

_____SOUTH SEATTLE COMMUNITY COLLEGE_____

Technical Education Division

COURSE OUTLINE

Revision: Doug Clapper-2012

DEPARTMENT:	Heavy Duty Diesel Technology
CURRICULLUM:	Diesel and Heavy Duty Equipment Technology
COURSE TITLE:	Cranking and Lighting Systems
COURSE NUMBER:	HDM 106
TYPE OF COURSE:	Vocational Preparatory
COURSE LENGTH:	86 Hours
CREDIT HOURS:	5
LECTURE HOURS:	20
LAB HOURS:	66
CLASS SIZE:	18 maximum
PREREQUISITES:	HDM 102 (Electrical - Electronics, Basic)

COURSE DESCRIPTION:

Course will cover the theory, operation and repair of starter motors commonly used in the industry. Included will be the control devises and wiring used with these motors. Troubleshooting and the use of common test equipment will be covered in this course. Knowledge of truck and equipment lighting systems as well as the hardware to control them will also be included in this course.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Critical Thinking and Problem Solving - Solving electrical maintenance problems on trucks and equipment.
2. Technology - Proper use of electrical diagnostic equipment to locate and correct failures.

3. Communication - Interpret work request description from the repair order and respond with the three "C's" - complaint, cause and correction.

GENERAL COURSES OBJECTIVES:

At the end of the course the student will:

1. Identify different types of cranking systems.
2. Identify types of starting aids.
3. Diagram the cranking system and name major electrical components.
4. Disassemble, test and reassemble a cranking motor.
5. Inspect, test and verify correct operation of all exterior lights on a highway tractor/trailer.
6. Perform preventive maintenance procedures.

TOPICAL OUTLINE:

APPROX. HOURS

I. Types of Cranking Motors	6
Electric	18
Air	9
Troubleshooting Cranking Motors	12
Removal and Repair	9
Exchange units	8
Truck Lighting systems	8
Trailer Lighting systems	8
Lighting hardware	<u>8</u>
TOTAL	86

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