

_____SOUTH SEATTLE COMMUNITY COLLEGE_____

Technical Education Division

COURSE OUTLINE

Revision: Doug Clapper-2012

DEPARTMENT:	Heavy Duty Diesel Technology
CURRICULUM:	Diesel and Heavy Duty Equipment Technology
COURSE TITLE:	Basic Welding and Cutting - Diesel and Equipment Technician
COURSE NUMBER:	HDM 113
TYPE OF COURSE:	Vocational Preparatory
COURSE LENGTH:	96 Hours
CREDIT HOURS:	6
LECTURE HOURS:	30
LAB HOURS:	66
CLASS SIZE:	18 Maximum
PREREQUISITES:	Enrollment in the Diesel and Heavy Duty Equipment Technology program, or Instructor's Permission

COURSE DESCRIPTION:

Introduction to SMAC (shielded metal arc welding), oxyacetylene, and carbon arc cutting skills involved in the repair and maintenance of heavy duty trucks and construction equipment. Students will perform a number of pertinent tasks and projects contained in an industry-approved competency based learning module. Prior knowledge of hand and basic power tools is helpful.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Communication - Use clear communication to evaluate and plan for maintenance and repair.
2. Human Relations - Use interactive skills to work in teams.
3. Technology - Select the correct tools to implement repair.

4. Personal Responsibility - Take responsibility for one's own development of skills, observe safety rules, and produce workmanship samples.

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Recognize when arc welding or cutting skills are warranted as an acceptable repair procedure.
2. Identify welding, cutting and other equipment, used by the heavy-duty repair industry.
3. Describe safe use of welding, and cutting equipment used by the heavy-duty repair industry.
4. Demonstrate the proper use of SMAW, cutting, scarfing and other equipment in the construction of sample test plates.
5. Complete all tests and tasks as required in the competency based learning module assigned.

TOPICAL OUTLINE:

APPROX. HOURS

I. Welding safety	8
II. Heat effects on metal	9
III. Oxyacetylene cutting and heating	30
IV. Arc Welding	40
V. Air Carbon Arc Cutting (Scarfig)	<u>9</u>
TOTAL	96

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: September 2012