Syllabus for AT-21 Engine Repair

Course Information

Semester & Year: Fall 2024

Course ID and Section number:AT-21-E7422

Instructor's name: Ernest Shull

Day and time of required meetings: Monday & Wednesday 1:15 PM to 5:35 PM

Location: AT-128

Course units: 4

Instructor Contact Information

Office location or Online: AT-122

Office hours: Open Door Policy

Phone number: 707-476-4221

Email address: Ernest-Shull@redwoods.edu

Communication notes: Best Communication is through Email.

Catalog Description

A course covering four stroke cycle theory, engine torque, horsepower, materials, and manufacturing processes as they relate to internal combustion power plants used in production automobiles and light trucks. The theory, principles, and diagnosis of cooling systems, lubrication systems, and common engine mechanical failures will be emphasized. The laboratory portion of the course will focus on comprehensive engine testing, in-vehicle engine servicing, and introduction to the diagnosis of engine controls, ignition, and fuel and emission systems. The course is designed in conjunction with Automotive Service Excellence (ASE) Education Foundation standards and will prepare the student for the ASE Certification Examination.

Course Student Learning Outcomes

- Diagnose and repair cylinder head and valve timing
- Diagnose and repair lubrication and cooling system
- Diagnose and repair engine performance systems.

Educational Accessibility & 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, bipolar disorder, and ADHD
- 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
- A learning disability (such as dyslexia, reading comprehension), intellectual disability, autism, or acquired brain injury
- Vision, hearing, or mobility challenges

Available services include extended test time, quiet testing environments, tutoring, counseling and advising, alternate formats of materials (such as audio books or E-texts), assistive technology, on-campus transportation, 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 SASS for a consultation: sass@redwoods.edu.

SASS office locations and phone numbers
Eureka campus
- Phone: 707-476-4280
- Location: Student Services Building, first floor
Del Norte campus
- Phone: 707-465-2324
- Location: Main Building, next to the library
Klamath-Trinity campus
- Phone: 707-476-4280

Student Support Services

Good information and clear communication about your needs will help you be successful. Please let your instructor know about any specific challenges or technology limitations that might affect your participation in class. College of the Redwoods wants every student to be successful.

The following online resources are available to support your success as a student:

CR Online Learning Support

Tech support, laptop loans, guides to using Canvas, installing Office 365 for free, and more.

Library Articles & Databases

Find the best library databases for your research.

Online Tutoring Resources

Participate in tutoring over Zoom.

To learn more about the resources available to you, click on a title bar below, or click the down arrow to expand them all.

Klamath-Trinity students can contact the CR Klamath-Trinity Office for specific information about student support services at 530-625-4821.

Community College Student Health and Wellness

National Suicide Prevention Lifeline

If you are in distress or are with someone at risk right now, call or text the National Suicide Prevention Lifeline.

Call the National Suicide Prevention Lifeline
1-800-273-TALK (8255)

Text the National Suicide Prevention Lifeline
741-741

Timely Care

When you're not feeling well physically or distressed mentally, Timely Care can offer the help you're looking for in just a few quick taps. Students can schedule an appointment anytime via phone, video, and chat. [Log in or set up an account with Timely Care](#).

Mental Health Counseling

Students should text, email, or fax Shawna Bell directly for scheduling and/or services.

- Text: 707-496-2856
- Email: shawnabmft@gmail.com
- Fax and voicemail: 707-237-2318

Wellness Central

Resources, tools, and trainings regarding health, mental health, wellness, basic needs and more designed for California community college students, faculty and staff are available on the California Community Colleges [Wellness Central](#).

Counseling

[Counseling and Advising](#) can assist students in need of academic advising and professional counseling services. Call, email or stop by one of our offices to make an appointment!

Counseling and Advising office locations and contact info

Eureka campus
- Phone: 707-476-4150
- Location: Student Services Building, first floor
- Email: counseling@redwood.edu
- Hours: Monday through Friday, 9am to 4pm. Summer hours may vary

Basic Needs Center

[The Basic Needs Center](#) provides for the health and safety of students by providing access to healthy food, financial resources, and referrals to safe and secure housing. [Submit a request for services and information](#).

Basic Needs Center contact info
- Phone: 707-476-4153
- Email: the-grove@redwoods.edu

Learning Resource Center

The Learning Resource Center includes the following resources for students:

Library Services

[Library Services](#) promotes information literacy and provides organized information resources.

Multicultural and Equity Center (MCE)

The [Multicultural and Equity Center](#) is a dynamic and inclusive place that supports all students in their academic and personal journeys at the college. We do this by creating community, home away from home, and a safe place for cultural expression, cross-cultural learning, access to college and dignity resources, and social justice work opportunities. The MEC is committed to retention and student success by offering activities related to leadership development, student connectedness and student equity. We are a student-centered program that fosters respect for all people.

