIME STUDENTS

All plans can be modified to fit the needs of part-time students by adding more semesters

Term 1 - Fall Semester

Units: 15.0

Course	Units	MAJ/GEN/ELEC
Semester(s) Offered		
		Cultural Anthropology
		3.0
ANTR 3		Major/Required
		3.0
		Major/Required
List B Course		-
		3.0
		General Education
English Composition (Area 1A)		3.0
		General Education
Humanities (Area 3B)		6.0 3.0
		Elective
AD Elective		

^{*} Course can also be used to satisfy American Institutions CSU grad requirement (see catalog):

Term 2 - Spring Semester

Units: 16.0

Course	Units	MAJ/GEN/ELEC
Semester(s) Offered		
		Introduction to Statistics
		4.0
STAT C1000		Major/Required
		3.0
		General Education
Arts (Area 3A)		3.0
		General Education
Critical Thinking and Composition (Area 1B)		3.0
		Elective
AD Elective		
		Introduction to Archaeology
		3.0
ANTR 2		Major/Required

Term 3 - Fall Semester

Units: 14.0

Course	Units	MAJ/GEN/ELEC
Semester(s) Offered		

	ANTR 1L (Area 5C)		
	Biological Anthropology		
	3.0		
ANTR 1	Major/Required		-
	Biological Anthropology Laboratory		
	1.0		
	General Education		
ANTR 1L	- Major/Required		-
		3.0	
		General Education	
Oral Communication (Area 1C)			
		3.0	
		General Education	
Ethnic Studies (Area 6)			
		4.0	
		Elective	
AD Elective			
	Biological Anthropology		
	3.0		
ANTR 1	Major/Required		-

Term 4 - Spring Semester			Units: 15.0
Course			
Units	MAJ/GEN/ELEC		
Semester(s) Offered			
		6.0 3.0	
		Major/Required	
List B Course			
		3.0	
		Major/Required	
List C Course			
		3.0	
		General Education	
Physical Sciences (Area 5A)			
		3.0 6.0	
		Elective	
AD Elective			
			Total: 60.0

Program Modification: Chemistry Education - Associate of Science Degree**Program Modification: Chemistry Education - Associate of Science Degree (Launched - Implemented 09-26-2025)**

compared with

Chemistry Education - Associate of Science Degree (Active - Implemented 08-15-2025)**Rationale****TOP Code**

1905.00 - Chemistry, General

CIP Code

40.0501 - Chemistry, General.

1. Statement of Program Goals and Objectives

The Chemistry Program offers a comprehensive curriculum to prepare students for transfer and completion of an Associate's degree with a strong emphasis on the hands-on use of research-grade instrumentation, chemical safety, and sustainable practices. The Program encourages and supports student participation in independent study projects and lab internships. Courses offered by the program fulfill many academic requirements including general education requirements in the Natural Sciences.

2. Catalog Description

The AS in Chemistry Education degree fulfills the lower-division requirements for four-year BA Chemistry programs designed for future high school and middle school science teachers. The AS Degree is designed to articulate directly with four-year-institution teacher preparation programs with a focus on chemistry education, including single subject teacher preparation in science with a concentration in chemistry. An AS in Chemistry Education would also be an appropriate transfer preparation for students considering chemistry-related interdisciplinary fields.

3. Program Requirements

Course

Title

Units

Term

Required Core: (42-43 Units)

BIO 1A <u>1R</u>	General Botany <u>Organismal Biology</u>	5.0
OR		
BIO 1B	General Zoology	5.0 <u>2nd</u>
OR		
BIO 30	Introduction to College Biology	4.0 <u>2nd</u>
CHEM 1A	General College Chemistry I	5.0 <u>1st</u>
CHEM 1B	General College Chemistry II	5.0 <u>2nd</u>
CHEM 12A	Organic Chemistry I	5.0 <u>3rd</u>
CHEM 12B	Organic Chemistry II	5.0 <u>4th</u>
MATH 1	Calculus I	5.0 <u>1st</u>
MATH 2	Calculus II	5.0 <u>2nd</u>
PHYS 2A	Introduction to Physics I	4.0 <u>3rd</u>
PHYS 2B	Introduction to Physics II	4.0 <u>4th</u>

