Equipment Operations (CNSE 1371)

Credit: 3 semester credit hours (2 hours lecture, 2 hours lab)

Prerequisite/Co-requisite: HYDR 1301

Course Description

Introduction to the general principles of basic preventive maintenance associated with equipment operations including preventive maintenance schedules and record-keeping systems associated with construction. Emphasis on the fundamentals of operations of selected equipment, lubrication, filtration, and air systems.

Required Textbook and Materials

1. *IPT'S Crane and Rigging Handbook* by Ronald G. Garby

   ISBN number is 13**:**978-0-920855-01-0

2 *Audel Millwrights & Mechanics Guide, by Davis & Nelson 5th edition*

   ISBN number is 0-7645-4171-4.

Course Objectives

Upon completion of this course, the student will be able to:

1. Identify the benefits of a preventive maintenance program. C1.2, C2.4, C3.3, C5.3, C6.3, C7.3, C8.3, C9.1, C14.3, C15.4, C16.3, C17.3, C18.4, C19.5, C20.5, F1.4, F2.3, F3.4, F4.4, F5.5, F6.4, F7.4, F8.2, F9.4, F10.5, F11.4, F12.4, F13.4, F14.4, F15.3, F16.5, F17.5
2. Establish a preventive maintenance schedule and record-keeping system C1.5, C2.5, C3.6, C4.3, C5.4, C6.4, C7.4, C8.3, C9.4, C10.2, C11.2, C12.2, C13.1, C14.3, C15.4, C16.5, C17.4, C18.5, C19.5, C20.5, F1.5, F2.3, F3.5, F4.5, F5.4, F6.3, F7.4, F8.4, F9.5, F10.5, F11.4, F12.4, F13.4, F14.4, F15.3, F16.5, F17.5
3. Conduct preventive maintenance on selected equipment C1.3, C2.5, C3.4, C4.2, C5.4, C6.4, C7.5, C8.4, C9.5, C10.3, C11.3, C12.3, C13.2, C14.3, C15.5, C16.5, C17.4, C18.5, C19.5, C20.5, F1.4, F2.3, F3.5, F4.5, F5.4, F6.3, F7.4, F8.5, F9.5, F10.5, F11.4, F12.4, F13.5, F14.4, F15.3, F16.5, F17.3
4. Outline the fundamentals of lubrication and filtration systems used on equipment. C1.3, C2.4, C3.3, C4.2, C5.4, C6.4, C7.4, C8.4, C9.3, C10.2, C11.4, C12.2, C14.3, C15.4, C16.5, C17.3, C18.5, C19.5, C20.5, F1.4, F2.5, F3.5, F4.5, F5.4, F6.3, F7.4, F8.5, F9.5, F10.5, F11.4, F12.5, F13.5, F14.4, F15.3, F16.5, F17.5
5. Perform pre-use inspection of the selected equipment, according to the procedures approved by the manufacturer. C1.3, C2.4, C3.3, C4.2, C5.4, C6.4, C7.4, C8.4, C9.3, C10.2, C11.4, C12.2, C14.3, C15.4, C16.5, C17.3, C18.5, C19.5, C20.5, F1.4, F2.5, F3.5, F4.5, F5.4, F6.3, F7.4, F8.5, F9.5, F10.5, F11.4, F12.5, F13.5, F14.4, F15.3, F16.5, F17.5

Approved 02/2013

6. Operate selected equipment per the industry/OSHA standards. C1.3, C2.4, C3.3, C4.2, C5.4, C6.4, C7.4, C8.4, C9.3, C10.2, C11.4, C12.2, C14.3, C15.4, C16.5, C17.3, C18.5, C19.5, C20.5, F1.4, F2.5, F3.5, F4.5, F5.4, F6.3, F7.4, F8.5, F9.5, F10.5, F11.4, F12.5, F13.5, F14.4, F15.3, F16.5, F17.5

SCANS Skills and Competencies

Beginning in the late 1980's, the U.S. Department of Labor **S**ecretary's **C**ommission on **A**chieving **N**ecessary **S**kills (SCANS) conducted extensive research and interviews with business owners, union leaders, supervisors, and laborers in a wide variety of work settings to determine what knowledge workers needed in order to perform well on a job. In 1991 the Commission announced its findings in *What Work Requires in Schools.* In its research, the Commission determined that "workplace know-how" consists of two elements: foundation skills and workplace competencies.