Academic Support Center

The [Academic Support Center](#) offers tutoring and test proctoring for CR students.

Student Tech Help

[Student Tech Help](#) provides students with assistance around a variety of tech problems.

Extended Opportunity Programs and Services (EOPS)

[Extended Opportunity Programs and Services](#) (EOPS) provides services to eligible income disadvantaged students including: textbook awards, grants, career academic and personal counseling, transportation assistance, tutoring, laptop, calculator and textbook loans, priority registration, graduation cap and gown, workshops, and more!

TRiO Student Success Program

The TRiO Student Support Services Program provides eligible students with a variety of services including academic advising, career assessments, assistance with transfer, and peer mentoring. Students can apply for the program with the [Eureka TRiO office](#) or the [Del Norte TRiO office](#).

Veterans Resource Center

The [Veteran's Resource Center](#) supports and facilitates academic success for Active Duty Military, Veterans and Dependents attending CR through relational advising, mentorship, transitional assistance, and coordination of military and Veteran-specific resources.

CalWORKS

California Work Opportunity & Responsibility to Kids ([CalWORKs](#)) provides supportive services to student parents with children under the age of 18, who are receiving cash assistance (TANF benefits), to become

self-sufficient. Services include: transportation assistance, basic student supplies, tutoring, priority registration, laptop and calculator loans, career, academic, and personal counseling, and more!

Course Attendance Policy

Attendance will be taken at the start of each class session. **Students who accumulate 4 absences during the first 10 weeks of class may be dropped from this class by the instructor. There may be situations where this will occur due to unforeseen circumstances. Please contact me so we can discuss your attendance and possible makeup work.**

Punctuality is essential in the workplace and is considered respectful of fellow students and instructors. Excessive tardiness can affect your score as well. Less time present means you have less time to complete tasks.

Students who have experienced extenuating circumstances can complete & submit the **Excused Withdrawal Petition** to request an Excused Withdrawal (EW) grade instead of the current Withdrawal (W) or non-passing (D, F & NP) grades. The EW Petition is available from the Admissions and Records Forms Webpage. Supporting documentation is required.

Evaluation & Grading Policy

Course Evaluation

Course Points
All Labs will contribute 50% towards your final grade. Labs are graded at 20 points per lab. 10 Points towards participation and 10 points towards Repair Orders. Please fill out your repair orders as neat and complete as possible. Some labs will be worth more points if they are a multi-day lab.

Tests and Homework will contribute towards the other 50% with 10% towards Homework and 40% toward Tests. Homework will usually be completed as a group after the lecture, however due to certain time constraints it may have to be completed after class.

Your final grade will be based on your grade in Canvas however I will also take into consideration attendance and attitude in the shop when considering your final posted grade. If you ever have any questions about this, feel free to contact me.

Extra Credit - Each student may elect independently to read and report on a topic related to automatic transmissions/transaxles from a source other than the course text i.e. recognized trade publications, library reference material, magazines, newspaper articles, etc... The report must be no less than one page typed and no longer than three pages typed. You must properly cite your references on a separate page. You may earn up to 50 points per report and you may turn in a maximum of 1 report per semester. Please inform the instructor of your topic prior to doing this assignment.

Fall 2024 Dates

Date	To Remember
August 23	Last day to register for classes (day before the first class meeting)
August 24	Classes begin

Date	To Remember
August 30	Last day to add a class
September 2	Labor Day Holiday (district wide closure)
September 6	Last Day to Drop & Receive a Refund
September 8	Last Day to Drop w/out a "W"
September 9	Census Date (20% of class)
October 31	Last Day to Petition to Graduate & Petition for Certificate
November 1	Last Day for Student/Faculty Withdrawal
November 11	Veteran's Day Holiday (District Wide Closure)
November 25-26	Fall Break (No Classes)
November 27-29	Thanksgiving Holiday (District Wide Closure)
December 14-20	Final Examinations
December 20	Last Day to File P/NP Option
December 20	Semester Ends
December 27	Grades Due
January 3	Grades Available for Transcript Release

Academic dishonesty

In the academic community, the high value placed on truth implies a corresponding intolerance of scholastic dishonesty. In cases involving academic dishonesty, determination of the grade and of the student's status in the course is left primarily to the discretion of the faculty member. In such cases, where the instructor determines that a student has demonstrated academic dishonesty, the student may receive a failing grade for the assignment and/or exam and may be reported to the Chief Student Services Officer or designee. The Student Code of Conduct (AP 5500) is available on the College of the Redwoods website. Additional information about the rights and responsibilities of students, Board policies, and administrative procedures is located in the 2023-2024 College Catalog and CR Board and Administrative Policies.