Total Units for the Major

42.0-43.0

Additional General Education and Elective Units

17.0-18.0

The Associate Degree is conferred upon those students who complete the required 60 or more semester units of the degree pattern with a grade-point average of 2.0 or better, of which 12 units must be earned at Las Positas College. In addition, students must complete a General Education pattern in order to earn a degree: see the Las Positas College Associate Degree General Education Pattern or the California General Education Transfer Curriculum (Cal-GETC) patterns for a listing of areas and courses. Double counting courses in GE and the major is permissible. The number of units that may be double counted will depend on the entry point to the degree program, the optional course(s) taken, and the GE pattern selected. Elective units must be degree applicable. Consult with an adviser or a counselor to plan the courses necessary to achieve your academic goal.

Recommended Electives are suggested for students interested in taking courses beyond unit requirement for degree: EVST 5 Energy and Sustainability GEOL 1 Physical Geology BIO 40 Humans and the Environment

Total: 60.0

4. Master Planning

The Chemistry Program supports the Mission of the College through its focus on transfer opportunities for students.

5. Enrollment and Completer Projections

5 enrollments and completers per year.

6. Place of Program in Curriculum/Similar Programs

This program is part of the Chemistry department set of programs.

7. Similar Programs at Other Colleges in Service Area

None in service area.

The AS in Chemistry Education degree fulfills the lower-division requirements for four-year BA Chemistry programs designed for future high school and middle school science teachers. The AS Degree is designed to articulate directly with four-year-institution teacher preparation programs with a focus on chemistry education, including single subject teacher preparation in science with a concentration in chemistry. An AS in Chemistry Education would also be an appropriate transfer preparation for students considering chemistry-related interdisciplinary fields.

SEMESTER-BY-SEMESTER PROGRAM PLAN FOR FULL-TIME STUDENTS

All plans can be modified to fit the needs of part-time students by adding more semesters

Term 1 - Fall Semester

Units: 15.0-14.0

Course

Units MAJ/GEN/ELEC
Semester(s) Offered

	Calculus I	
	5.0	
MATH 1	Major/Required	
	General College Chemistry I	
	5.0	
CHEM 1A	Major/Required	
		3.0
		General Education
English Composition (Area 1A)		
		2.0 - 1.0
		Elective
AD Elective		

Term 2 - Spring Semester

Units: 15.0-16.0

Course		
Units	MAJ/GEN/ELEC	
Semester(s) Offered		
	General College Chemistry II	
	5.0	
CHEM 1B	Major/Required	
	Calculus II	
	5.0	
MATH 2	Major/Required	
	General Botany	
	5.0	
BIO 1A <u>1B</u>	Major/Required	-
OR		
	General Zoology <u>Organismal Biology</u>	
	5.0	
BIO 1B	Major/Required	
OR		
	Introduction to College Biology	
	4.0	
BIO 30	Major/Required	
		1.0
		General Education
Kinesiology (Area 1A)		

Term 3 - Fall Semester

Units: 15.0

Course		
Units	MAJ/GEN/ELEC	
Semester(s) Offered		
	Organic Chemistry I	
	5.0	
CHEM 12A	Major/Required	
	Introduction to Physics I	
PHYS 2A	4.0	
		3.0
		General Education
Arts and Humanities (Area 3)		
		3.0
Oral Communication and Critical Thinking (Area 1B)		General Education

