DET 180 Course Outline as of Summer 2010

CATALOG INFORMATION

Dept and Nbr: DET 180 Title: MOBILE REFRIGERATION EQ. Full Title: Mobile Refrigeration Equipment Last Reviewed: 11/26/2001

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	2.00	Lecture Scheduled	3.00	8	Lecture Scheduled	24.00
Minimum	2.00	Lab Scheduled	3.00	8	Lab Scheduled	24.00
		Contact DHR	0		Contact DHR	0
		Contact Total	6.00		Contact Total	48.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 48.00

Total Student Learning Hours: 96.00

Title 5 Category:	AA Degree Applicable
Grading:	Grade Only
Repeatability:	00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:	
Formerly:	

Catalog Description:

The study of refrigeration technology as it applies to the transportation, shipping, and mobile cold storage industries. Students will be prepared to maintain and repair vehicle and self-powered refrigeration units.

Prerequisites/Corequisites:

Recommended Preparation:

DET 60, DET 65 or AUTO 56 and DET 64.

Limits on Enrollment:

Schedule of Classes Information:

Description: The study of refrigeration technology as it applies to the transportation, shipping, and mobile cold storage industries. Students will be prepared to maintain and repair vehicle- and self-powered refrigeration units. (Grade Only) Prerequisites/Corequisites: Recommended: DET 60, DET 65 or AUTO 56 and DET 64. Limits on Enrollment:

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree: CSU GE:	Area Transfer Area		Effective: Effective:	Inactive: Inactive:
IGETC:	Transfer Area		Effective:	Inactive:
CSU Transfer	••	Effective:	Inactive:	
UC Transfer:		Effective:	Inactive:	

CID:

Certificate/Major Applicable:

Certificate Applicable Course

COURSE CONTENT

Outcomes and Objectives:

Upon completion of this course students will be able to:

- 1. Explain refrigeration theory and principles.
- 2. Describe refrigeration and refrigerant handling safety laws.
- 3. Describe refrigeration unit design and components.
- 4. Demonstrate safe handling of refrigeration equipment and refrigerants.
- 5. Read and interpret schematic diagrams.
- 6. Evaluate condition of electrical wiring and controls.
- 7. Repair or replace system or circuit components as required.
- 8. Test and evaluate refrigeration units for efficiency.
- 9. Charge, evacuate and re-charge chemical refrigerants in systems.
- 10. Perform mechanical maintenance and repairs on refrigeration units.
- 11. Discuss and apply personal, shop, and environmental safety procedures.

Topics and Scope:

- 1. Refrigeration theory
- a. refrigerants
- b. condensation and evaporation
- c. filtration
- d. compression
- 2. Refrigeration unit design and power
 - a. vehicle powered systems
 - b. self-propelled systems
- c. electrically driven systems
- 3. Unit testing and evaluation
 - a. tools and equipment
 - b. testing procedures
- c. out-of-service criteria
- 4. Electrical / electronic controls

- a. schematics and symbols
- b. wiring circuits
- c. relays, switches, and temperature controls
- 5. System charging
 - a. tools and equipment
 - b. evacuation
 - c. lubricants and refrigerants charging
- 6. Maintenance and repair
 - a. scheduled maintenance
 - b. engine compartment repairs
- c. refrigeration compartment repairs
- 7. Safety
- a. personal
- b. shop
- c. environmental

Assignment:

- 1. Readings and report on theory of refrigeration.
- 2. Perform maintenance on different types of refrigeration units.
- 3. Evaluate and record discharge and recharge procedures.
- 4. Test electrical systems, and control and record results.
- 5. Make needed repairs to systems and maintain repair log.

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems, Lab reports, Quizzes, Exams

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Class performances, Performance exams

Exams: All forms of formal testing, other than skill performance exams.

Multiple choice, True/false, Matching items, Completion

Writing 0 - 0%

Problem solving 10 - 30%

Skill Demonstrations 20 - 40%

Exams 20 - 40%

Attendance and participation.

Representative Textbooks and Materials: Instructor / industry provided handouts.

Other Category 5 - 10%