Disruptive Behavior

Student behavior or speech that disrupts the instructional setting will not be tolerated. Disruptive conduct may include, but is not limited to: unwarranted interruptions; failure to adhere to instructor's directions; vulgar or obscene language; slurs or other forms of intimidation; and physically or verbally abusive behavior. In such cases where the instructor determines that a student has disrupted the educational process, a disruptive student may be temporarily removed from class. In addition, the

student may be reported to the Chief Student Services Officer or designee. Additional information about the rights and responsibilities of students, Board policies, and administrative procedures is located in the 2023-2024 College Catalog and CR Board and Administrative Policies.

Inclusive Language in the Classroom

College of the Redwoods aspires to create a learning environment in which all people feel comfortable in contributing their perspectives to classroom discussions. It therefore encourages instructors and students to use language that is inclusive and respectful.

Canvas Information

- Log into Canvas at My CR Portal
- For help logging in to Canvas and general tech help, visit Student Technical Support
- Once you're logged in to Canvas, you click on the Help icon on the left menu
- Canvas online orientation workshop: Canvas Student Orientation Course

Setting Your Preferred Name and Pronouns in Canvas

Students have the ability to display personal pronouns and an alternate first name in Canvas. Students may change their pronouns on their own in Canvas (Account :: Settings :: Edit Settings). To request a change to your preferred list name, contact Admissions & Records. Your Preferred Name will only be listed in Canvas; this does not change your legal name in our records. See the Student Information Update Form (pdf).

Emergency Procedures / Everbridge

College of the Redwoods has implemented an emergency alert system called Everbridge. In the event of an emergency on campus you will receive an alert through your personal email and/or phones. Registration is not necessary in order to receive emergency alerts. Check to make sure your contact information is up-to-date by logging into WebAdvisor and selecting 'Students' then 'Academic Profile' then 'Current Information Update.'

Please contact Public Safety at 707-476-4112 or security@redwoods.edu if you have any questions. For more information visit Redwoods Public Safety.

In an emergency that requires an evacuation of the building anywhere in the District:

- Be aware of all marked exits from your area and building
- Once outside, move to the nearest evacuation point outside your building
- Keep streets and walkways clear for emergency vehicles and personnel

Do not leave campus, unless it has been deemed safe by the campus authorities.

To learn more about campus-specific Emergency Procedures, click on a title bar below, or click the down arrow to expand them all.

Course Schedule

Day	Theory	Lab	Assigned Reading
8-26	Safety	Overview	None
8-28	Tools and Measuring	Tool Use/Measurements	3,4
9-2	**LABOR DAY**	**NO CLASS**	
9-4	Engine Fundamentals	PICO & VACUUM TEST	5,6
9-9	Engine Fundamentals	Compression Tests	5,6
9-11	**TEST I**	**Engine Mechanical**	
9-16	Cooling Systems	Diagnosis and Service	8
9-18	Cooling Systems	R&R Components	9
9-23	Cooling Systems	R&R Components	9
9-25	Lubrication Systems	Oil Changes & Service	7
9-30	Lubrication Systems	Oil Pressure Tests	7
10-2	Lubrication Systems	Oil Pressure Switches	7
10-7	**TEST II**	**Cooling & Lubrication**	
10-9	Sealing Components	Valve Cover R&R & Timing	22
10-14	Fuel System Theory	Fuel System Tests & DTC's	26
10-16	Ignition System Theory	Coil Pack Testing	
10-21	Engine Removal	Begin Engine Teardown	10
10-23	Engine Disassembly	Remove Cylinder Heads	11
10-28	Timing Chains	Timing Chains	16,18
10-30	Cylinder Head Service	Heads, CAMS, & Valves	15,17
11-4	**TEST III**		
11-6	Engine Blocks	Begin Block Teardown	12
11-11	**Veteran's Day**	**NO CLASS**	
11-13	Crankshaft and Bearings	Crankshaft measurements	13
11-18	Pistons, Rings, Rods	Pistons R&R	14
11-20	Engine Cleaning & Inspect	Inspect Engine Components	21
11-25	**FALL BREAK**	**FALL BREAK**	
11-27	**FALL BREAK**	**FALL BREAK**	
12-2	Engine Assembly	Engine Assembly	24
12-4	Engine Installation	Engine Assembly	25
12-9	Test IV Review	Finish Engine Assembly	
12-11	**TEST IV**		
12-18	**FINAL EXAM**	**1:00PM – 3:00PM**	