Term 4 - Spring Semester

Units: 15.0

Course		
Units	MAJ/GEN/ELEC	
Semester(s) Offered		

CHEM 12B	Organic Chemistry II	
	5.0	
	Major/Required	
PHYS 2B	Introduction to Physics II	
	4.0	
	Major/Required	
		3.0
		General Education
Social and Behavioral Sciences (Area 4)		
		3.0
		General Education
Ethnic Studies (Area 6)		

Total: 60.0

Program Modification: Environmental Science - Associate of Science Degree

Program Modification: Environmental Science - Associate of Science Degree (Launched - Implemented 09-26-2025)

compared with

Environmental Science - Associate of Science Degree (Active - Implemented 08-15-2025)

Rationale

TOP Code

0301.00 - Environmental Science

CIP Code

03.0104 - Environmental Science.

1. Statement of Program Goals and Objectives

The Associate of Science in Environmental Science Degree is a local program designed to prepare students to transfer to CSU and UC Environmental Science programs. The program has courses that fulfill the lower division requirements for many university Environmental Science programs.

2. Catalog Description

The Associate of Science in Environmental Science is a multi-disciplinary program which provides the scientific foundation for upper division coursework and career positions in environmental Science. Classes feature a broad background of preparation in math and science in such associated disciplines as mathematics, geology, physics, chemistry, biology, as well as economics.

3. Program Requirements

Course

Title

Units

Term

~~Required Core: (44 Units)~~ Required Core: (39 Units)

		5.0
BIO 4A <u>1B</u>	General Botany <u>Organismal Biology</u>	5.0
BIO 4B	General Zoology	<u>3rd</u>
		5.0
CHEM 1A	General College Chemistry I	<u>1st</u>
		5.0
CHEM 1B	General College Chemistry II	<u>2nd</u>
		3.0
ECON 4 <u>C2001</u>	Principles of Microeconomics	<u>2nd</u>
		3.0
EVST 5	Energy and Sustainability	<u>2nd</u>
		1.0
EVST 5L	Energy and Sustainability Laboratory	<u>2nd</u>
		3.0
GEOL 1	Physical Geology	<u>2nd</u>
		1.0
GEOL 1L	Physical Geology Laboratory	<u>2nd</u>
		5.0
MATH 1	Calculus I	<u>1st</u>
		4.0
PHYS 2A	Introduction to Physics I	<u>3rd</u>
		4.0
PHYS 2B	Introduction to Physics II	<u>4th</u>

Total Units for the Major

~~44~~ 39 .0

Additional General Education and Elective Units

~~16~~ 21 .0

The Associate Degree is conferred upon those students who complete the required 60 or more semester units of the degree pattern with a grade-point average of 2.0 or better, of which 12 units must be earned at Las Positas College. In addition, students must complete a General Education pattern in order to earn a degree: see the Las Positas College Associate Degree General Education Pattern or the California General Education Transfer Curriculum (Cal-GETC) patterns for a listing of areas and courses. Double counting courses in GE and the major is permissible. The number of units that may be double counted will depend on the entry point to the degree program, the optional course(s) taken, and the GE pattern selected. Elective units must be degree applicable. Consult with an adviser or a counselor to plan the courses necessary to achieve your academic goal.

Total: 60.0

4. Master Planning

The program meets the Mission of the California Community College System, as well as the Mission and Master Plan of Las Positas College, of providing local degrees for transfer.

5. Enrollment and Completer Projections
7

6. Place of Program in Curriculum/Similar Programs
This program will continue to be a part of the Physics department.

7. Similar Programs at Other Colleges in Service Area
The AS in Environmental Science is an established program with in the colleges in our service area.

The Associate of Science in Environmental Science is a multi-disciplinary program which provides the scientific foundation for upper division coursework and career positions in environmental Science. Classes feature a broad background of preparation in math and science in such associated disciplines as mathematics, geology, physics, chemistry, biology, as well as economics.

