

\_\_\_\_\_ SOUTH SEATTLE COMMUNITY COLLEGE \_\_\_\_\_  
Technical Education Division

**COURSE OUTLINE**  
Revision: Doug Clapper-2008

DEPARTMENT: Heavy Duty Diesel Technology  
CURRICULUM: Diesel and Heavy Duty Equipment Technology  
COURSE TITLE: Basic Gasoline Engines  
COURSE NUMBER: HDM 128  
TYPE OF COURSE: Vocational Preparatory  
COURSE LENGTH: 77 Hours  
CREDIT HOURS: 4  
LECTURE HOURS: 11  
LAB HOURS: 66  
CLASS SIZE: 18 Maximum  
PREREQUISITES: HDM 101 (Introduction to Heavy Duty)

**COURSE DESCRIPTION:**

In this unit, students will study the basic operation of gas engines, diagnosing their condition by disassembling various types of current model engines. Instruction in safety, environmental awareness, human relations and leadership are taught as an integral part of this unit.

**STUDENT LEARNING OUTCOMES ADDRESSED:**

1. Technology - Use tools and machines for automotive engine rebuilding.
2. Personal Responsibility - Maintain proper maintenance of shop area and individual lab area.

## GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Identify the make and model of the car and engine code.
2. Identify and describe tools for engine rebuild.
3. Describe the three types of engines.
4. Test for spark ignition or compression ignition.
5. Draw a diagram showing safety and first aid placement.
6. Measure internal components of the engine.

TOPICAL OUTLINE:	APPROX. HOURS
I. Engine identification	15
II. Engine mechanical testing	22
III. Disassemble and inspection	<u>40</u>
TOTAL	77

## Program Outcomes

1. Identify function, read diagrams and manufacturer specifications, inspect, diagnose problems, replace/repair, and service all major components of heavy duty equipment and vehicles. (SLO 1.1 & 7.2)
2. Using IVISDS sheets, OSHA and WISHA standards, demonstrate safety procedures relating to equipment, personal safety, and safety of others. (SLO 6.4)
3. Demonstrate proficiency in using hand and electronic testing and repair equipment. (SLO 6.3)
4. Consistently apply standards and guidelines for safe work procedures. (SLO 6.4 & 6.5)
5. Work independently and in groups to service, complete repairs, test, and maintain heavy duty vehicles to meet industry standards. (SLO 3.1)
6. Use industry tools to measure service. (SLO 2.2)
7. Use technology to test and repair equipment. (SLO 5.1)

8. Identify and strategize own career plans within the field. (SLO 6.2)
9. Practice good customer service. (SLO 3.2)
10. Work with accuracy, dependability, proficiency and speed when servicing equipment. (SLO 6.1)
11. Explain the expectations of employers for employees within the diesel industry. (SLO 7.1)
12. Communicate and document service records. (SLO 1.2)
13. Demonstrate basic competency in use of computers to access repair/replacement data and to document service. (SLO 5.1 & 7.1)

## Student Learning Outcomes (SLO)

STUDENT LEARNING OUTCOMES are the knowledge and abilities every student graduating with a certificate or degree from South Seattle Community College will have. Students will achieve these outcomes as well as the specific curriculum outcomes for their academic or technical area of study.

### **1. Communication**

- 1.1 Read and listen actively to learn and communicate.
- 1.2 Speak and write effectively for personal, academic and career purposes.

### **2. Computation**

- 2.1 Use arithmetic and other basic mathematical operations as required by program of study.
- 2.2 Apply quantitative skills for personal, academic, and career purposes.
- 2.3 Identify, interpret and utilize higher level mathematical and cognitive skills (for those students who choose to move beyond the minimum requirements are stated above).

### **3. Human Relations**

- 3.1 Use social interactive skills to work in groups effectively.
- 3.2 Recognize the diversity of cultural influences and values.

### **4. Critical Thinking and Problem-Solving**

- 4.1 Think critically in evaluating information, solving problems and making decisions.

### **5. Technology**

- 5.1 Select and use appropriate technological tools for personal, academic and career tasks.

### **6. Personal Responsibility**

- 6.1 Be motivated and able to continue learning and adapt to change.
- 6.2 Value one's own skills, abilities, ideas and art.
- 6.3 Manage personal health and safety.
- 6.4 Be aware of civic and environmental issues.

### **7. Information Literacy**

- 7.1 Access and evaluate information from a variety of sources and contexts, including technology.
- 7.2 Use information to achieve personal, academic, and career goals, as well as to participate in a democratic society.

REVISED BY: Doug Clapper  
DATE: February 2008