



AUT1130-001 Course Syllabus

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: <https://catalog.uvu.edu/>

Semester: Spring

Year: 2025

Course Prefix: AUT

Course and Section #: 1130-001

Course Title: Engine Repair & Rebuilding

Credits: 2

Course Description

The class will cover basic principles of internal combustion engines (ICE) operation. Engine block construction/configuration, cylinder heads, valve train, rotating mass (pistons, crankshaft, connecting rods), engine coolants, lubrication systems, fuel management, gasket/sealants, materials and fasteners.

Course Attributes

This course has the following attributes:

- General Education Requirements
- Global/Intercultural Graduation Requirements
- Writing Enriched Graduation Requirements
- Discipline Core Requirements in Program
- Elective Core Requirements in Program
- Open Elective

Other: *Click here to enter text.*

Instructor Information

Instructor Name: Chet Milburn

Student Learning Outcomes

Upon successful completion, students should be able to . . .

1. Describe the operation of internal combustion engines.
2. Understand the testing and inspection process to correctly diagnose engine condition.
3. Understand engine removal and disassembly.
4. Understand engine specifications; cleaning, measurement, inspection, and replacement criteria of engine components.
5. Understand sealing, torquing, measuring, and testing for upper and lower engine reassembly.
6. Understand the process of engine reinstallation, including plumbing, wiring, re-flashing the control units, break in procedures, and road testing.
7. Understand research methods for keeping current with engine manufacturers changes and future trends of the automotive internal combustion engine.

Course Materials and Texts

*Automatic Engines: Theory and Servicing, 10th edition, James D. Halderman, Pearson Publishing.
ISBN-13: 9780137469765 (2022 update)*

Course Requirements

Course Assignments, Assessments, and Grading Policy

Assignments include textbook chapters to read with chapter quiz questions, homework, in-class quizzes and handouts, a research presentation, and exams.

There will also be assignments and class discussions posted to canvas with their respective instructions and due dates. These will be part of your class quizzes and assignments grade.

Work is to be completed on the required date and will not be accepted late. Testing will be done on a regular basis both written and oral. All assignments are given a point value.

Grades will be awarded based upon the weighted and values criteria:

Attendance:	20%
Class Assignment:	30%
Tests:	30%
Presentation/Reports:	20%

Student Presentation:

All students are required to provide a 5 minute oral presentation on anything automotive engine related. Approval on this must be submitted to me by the start of the second week in this block. In the event you are uncomfortable with this assignment please meet with the instructor. A signup sheet will be provided during the first week of class.

Required or Recommended Reading Assignments

Chapter Readings and Quizzes

The schedule below lists the chapters that will be explored in the class. You should read the chapter prior to the class so that our time can be put to best use discussing the systems described in the chapter. The associated chapter quizzes will be administered electronically through Canvas.

General Description of the Subject Matter of Each Lecture or Discussion

Workbook Review

Week 1

Introductory: Instructor will discuss

Chapter 1 Shop Safety

- Chapter 2 Service Information, Work Orders, and Vehicle ID
- Chapter 3 Environmental and Hazardous Materials
- Chapter 4 Fasteners and Thread Repair
- Chapter 5 Hand Tools
- Week 2
- Chapter 8 Measuring Systems and Tools
- Chapter 9 Gasoline Engine Operation, Parts, and Specifications
- Chapter 23 Engine Removal and Disassembly
- Chapter 14 Engine Oil and Filters
- Week 3
- Chapter 21 Engine Condition Diagnosis
- Chapter 27 Camshafts and Valve Trains
- Chapter 26 Cylinder Heads
- Chapter 30 Engine Blocks
- Week 4
- Chapter 29 Piston, Rings and Connecting Rods
- Chapter 28 Variable Valve Timing and Displacement System
- Chapter 24 Engine Cleaning and Crack Detection
- MID TERM TEST
- Week 5
- Chapter 34 Engine Assembly and Testing
- Chapter 32 Gaskets and Sealants
- Chapter 31 Crankshafts, Balance Shafts and Bearings
- Chapter 15 Lubrication System Operation and Diagnosis
- Week 6
- Chapter 13 Cooling Systems Operation and Diagnosis
- Chapter 25 Engine Cleaning and Crack Detection
- Chapter 19 Intake and Exhaust Systems
- Week 7 Review and Final Test

Required Course Syllabus Statements

Generative AI

AI programs are not a replacement for your human creativity, originality, and critical thinking. Writing, thinking, and researching are crafts that you must develop over time to develop your own individual voice.

The use of generative AI tools (e.g. ChatGPT, Google Bard, etc.) is permitted in this course for the following activities: Brainstorming and refining your ideas; Fine tuning your research questions; Finding information on your topic; Drafting an outline to organize your thoughts; and Checking grammar and style.

The use of generative AI tools is not permitted in this course for the following activities: Impersonating you in classroom contexts, such as by using the tool to compose discussion board prompts/responses assigned to you or content that you put into a Teams/Canvas chat; Writing a draft of a writing assignment; Writing entire sentences, paragraphs, or papers to complete class assignments.

You are responsible for the information you submit based on an AI query (for instance, that it does not violate intellectual property laws, or contain misinformation or unethical content). Your use of AI tools must be properly documented and cited in order to stay within university policies on academic honesty.

Any student work submitted using AI tools should **clearly indicate what work is the student's work and what part is generated by the AI**. In such cases, no more than 10% of the student work should be generated by AI. If any part of this is confusing or uncertain, please reach out to me for a conversation before submitting your work.

Using Remote Testing Software

This course does not use remote testing software.

This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Required University Syllabus Statements

Accommodations/Students with Disabilities

Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU [Accessibility Services](#) at accessibilityservices@uvu.edu or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in BA 112.

Academic Integrity

At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their [rights and responsibilities](#). In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in [UVU Policy 541: Student Code of Conduct](#).

Equity and Title IX

Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

Religious Accommodation

UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.

To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at accessibilityservices@uvu.edu. If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a [specially dedicated space](#) for meditation, prayer, reflection, or other forms of religious expression.