



MASTER COURSE OUTLINE

A. AUTO 1311 Engine Theory and Repair

B. COURSE DESCRIPTION:

This course covers complete engine disassembly and reassembly, parts identification, wear locations and measurements. Proper procedure for rebuilding cylinder heads, cylinder block assemblies, and the theory of operation of internal combustion engines are included. This course, along with other program courses, satisfies the task requirements set forth in Section I of the National Automotive Technicians Education Foundation (NATEF) accreditation.

(3 Cr – 1 lect, 2 lab)

C. ****Core Theme:** Critical Thinking and Ethical and Civic Responsibility

D. MAJOR CONTENT AREAS:

- Engine operation
- Cooling systems
- Lubrication systems
- Fuel control systems, intakes, and exhaust
- Cylinder heads, valves, and springs
- Camshafts and valve train components
- Engine blocks, pistons, crankshafts, and bearings

E. GOAL TYPES, OBJECTIVES, AND OUTCOMES:

<u>GOAL</u>	<u>OBJECTIVES</u> Students will be able to	<u>OUTCOMES</u> The student will successfully
** <u>Critical Thinking</u>	gather factual information and apply it to a given problem in a manner that is relevant, clear, comprehensive, and conscious of possible bias in the information selected.	<ol style="list-style-type: none"> 1. completely disassemble an engine. 2. identify, list and inspect all parts of the cooling and lubrication system. 3. identify any machining needed. 4. properly reassemble an engine. 5. perform cylinder head repair.
** <u>Critical Thinking</u>	analyze the logical connections among the facts, goals, and implicit assumptions relevant to a problem or claim; generate and evaluate implications that follow from them.	<ol style="list-style-type: none"> 1. inspect parts and use information to decide on a course of action. 2. identify connections between analyzed conditions and the necessary corrective action.

** <u>Ethical and Civic Responsibility</u>	analyze and reflect on the ethical dimensions of legal, social, and scientific issues.	1. analyze the ramifications of performing a given repair to a substandard level.
<u>CS</u>	learn to use the tools and procedures needed to remove, disassemble, inspect, and overhaul an automotive engine.	1. disassemble an engine completely. 2. identify, list, and inspect all parts of the cooling and lubrication system. 3. identify any machining needed. 4. reassemble the engine properly. 5. perform cylinder head repair.
<u>CS</u>	perform minor engine repair procedures.	1. replace timing belts. 2. repair valve seals. 3. repair oil and coolant leaks.

F. SPECIAL INFORMATION:

This course may require use of the Internet, the submission of electronically prepared documents and the use of a course management software program. Students who have a disability and need accommodations should contact the instructor or the Student Success Center at the beginning of the semester. This information will be made available in alternative format, such as Braille, large print, or current media, upon request.

G. COURSE CODING INFORMATION: Course Code S/Class Maximum 25; Letter Grade

Revision date: 03/09/11; 11/29/17

AASC Approval date: 12/12/17

*Riverland Community College Disciplines	MnTC Goal Number
Communication	1
Natural Sciences	3
Mathematics/Logical Reasoning	4
History and the Social & Behavioral Sciences	5
Humanities and Fine Arts	6

**Riverland Community College Core Themes	MnTC Goal Number
Critical Thinking	2
Human Diversity	7
Global Perspective	8
Ethical and Civic Responsibility	9
People and the Environment	10

*These five MnTC Goals have been identified as Riverland Community College Disciplines.

** These five MnTC Goals have been identified as Riverland Community College Core Themes.

NOTE: The Minnesota Transfer Curriculum “10 Goal Areas of Emphasis” are reflected in the five required discipline areas and five core themes noted in the Riverland Community College program of study guide and/or college catalog.

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