AUT1230-001 Course Syllabus

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

Semester: Fall
Year: 2025
Course Prefix: AUT
Course and Section #: 1230-001
Course Title: Engine Performance
Credits: 2

Course Description

Studies electrical and fuel systems fundamentals found on passenger cars, light-trucks, and marine applications of theory, operation, and construction. Includes solid state electronic ignition systems. Teaches tune-up including diagnosis and troubleshooting.

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. Identify various types of engines and name their components. Engine designs;
2. Explain the basic principles of the internal combustion engine;
3. Demonstrate use of various testing equipment and their applications. Diagnose bad or misadjusted components of an engine relation to engine performance;
4. Diagnose bad or misadjusted components of an engine relation to engine performance. Use basic math formulas to calculate such things as engine, CID, Liters, Horse Power, etc.. Properly disassemble and reassemble distributors and maintain an organized area;
5. Use specification and procedure manual to assist in ignition systems engine tune-up and diagnosis. Test and repair distributors, and other related components. Define electronic ignition systems both DI and EI. Importance of Intake and exhaust manifolds;
6. Examine fuel systems CCC and electronic fuel injection units. Computer controls with input sensors and outputs or activators;
7. Define OBDI and OBDII readiness systems and emission control systems to meet EPA standards.

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

There are 7 weeks to complete this program. Attendance is crucial to maintain schedule of tear down, inspection, and rebuild. 4 (four) days of absences warrants failure of the course. It is impossible to make up days missed in the lab due to specific tasks scheduled for that date.
Work is due on the required date and will not be accepted late. Testing will be done on a regular basis both written and oral. House cleaning is crucial for the safety of students. You will also be graded upon lab clean up, your specific work area and willingness to assist other classmates as needed or directed. Specific tools are required to complete the course. See mandatory tool list.
Cell phones are disruptive in the lab. Please turn them off and store them until class is completed. Cell phones may be used if approved by the instructor to review engine specifications and research only.

Safety

Students will wear safety glasses at all times in the lab. UVU Automotive Shirts are required to be worn when in the lab. Both items can be purchased in the Auto Department Tool Crib.

Grading and Evaluation:

Grades will be awarded based upon weighted and values criteria

Attendance	10%
Chapter Quizzes	20%
Assignments	30%
Final	20%
Research Project	20%

Chapter Readings and Quizzes

You should read the chapter prior to the lab so that our time can be put to best use performing lab work on the systems described in the chapter. ASE type quizzes will be administered electronically through Canvas. Daily quizzes may be given on the assigned readings and/or the material.

Attendance

Being late for class will cost 1/3 of daily attendance. Missing more than half of class is an absence. Students who fall below 80% attendance for any combination of absences or late will receive a zero score for attendance applied to their final grade. Students who fall below 60% attendance will receive a failing grade for the course and will be required to retake the course. Excused absences must be approved prior to the absence. Emergencies considered case by case.

Student Research Project and Final Exam

You will complete a research paper of interest to you during the course. The research assignment description and rubric will be posted in Canvas. A comprehensive final exam will be given on the last day of class.

Make-up Work / Late Work
Make up work will be allowed only for extenuating circumstances as per instructor discretion. Assignments missed because of unexcused absences cannot be made up. Homework assignments are due on the date listed in canvas. 3% will be deducted from the assignment score for each day late to a minimum 40%.

Extra Credit
Students should complete all assigned tasks prior to working on any other projects. Additional work or personal projects must directly correlate to the course of study and current topic. Extra credit is limited to an increase of one grade step after all assigned work is completed.

Required or Recommended Reading Assignments

The reading assignments will be engine specific and completed on Alldata and/or Prodemand on computer workstations in the shop or in the computer lab. The researched information will be recorded in your engine workbooks. A working knowledge of the textbook chapters as covered in the lectures, including individual review of material, is necessary for professional completion of the practicum.

General Description of the Subject Matter of Each Lecture or Discussion

Week 1:
- Electrical Review
- Ch3/13 Engine Diagnostics - Start

Week 2:
- Ch3/13 Engine Diagnostics - Finish

Week 3:
- Ch16 Distributor Ignition

Week 4:
- Ch17 Distributor Less Ignition

Week 5:
- Ch5 Fuel and Fuel Delivery Systems

Week 6:
- Ch27/30 Fuel Injection Systems

Week 7:
- Ch10 Intake Systems
- Ch10 Exhaust Systems

Week 8:
- Ch19 Input Sensor Data
- Ch19/33 OBDII and Scan Tools

Week 9:

- Final Exam Day

Specific course assignments and due dates will be listed in Canvas. Check the calendar in Canvas regularly. Be careful not to miss assignment turn-in dates listed in Canvas. Course readings and assignments will be updated Thursday or Friday each week for the coming week. Most weekly assignments will be due each Saturday at 11:50 PM, however you should not wait until the last minute to submit your assignments. Makeup work because you simply miss a deadline will not be accepted.

*Specific assignment dates and calendar changes will be posted in CANVAS. Check Canvas regularly for assignment updates.

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.