SEMESTER-BY-SEMESTER PROGRAM PLAN FOR FULL-TIME STUDENTS

All plans can be modified to fit the needs of part-time students by adding more semesters

Term 1 - Fall Semester			Units: 16.0
Course	Units	MAJ/GEN/ELEC	
	Semester(s) Offered		
		General College Chemistry I	
		5.0	
CHEM 1A		Major/Required	
		Calculus I	
		5.0	
MATH 1		Major/Required	
			3.0
			General Education
English Composition (Area 1A)			
			3.0
			General Education
Arts and Humanities (Area 3)			

Term 2 - Spring Semester			Units: 16.0
Course	Units	MAJ/GEN/ELEC	
	Semester(s) Offered		
		General College Chemistry II	
		5.0	
CHEM 1B		Major/Required	
		Principles of Microeconomics	
		3.0	
ECON + C2001		Major/Required	
		Energy and Sustainability	
		3.0	
EVST 5		Major/Required	
		Energy and Sustainability Laboratory	
		1.0	
EVST 5L		Major/Required	
		Physical Geology	
		3.0	
GEOL 1		Major/Required	
		Physical Geology Laboratory	
		1.0	
GEOL 1L		Major/Required	

Term 3 - Fall Semester			Units: 13.0
Course	Units	MAJ/GEN/ELEC	
	Semester(s) Offered		

	5.0	-
	General Botany <u>Introduction to Physics I</u>	
	5.0 <u>4.0</u>	
BIO 1A <u>PHYS 2A</u>	Major/Required	
OR		
	General Zoology <u>Organismal Biology</u>	
	5.0	
BIO 1B <u>1R</u>	Major/Required	-
	Introduction to Physics I	
	4.0	
PHYS 2A	Major/Required	
		3.0
Oral Communication and Critical Thinking (Area 1B)		General Education
		1.0
		General Education
Kinesiology (Area 7)		

Term 4 - Spring Semester

Units: 15.0

Course		
Units	MAJ/GEN/ELEC	
Semester(s) Offered		
	General Zoology	
	5.0	
BIO 1B	Major/Required	-
OR		
	General Botany	
	5.0	
BIO 1A	Major/Required	-
	Introduction to Physics II	
	4.0	
PHYS 2B	Major/Required	
		3.0
		General Education
Ethnic Studies (Area 6)		
		3.0 <u>8.0</u>
		Elective
AD Elective		

Total: 60.0

Program Modification: Innovation, Entrepreneurship, and Small Business Management - Certificate of Completion

Program Modification: Innovation, Entrepreneurship, and Small Business Management - Certificate of Completion (Launched - Implemented 10-16-2025)
 compared with

Innovation, Entrepreneurship, and Small Business Management - Certificate of Completion (Active - Implemented 08-15-2025)

Rationale
TOP Code

0506.40 - Small Business and Entrepreneurship*

CIP Code

52.0703 - Small Business Administration/Management.

1. Statement of Program Goals and Objectives

~~Our goal is to greatly increase the availability of business management expertise throughout the Tri-Valley, and greater Bay Area. Students will earn a Certificate of Completion which will aid them in obtaining skills for both new and experienced small business managers. Students will learn best practices for planning, managing, and growing a small business.~~

Our goal is to greatly increase the availability of business management expertise throughout the Tri-Valley, and greater Bay Area. Students will earn a Certificate of Completion which will aid them in obtaining skills for both new and experienced small business managers. Students will learn best practices for planning, managing, and growing a start-up or small business.

2. Catalog Description

This small business management program is a short-term (typically one year) non-credit program. It is a career technical education program designed to prepare students and managers of all levels in operating, managing, and growing a small business. Learning from real-life small business management cases and projects, you'll develop the business acumen and technical expertise needed to launch a new enterprise, take over an existing business, or be the one employee who can make a difference to the future of the company. The program will also aid students in preparing for college-level courses in Business.

