



Course Syllabus

Course #: AAD 1330 Course Name: Drivability

Division: Engineering and Industrial Technologies

Class Days: Class Time:
Location: Classroom: Laboratory:
Credit Hours: Contact Hours: Lab Hours: Lecture Hours:

Instructor: Office Location:
Phone: Email Address:

Office Hours: TBD

Division Office/Location: Engineering Building Division Fax: 419-334-2300

Full-time Contact Person: Jayne Bowersox Phone(s): (419) 559-2410

Course Description:

A comprehensive study of ignition systems up to OBD II (on board Diagnostic II) using test equipment to diagnose and adjust the engine for optimum performance. Proper use of test equipment including voltmeter, ohmmeters, vacuum gages, and ignition scopes. Automobiles will be run on the chassis dynamometer to assist diagnostics.

Prerequisite(s): None

Corequisite(s): None

Entry Level Skills and Knowledge:

Required Texts, Supplies and Equipment:

Today's Technician "Automotive Engine Performance" 2nd edition
by Don Knowles & Jack Erjanec

Grading:

10% = Attendance <Note, more than 10 minutes late (unless excused) or leaving early,(unless excused) will lower that day attendance grade by 50%>

15% = Test and Quizzes

20% = Lab Work <Lab work grade are made up of the following:

- 1. Safety as you work
2. Neatness of work & clean-up of work area
3. Usage of tools
4. Proper procedure

5. Understanding of task or work performed. **Your grade for this part also drives the grade you receive for the final lab test.**
Note: If you need to use the school safety glasses more than four times in this class, your lab grade will be lowered by 35%

15% = Lab task, The number of tasks that was the average for the class, all paper work must be turned in.

20% = Final Lab test <"Hand on test", without this test you maybe unable to take written test. This test will also be used to calculate the lab work grade>

20% = FINAL WRITTEN EXAM

Quizzes must be made up within one week from time the quiz is given unless other arrangements are made. All lab papers and worksheets must be turned in by a date set by the instructor.

Learning Outcomes:

General Education

1. **Communicate effectively**
2. **Evaluate arguments in a logical fashion**—Competence in analysis and logical argument are explicit learning goals for most general education programs, although these skills go by a variety of names (e.g., critical thinking, analysis, logical thinking, etc.). **Students will be able to demonstrate competence in problem solving in communication, mathematics, and in team settings.**
3. **Employ the methods of inquiry characteristic of natural sciences, social sciences, mathematics, and the arts and humanities;** general education introduces students to methods of inquiry in several fields of study and thereby prepares students to integrate information from different disciplines.

General Education

Tune-up and diagnostic procedures of systems affecting the performance of the engine. Tests are performed using oscilloscopes and other testing equipment

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

Develop a basic understanding of the ignition systems involved in the automobile with the use of test engines and actual lab work on cars.

- I. Tune-up
 - A. Meaning of
 - B. Make-up
- II. Oscilloscope
 - A. Operation and hookup
 - B. How to read
- III. Use of test equipment
 - A. Compression gauge
 - B. Cylinder leakage test
 - C. Cylinder Balance
 - D. Interpretation of vacuum gauge readings.

- IV. Electronic Ignition
 - A. Types
 - B. Operation
 - 1. Parts involved
 - 2. Operation of parts
 - 3. Testing and overhead

- V. Spark plugs
 - A. Types
 - 1. Heat ranges
 - B. Make-up of

- VI. Timing
 - A. In relation to engine
 - B. Purpose
 - C. Adjustment

- VII. Ignition systems theory of operation.
 - A. Primary (Low voltage)
 - B. Secondary (high voltage)
 - C. Hall effect

Assessment of Student Learning:

Assessment Project and Measurement in course (if any):

Plan of Work:

- | | |
|---|--|
| 1 | Course outline
Engine Design & Operation, Ch. 4, pg. 67-107 |
| 2 | Engine Design & Operation, Ch. 4, pg. 67-107
Lab, Test 1 |
| 3 | Introduction to Engine Tune-up
Lab |
| 4 | Use of Test Equipment
Lab, Test 2 |
| 5 | Engine Tune-up
Lab |
| 6 | Ignition Systems, Ch. 12, pg. 379-398
Lab |
| 7 | Test 3 |
| 8 | Electronic Ignition Systems, Ch. 13, pg. 402-430
Lab |

9	Electronic Ignition Systems, Ch. 13, pg. 402-430 Lab Test 4
10	Computers and Input Sensors
11	Final Exam

Course Requirements:

Complete all assignments as required

Lab work, quizzes, exam and tasks lab papers.

Attendance, cooperation

Quizzes must be made up within one-week from time quiz is given unless other arrangements are made.

Policies

Course Withdrawing: If for any reason you need to withdraw from this course, be certain that you do so according to College procedure. It is your responsibility to know and follow this procedure. If you simply stop coming to class, without officially withdrawing from the course, your grade is an automatic “F.” Please follow official College procedure for withdrawing from this or any course.

College Academic Policies are located in the College Catalog. A copy of the current catalog may be picked up in any of the division offices or admissions. The list of college policies is also available online at <https://www.terra.edu/register/Collegecat/policies.asp>.

Support Services: The College offers a number of support services to assist in your success in this course and all courses. Among these services are the Writing & Math Center in B105, the Office of Learning Support Services, which coordinates the campus disability services and tutoring programs, the computer labs, and the computers in the atriums.

Any student who feels he/she may need an accommodation based on the documentation of a disability should contact the Office of Learning Support Services privately to discuss his/her specific issues. Please contact the OLSS at (419) 334-8400 X 208 or visit 100 Roy Klay Hall (Building A) to coordinate reasonable accommodations.

If you have a documented disability and are receiving academic accommodations through the Office of Learning Support Services, please schedule a meeting with your instructor in a timely manner so that we may discuss how these services will be arranged.

Tutoring services are available to students beginning the second week of every quarter. Students requesting tutoring services should obtain a tutor request form from the OLSS in 100 Roy Klay Hall (Building A) or online at the Terra website. Please note that instructor verification and acceptance of

the Student Learner Agreement is necessary for all tutoring requests. All requests should be submitted to 100 Roy Klay Hall (Building A).