Automotive Engines
AU 3.299

Bryan Schiedler, Instructor
Class Schedule: MTWR 8:00 to 12:50
Office Hrs. 1 to 2:00 TWR
Phone # (541) 917-4597
Email: bryan.schiedler@linnbenton.edu

Course Description: This course surveys operation principles, maintenance, repair and overhaul of the internal combustion engine. Includes study of the various engine types, their components, parts and related accessories. In conjunction with training in correct engine machining skills, an engine is rebuilt, returned to manufacturer’s specifications and tested for performance. A strong emphasis on professionalism and craftsmanship will be stressed in this course.

Course Objectives: Upon successful completion of this course, the student will be able to:
1) Identify all components that make up an automotive Internal combustion engine
2) State the theory of operation and application of each engine part
3) Diagnose, maintain, service, repair and overhaul an IC engine and all of its parts to manufacturer’s specifications
4) Demonstrate skills needed to machine several components, i.e.: heads, valves, rods, guides, and blocks
5) Measure to specifications all components to OEM specs
6) Clean, inspect, recondition and seal mating surfaces of various engine parts
7) R & R an automotive engine, test all systems for proper operation

Text: CDX On-line –REQUIRED see instructor for more information.

Tool Requirements: A basic hand tool set must be furnished and brought to the first laboratory session by each enrolled student. Student furnished tools are required. No Exceptions.

Safety Requirements: Students are responsible to practice:
1) Eye protection according to college shop policy as a minimum
2) Safe use of electrical powered tools and cords
3) Use of car stands anytime a car is lifted by a floor jack
4) Good housekeeping practices by wiping up all oil/grease spills
5) Sound fire precautions by knowing fire exits and locations and use of fire extinguishers and fire alarm system
6) Sound footwear is required

Note: Engine overhaul requires student to observe and critically apply the following safety practices:
1) Eye protection worn at all times by all students in machining / grinding laboratory
2) No loose jewelry or clothing can be worn in the machining lab
3) Refrain from talking to anyone operating a machine. Wait until they are through machining to talk to them.
Grading: Grades consist of a student’s ability to demonstrate knowledge of Engine Rebuilding Skills, nomenclature and operation. Student grades are also based upon the students skill level performance as outlined and practiced on the job/task skill requirement handout. Topic group quizzes, Missing word checks, a final exam and live class projects will also be used for grading a student. (Attendance, punctuality, use of break time, clean-up, use of tools, safety practices and the students cooperative behavior will also be used for grading. Students will receive for this a daily grade)

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<td>Daily Grade</td>
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<td>Topic Group / Missing Word</td>
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<td>Lab assignments/live work</td>
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Any student wanting either an Incomplete or Y needs to discuss the matter with the instructor outside of class. The matter is up to the discretion of the instructor.

Breaks: Breaks and rest periods are scheduled by the student on a time honor system. One 10 – 15 minute morning break is considered acceptable.

Reading Assignments: After being assigned the Topic, students will be required to answer the online questions at the end of each Topic Group test and Find The Missing Word.

Class Time Line

Weeks 1 – 2 Motive Power Types
Weeks 3 – 4 Engine Removal and Refit
Weeks 5 – 6 Engine Components
Weeks 7 – 9 Engine Rebuilding
Week 10 Engine Lubrication/Cooling
Week 11 Review Shop Management and Evaluation

Assigned Labs - C001 thru C056 and C477, C478, c485, C514, C535, C540-543, C576-C578

Automotive Engines Syllabus Winter 2009