3. Program Requirements
Course
Title
Hours
Term
Required Core: (18 Hours)

NBUS 212	Developing Your Business Plan	9.0
		<u>1st</u>
NBUS 213	Legal Aspects of Small Business	9.0
		<u>1st</u>

List A: Select Three (27 Hours)

NBUS 200	Communication in the Workplace	9.0
		<u>1st</u>
NBUS 202	Attitude in the Workplace	9.0
		<u>1st</u>
NBUS 203	Decision Making and Problem Solving	9.0
		<u>1st</u>
NBUS 205	Team Building	9.0
		<u>1st</u>
NBUS 206	Time Management	9.0
		<u>1st</u>
NBUS 207	Conflict Resolution	9.0
		<u>1st</u>
NBUS 210	Customer Service	9.0
		<u>1st</u>
<u>NBUS 211</u>	<u>Design Thinking for the Entrepreneur</u>	<u>9.0</u>
		<u>1st</u>
<u>NBUS 214</u>	<u>Success in the Gig Economy</u>	<u>9.0</u>
		<u>1st</u>

Total: 45.0

4. Master Planning

This program fits with the Las Positas College Educational Master Plan strategies A1 "Address the educational needs of a diverse student population and global workforce," A4 "Address the needs of basic skills students," A5 "Assist underprepared students," and A6 "Focus on workforce readiness."

5. Enrollment and Completer Projections
6. Place of Program in Curriculum/Similar Programs

This small business management program is a short-term (typically one year) non-credit program. It is a career technical education program designed to prepare students and managers of all levels in operating, managing, and growing a small business. Learning from real-life small business management cases and projects, you'll develop the business acumen and

Total: 45.0

Program Modification: Spanish - Associate in Arts Degree for Transfer**Program Modification: Spanish - Associate in Arts Degree for Transfer (Launched - Implemented 10-03-2025)**

compared with

Spanish - Associate in Arts Degree for Transfer (Active - Implemented 08-15-2025)**Rationale****TOP Code**

1105.00 - Spanish

CIP Code

16.0905 - Spanish Language and Literature.

1. Statement of Program Goals and Objectives

The Associate in Arts in Spanish for Transfer Degree is designed to prepare students for a seamless transfer into the CSU system to complete a baccalaureate degree in Spanish. The Associate in Arts in Spanish for Transfer Degree is designed to provide students with the common core of lower division courses required to transfer and pursue a baccalaureate degree in Spanish.

2. Catalog Description

The Las Positas College Spanish program offers courses that lead to an Associate in Arts in Spanish for Transfer Degree. The major requirements for the Associate in Arts in Spanish for Transfer Degree align with the Intersegmental Transfer Model Curriculum (TMC) for Spanish. Students will have guaranteed admission to a California State University (CSU) campus upon successful completion of the program requirements. Students should consult with a counselor to determine whether this degree is the best option for their transfer goals. General education requirements should be selected carefully based on the intended transfer institution.

Completion Requirements: 1. Completion of 60 semester units or 90 quarter units that are eligible for transfer to the California State University, including both of the following: a. The California General Education Transfer Curriculum (Cal-GETC). b. A minimum of 18 semester units in a major or area of emphasis, as determined by the community college district. 2. Obtainment of a minimum grade point average of 2.0. Associate Degrees for Transfer (ADT's) also require that students must earn a "C" (or "P") or better in all courses required for the major or area of emphasis.

Program Title

Spanish

Award Type

Associate in Arts Degree for Transfer

Effective Term~~Fall 2020~~

Fall 2026

Program Description

The Las Positas College Spanish program offers courses that lead to an Associate in Arts in Spanish for Transfer Degree. The major requirements for the Associate in Arts in Spanish for Transfer Degree align with the Intersegmental Transfer Model Curriculum (TMC) for Spanish. Students will have guaranteed admission to a California State University (CSU) campus upon successful completion of the program requirements. Students should consult with a counselor to determine whether this degree is the best option for their transfer goals. General education requirements should be selected carefully based on the intended transfer institution.