Course Outline

1. Introduction
    a. Introduce Course
    b. Introduce Faculty
2. Safety Requirements
    a. Safety in Shop
    b. Safe use of equipment
3. Material Safety Data Sheets
    a. Explain the MSDS
    b. Use the MSDS
4. Explanation of Manufacturer's or the Industry's accepted PM practices
    a. Examine PM Schedule
    b. Draw up PM Schedule
5. Implementing a PM program
    a. Determine type of program
    b. Select schedule of Program
6. Maintaining a preventative maintenance program
    a. Actively perform PM
    b. Evaluate effectiveness of Program
7. Predictive maintenance
    a. Define Predictive Maintenance
    b. Give an example of
    Predictive Maintenance
8. Explain and Operate selected pieces of equipment
    a. Operate Yale Forklift
    b. Operate SkyTrak Forklift
    c. Operate JLG
    d. Operate Broderson
9. Perform preventive maintenance projects on selected equipment
    a. Lubricate joints of selected equipment
    b. Check and refill oil reservoir on selected equipment

Grade Scale

90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

Course Evaluation

Final grades will be calculated according to the following criteria:

Major test	75%
Class participation	25%

Course Requirements

1. Introduction to Preventive Maintenance/Equipment Operation
2. Identify the Safety requirements of this course
3. Identify Equipment and it's needs
4. Identify lubricants
5. Identify lubricant delivery systems
6. Perform PM on selected piece of equipment
7. Operate forklift
8. Operate aerial lift
9. Operate carry deck crane
10. Optional (operate 18 ton crane)
11. Students will have the option to be certified on the Mobile Equipment

Attendance Policy

1. Students in 2 day class are allowed 2 unexcused absences.
2. Absence excused or unexcused is counted 6 pts. off final grade.
3. More than 2 unexcused absences can result in an "F" in the course.
4. Being tardy 3 times equals 1 absence (2 pts. each)
5. Students in a 1 day class are allowed 1 unexcused absence.(12 pts. off final grade)

Course Policies

Students must possess and present LIT ID to attend class.

1. Students are required to show Student ID. To enter and remain in class or lab.
2. No food, drinks, or use of tobacco products in class.
3. No foul or harsh language will be tolerated

4. Turn off all Cell Phones during lectures.
5. Headphones may be worn only upon Instructor approval
6. Do not bring children to class.
7. No Cheating of any kind will be tolerated. Students caught cheating or helping someone to cheat can and will be removed from the class for the semester. Cheating can result in expulsion from LIT.
8. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an 'F' in the course.
9. Proper Dress. Any intentional display of under garments will not be tolerated and can result in the student being removed from the class. Pants will be worn belted at the waist as to allow the student to walk, climb, stoop and bend as required. It is the student's responsibility to dress for work as if in an industrial environment, long pants, shirts with sleeves, substantial footwear (full leather shoes or boots with heels, composition oil resistant soles, no sandals, flip flops, cloth shoes). Safety glasses and hard hats will be necessary as the class requires. Students will be required to be clean shaven to be able to achieve a seal in respirators and fresh air packs.
10. Internet Usage
    a. Classroom computers have access to the internet.
    b. Student usage of the internet will be monitored.
    c. Proper usage of the internet will be allowed. Used for classroom research or as directed.
    d. Any unauthorized use of the internet will not be tolerated.
    e. Improper usage of the internet, such as profanity, pornography, gambling, etc… will result in disciplinary action not limited to expulsion from LIT.

Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building.

Course Schedule

Week	Topic	Reference
1	Course introduction and policies • Lecture • Lab: Practice	Handouts

Week	Topic	Reference
2/3	Introduction to Preventive and Predictive • Lecture • Lab: Practice	Audel M&MG 21
4-6	Lubrication and Oil Analysis • Lecture • Lab: Practice	Audel M&MG 19
7-9	Hydraulics and Fluid Power • Lecture • Lab: Practice	Audel M&MG 37
9-16	Material Handling • Lecture • Lab: Chapter Exercises • Project: As Assigned	IPT Sec.2,3,4,7,8,12

Contact Information:

Instructor: Mr. William C. (Bill) Holton

Office: Building: T3 Room: 102

Telephone: (409) 880-8220

E-mail: william.holton@lit.edu

Office Hours: 10:30 am -2:30 pm M-F