**DET 84 Course Outline as of Spring 2002**

# CATALOG INFORMATION

Dept and Nbr: DET 84 Title: MOBILE HYDRAULICS
Full Title: Mobile Hydraulics
Last Reviewed: 1/22/2018

| Units | | Course Hours per Week | | Nbr of Weeks | Course Hours Total | |
|---|---|---|---|---|---|---|
| Maximum | 3.00 | Lecture Scheduled | 4.50 | 17 | Lecture Scheduled | 76.50 |
| Minimum | 3.00 | Lab Scheduled | 4.50 | 8 | Lab Scheduled | 76.50 |
| | | Contact DHR | 0 | | Contact DHR | 0 |
| | | Contact Total | 9.00 | | Contact Total | 153.00 |
| | | Non-contact DHR | 0 | | Non-contact DHR | 0 |

Total Out of Class Hours: 153.00 Total Student Learning Hours: 306.00

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| 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: | DET 63 |

**Catalog Description:**
The study of fluid power as it applies to the use and function of mobile machinery and vehicles. Includes a study of the technical language of fluid power, including graphical symbols and industrial standards. Lab exercises cover the inspection and repair of hydraulic systems and components.

**Prerequisites/Corequisites:**

**Recommended Preparation:**
Completion of DET 80.

**Limits on Enrollment:**

**Schedule of Classes Information:**
Description: The study of fluid power as it applies to the use and function of mobile machinery and vehicles. Includes a study of the technical language of fluid power, including graphical symbols and industrial standards. Lab exercises cover the inspection and repair of hydraulic systems and components. (Grade Only)
Prerequisites/Corequisites:

Recommended: Completion of DET 80.
Limits on Enrollment:
Transfer Credit: CSU;
Repeatability: Two Repeats if Grade was D, F, NC, or NP

## ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

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|---|---|---|---|---|---|
| **AS Degree:** | **Area** | | | Effective: | Inactive: |
| **CSU GE:** | **Transfer Area** | | | Effective: | Inactive: |
| **IGETC:** | **Transfer Area** | | | Effective: | Inactive: |
| **CSU Transfer:** | Transferable | Effective: | Fall 1981 | Inactive: | Fall 2014 |
| **UC Transfer:** | | Effective: | | Inactive: | |

**CID:**

**Certificate/Major Applicable:**
Certificate Applicable Course

## COURSE CONTENT

**Outcomes and Objectives:**
Upon successful completion of this course students will be able to:
1. Explain the operating principles of fluid power systems.
2. Describe and diagram hydraulic system design.
3. Apply the nomenclature of hydraulics and use and interpret the proper symbols.
4. Identify hydraulic system components.
5. Examine and evaluate faulty hydraulic components.
6. Change components in the system and reconnect and test for proper operation.
7. Interpret instructions and repair manuals in order to diagnose systems and perform basic repair and maintenance procedures.
8. Discuss and apply personal, shop, and environmental safety procedures.

[Outcomes and objectives meet or exceed NATEF Applied Academic & Workplace Skills for Medium/Heavy Truck Technicians (Reference Standard 6.5, ASE Program Certification Standards manual, 1998.)]

**Topics and Scope:**

Unit 1: Principles of Hydraulics
- a. basic laws of fluids
- b. graphic symbols
- c. system operation

Unit 2: System Design
- a. block type system
- b. open and closed systems
- c. hydraulic circuits

Unit 3: Hydraulic Components

a. reservoirs, filtration, and conduit
b. pumps and motors
c. valves
d. actuators
e. accessories
f. component compatibility

Unit 4: Maintenance & Repair
a. basic troubleshooting
b. cleaning procedures
c. failure analysis
d. general maintenance
e. component repairs

Unit 5: Safety
a. personal
b. shop
c. environmental

**Assignment:**

1. Complete readings and exercises related to the theory and operation of mobile hydraulic systems.
2. Perform maintenance and repair procedures for hydraulic systems and components.
3. Research and report on a specific hydraulic system.
4. Practice examining and evaluating faulty hydraulic components.
5. Solve problems related to mobile hydraulic systems.

**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.

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| 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. | Writing<br>0 - 0% |

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

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| Homework problems, Lab reports, Quizzes | Problem solving<br>10 - 25% |

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

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| Class performances, STRUCTURED LAB EXERCISES | Skill Demonstrations<br>20 - 60% |

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

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| Multiple choice, Completion, Essay | Exams<br>20 - 60% |

**Other:** Includes any assessment tools that do not logically fit into the above categories.

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| Attendance and participation. | Other Category<br>10 - 20% |

**Representative Textbooks and Materials:**
Fundamentals of Service, Hydraulics: Deere & Co., 2nd Ed. 1998