Program Requirements

Course

Title

Units

Term

~~Required Core: (21-23 Units)~~ Required Core: (18-20 Units)

SPAN 1A	Beginning Spanish	5.0
SPAN 1B	Elementary Spanish	5.0
SPAN 2A	Intermediate Spanish I	4.0
OR		
SPAN 21	Spanish for Spanish Speakers I	5.0
SPAN 2B	Intermediate Spanish II	4.0
OR		
SPAN 22	Spanish for Spanish Speakers II	5.0

List A: Select One (3 Units)

		<u>3.0</u>	-
<u>POLS C1000</u>	<u>American Government and Politics</u>		
SPAN 23	Introduction to Hispanic Literature	3.0	

Total Units for the Major

21.0-23.0

Additional General Education and Elective Units

37.0-39.0

For students that assess past SPAN 1A, 1B, and/or 2A, the following courses are recommended substitutions: ANTR 3ARHS 2, ENG 41, ENG 44, ETHS 30, and GS 2.

See the Las Positas College California General Education Transfer Curriculum (Cal-GETC) pattern for a listing of areas and courses. Double counting courses in GE and the major is permissible. The number of units that may be double counted will depend on the entry point to the degree program and the optional course(s) taken. Elective units must be CSU transferable. Consult with an adviser or a counselor to plan the courses necessary to achieve your academic goal.

Total: 60.0

The Las Positas College Spanish program offers courses that lead to an Associate in Arts in Spanish for Transfer Degree. The major requirements for the Associate in Arts in Spanish for Transfer Degree align with the Intersegmental Transfer Model Curriculum (TMC) for Spanish. Students will have guaranteed admission to a California State University (CSU) campus upon successful completion of the program requirements. Students should consult with a counselor to determine whether this degree is the best option for their transfer goals. General education requirements should be selected carefully based on the intended transfer institution.

SEMESTER-BY-SEMESTER PROGRAM PLAN FOR FULL-TIME STUDENTS

All plans can be modified to fit the needs of part-time students by adding more semesters

Term 1 - Fall Semester

Units: 15.0

Course		
Units	MAJ/GEN/ELEC	
Semester(s) Offered		
	Beginning Spanish	
	5.0	
SPAN 1A	Major/Required	
		3.0
		General Education
English Composition (Area 1A)		
		3.0
		General Education
Arts (Area 3A)		
		4.0
		Elective
CSU Electives		

Term 2 - Spring Semester

Units: 15.0

Course		
Units	MAJ/GEN/ELEC	
Semester(s) Offered		

	Elementary Spanish 5.0 Major/Required	
SPAN 1B		3.0 General Education
Critical Thinking and Composition (Area 1B)		3.0 General Education
MATH 47		3.0 General Education
Social and Behavioral Sciences (Area 4)		1.0 Elective
CSU Elective		

Term 3 - Fall Semester

Units: 15.0

Course		
Units	MAJ/GEN/ELEC	
Semester(s) Offered		
	Intermediate Spanish I 4.0 Major/Required	
SPAN 2A		
OR		
	Spanish for Spanish Speakers I 5.0 Major/Required	
SPAN 21		
	American Government and Politics 3.0 Major/Required	-
POLS C1000 OR		
	Introduction to Hispanic Literature 3.0 Major/Required	
SPAN 23		
		3.0 General Education
Physical Science (Area 5A)		3.0 General Education
Social and Behavioral Sciences (Area 4) Oral Communication (Area 1C)		2.0 - 1.0 Elective
CSU Elective		

