

AT-24 Engine Performance

Course Information

- Semester and Year: Spring 2026
- Course ID and Section number: AT-24-E9888
- Instructor's name: Ernest Shull
- Day and time of required meetings: Mondays and Wednesdays 5:45 PM 10:05 PM
- Location: AT-128
- Course units: 4

Instructor Contact Information

- Office location AT-122
- Office hours: Open Door Policy
- Phone number: 707-476-4221
- Email address: ernest-shull@redwoods.edu

Required Materials:

- Safety Glasses
- Appropriate Shop Clothing

Catalog Description

- A course covering theory and principles of engine performance related topics. Topics will include the internal combustion process, compression ratios, combustion efficiency, volumetric efficiency, airflow requirements, air-fuel ratios, fuel delivery systems, manifolds, electronic distributor ignition systems, oscilloscope waveform interpretation, ignition timing and advance strategies. The laboratory portion of the course will focus on diagnosis and repair of the following engine performance related problems; mechanical problems, computerized engine control systems, ignition systems, fuel delivery systems, and emission systems. The course is designed in conjunction with Automotive Service Excellence (ASE) standards and subsequently will in part prepare the student for the ASE Engine Performance Certification Examination.

Course Student Learning Outcomes

- Perform general engine diagnosis
- Diagnose and repair computerized engine controls

- Diagnose and repair emission control systems

Evaluation and Grading Policy

Course Evaluation

Course Points

All labs contribute 50% of the final grade. Each lab is typically worth 20 points, with 10 points for participation and 10 points for completion of Repair Orders. Repair Orders must be completed neatly, accurately, and thoroughly. Some labs may be worth additional points if they are conducted over multiple class sessions.

Tests and homework make up the remaining 50% of the final grade, with 10% allocated to homework and 40% to tests. Homework is generally completed as a group following lecture; however, due to time constraints, some assignments may need to be completed outside of class.

Final grades are based primarily on scores recorded in Canvas. Attendance, professionalism, and attitude in the shop will also be considered when determining the final posted grade. Students are encouraged to contact the instructor with any questions regarding grading.

Extra Credit

Each student may independently choose to complete one extra credit assignment per semester. This assignment consists of a written report on an engine performance-related topic from a source other than the course textbook (e.g., recognized trade publications, library reference materials, magazines, or newspaper articles). Reports must be between one and three typed pages and include properly cited references on a separate page. Students may earn up to 50 extra credit points. The topic must be approved by the instructor prior to beginning the assignment.

Prerequisites/corequisites/ recommended preparation

none

Educational Accessibility and Support

College of the Redwoods is committed to providing reasonable accommodations for qualified students who could benefit from additional educational support and services. You may qualify if you have a physical, mental, sensory, or intellectual condition which causes you to struggle academically, including but not limited to:

- Mental health conditions such as depression, anxiety, PTSD, or bipolar disorder

- Common ailments such as arthritis, asthma, diabetes, autoimmune disorders, and diseases
- Temporary impairments such as a broken bone, recovery from significant surgery, or a pregnancy-related disability
- Neurodevelopmental disorders such as a learning disability, intellectual disability, autism, acquired brain injury, or ADHD
- Vision, hearing, or mobility conditions

Available services include extended test time, quiet testing environments, academic assistance and tutoring through the [LIGHT Center](#), counseling and advising, alternate formats of course materials (e.g., audio books, braille, E-texts), assistive technology, learning disability assessments, approval for personal attendants, interpreters, priority registration, on-campus transportation, adaptive physical education and living skills courses, and more. If you believe you might benefit from disability- or health-related services and accommodations, please contact [Student Accessibility Support Services \(SASS\)](#). If you are unsure whether you qualify, please contact Student Accessibility Support Services (SASS) for a consultation: sass@redwoods.edu.

SASS office locations and phone numbers

Eureka campus

- Phone: 707-476-4280
- Location: Learning Resource Center (Library)

Del Norte campus

- Phone: 707-465-2353
- Location: main building, near the Library

Klamath-Trinity campus

- Phone: 707-476-4280