Term 4 - Spring Semester

Units: 15.0

Course		
Units	MAJ/GEN/ELEC	
Semester(s) Offered		

	Intermediate Spanish II	
	4.0	
SPAN 2B	Major/Required	
OR		
	Spanish for Spanish Speakers II	
	5.0	
SPAN 22	General Education	
Oral Communication (Area 1C)		3.0
<u>Social and Behavioral Sciences (Area 4)</u>		General Education
		3.0
Biological Science (Area 5B)		General Education
		1.0
Laboratory (Area 5C)		General Education
		3.0
Ethnic Studies (Area 6)		General Education
		1.0 - 0.0
CSU Elective		Elective

Total: 60.0

5.6. Program Deactivations

- Company Officer, CA
Rationale: No longer a market for Company Officer courses now that content is taught in-house at fire departments.
- Fire Officer Leadership and Management, AS
Rationale: No longer a market for Company Officer courses now that content is taught in-house at fire departments.

5.7. Policy Modifications

- CCP 1040 Associate Degree General Education

CCP 1040 ASSOCIATE DEGREE GENERAL EDUCATION

General education is a significant part of the program of studies in American colleges and universities. The term *general education* refers to a program of studies intended to broaden students' minds and enrich their personal, social, and cultural understanding through exposure to a breadth of academic disciplines. Students develop skills and aptitudes that prepare them to contribute to and participate in society and the democratic process. A major part of a course that satisfies a General Education Area is about teaching students the fundamental principles of the Area.

Las Positas College Associate Degree General Education Pattern

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Area 1: English Composition, Oral Communication, and Critical Thinking

Area 1A: English Composition (3 semester units)

Area 1B: Oral Communication and Critical Thinking (3 semester units)

Area 2: Mathematical Concepts and Quantitative Reasoning (3 semester units)

Area 3: Arts and Humanities (3 semester units)

Area 4: Social and Behavioral Sciences (3 semester units)

Area 5: Natural Sciences (3 semester units)

Area 6: Ethnic Studies (3 semester units)

Area 7: Kinesiology (1 semester unit)

Area 8: Health (3 semester units – AA Requirement Only)

Area 9: American Institutions (3 semester units – AA Requirement Only)

Courses satisfying Areas 1A and 2 must be completed with a grade of "C" (or "P") or higher.

Courses that fulfill Area 1 through 9 shall have at least the number of units required and satisfy the following standards:

Area 1A: English Composition

Courses fulfilling this requirement must be baccalaureate-level and include expository and argumentative writing. Courses in English Composition should require that students demonstrate reading comprehension for a range of college-

Las Positas College Curriculum Committee Policy

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level texts, write essays demonstrating college-level reasoning and organization in academic prose, and apply basic research skills in written form.

Area 1B: Oral Communication and Critical Thinking

Courses in Oral Communication are designed to emphasize the content of communication as well as the form and should provide an understanding of the psychological basis and the social significance of communication, including how communication operates in various situations. Applicable courses should view communication as the process of human symbolic interaction focusing on the communicative process from the rhetorical perspective: reasoning and advocacy, organization, accuracy; the discovery, critical evaluation and reporting of information; reading and listening effectively as well as speaking and writing. This must include faculty-supervised, faculty-evaluated oral presentations in the presence of others (physically or virtually).

Courses in Critical Thinking should require that students analyze, synthesize and evaluate academic and cultural texts, write complex argumentative essays, demonstrate critical thinking skills in class discussion and in writing, and use appropriate research techniques to produce an acceptable research paper.

Courses fulfilling this requirement must be baccalaureate-level and may include oral communication and critical thinking courses.

Area 2: Mathematical Concepts and Quantitative Reasoning

Courses fulfilling this requirement must be at least college-level and may include mathematics or quantitative reasoning courses, including logic, statistics, computer languages, and related disciplines.

Area 3: Arts and Humanities

Courses in Arts and Humanities study the cultural activities and artistic expressions of human beings. Such courses develop students' awareness of how people throughout the ages and in different cultures respond to themselves and the world around them in artistic and cultural creation and develop students' aesthetic understanding and ability to make value judgments.

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Through completing courses in this area, students will do the following:

- gain an awareness and appreciation of traditional creative disciplines, such as the visual arts, music, literature, film, and performative arts.
- increase the awareness and understanding of philosophical thought, spiritual values, mythological lessons, political and social institutions, and foreign languages.
- employ critical thinking, investigative methods, and personal reflection to create and shape value judgments based on expanded perspectives provided by these subjects

Courses fulfilling this requirement may include introductory or integrative baccalaureate-level courses in the visual and performing arts, art history, foreign languages, literature, philosophy, religion, and related disciplines.

Area 4: Social and Behavioral Sciences

Courses in Social and Behavioral Sciences focus on people as members of society and develop awareness of the methods of inquiry used by the social and behavioral sciences. They stimulate critical thinking about how people act and have acted in response to their societies and promote appreciation of how societies and social subgroups operate.

Through completing courses in this area, students will do the following:

- gain a broad understanding of the historic foundations of social change, intellectual ideas, and various cultural practices that shape the contemporary human social world
- develop global consciousness and multicultural awareness by appreciating the contributions of all people, especially those of historically underrepresented backgrounds
- analyze problems and issues using the respective disciplinary principles, methodologies, value systems, and ethics of social and behavioral sciences.

Courses fulfilling this requirement may include introductory or integrative baccalaureate-level courses in cultural anthropology, cultural geography,

Las Positas College Curriculum Committee Policy

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economics, history, political science, psychology, sociology, women's studies, and related disciplines.

Area 5: Natural Sciences (3 semester units)

Courses in Natural Sciences examine the physical universe, its life forms, and its natural phenomena, helping students appreciate and understand the scientific method and the relationships between science and other human activities.

Courses fulfilling this requirement may include introductory or integrative baccalaureate-level courses in astronomy, biology, chemistry, general physical science, geology, meteorology, oceanography, physical geography, physical anthropology, physics, and other scientific disciplines.

Area 6: Ethnic Studies

Courses in Ethnic Studies examine the diverse histories, current issues, and unique lived experiences of major American racial and ethnic groups along with the intersectionality of racial and ethnic identities with other forms of social identity in the social, cultural, and political contexts.

Courses in this area require students to do the following:

- critically examine and articulate concepts of ethnic studies
- apply theory and knowledge produced by one of the major American racial and ethnic groups.
- critically analyze the concept of intersectionality.
- examine issues facing main ethnic groups in the relevant structural contexts.

Courses fulfilling this requirement may include baccalaureate-level courses in the four autonomous disciplines within Ethnic Studies: Black Studies; African American Studies; Africana Studies; Native American Studies; Chicano/a/x Studies; Latino/a/x Studies/La Raza Studies; and Asian American Studies.

Area 7: Kinesiology

Courses in Kinesiology require students to develop an awareness of the importance of a healthy lifestyle through physical activity, focus on the

Las Positas College Curriculum Committee Policy

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development of overall well-being through physical activity, and incorporate key principles of healthy lifestyle and physical activity to enhance quality of life.

Courses fulfilling this requirement include a variety of physical activity and dance courses.

Area 8: Health (AA Requirement Only)

Courses in Health require students to learn health and wellness concepts, critically evaluate scientifically derived knowledge about health, identify methods for -and challenges of- maintaining a healthy lifestyle, describe relationships of personal, community, and global health issues.

Courses fulfilling this requirement may include health, early childhood education, psychology, nutrition, kinesiology and related disciplines.

Area 9: American Institutions (AA Requirement Only)

Courses in this area fulfill the CSU U.S. History, Constitution, and American Ideals graduation requirement which calls for study in 3 areas:

- The historical development of American institutions and ideals (Area US-1).
- The Constitution of the United States and the operation of representative democratic government under the Constitution (Area US-2).
- The process of California state and local government (Area US-3).

Adopted: October 7, 2024, Revised March 31, 2025; November 17, 2025

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