

Oklahoma State University Institute of Technology
Face-to-Face Common Syllabus
Summer 2018

DHEC 1333 CAT Machine Hydraulic Systems

This course is designed to teach the systems operation and the testing and adjusting procedures for the pilot operated hydraulic systems, the load sensing pressure compensated hydraulic system, the electro-hydraulic system and the hydrostatic system. Students will identify different systems, trace the oil flow through the systems and state the systems operation. Students will also identify system components and be able to discuss their operation.

Type of course: Theory/Lab.

Credit Hours: 3; Total hours of theory per semester: 40;

Total hours of lab for the semester: 35.

Class length - 2nd half

Class days and times: Monday – Friday, 12:30 PM – 4:25 PM

Prerequisites: DHEC 1213

Instructor Name: John Hoover

Instructor Phone: (918) 293-4720

Office: Bldg. 500 Room #105

Instructor email: john.hoover@okstate.edu

Contact: My preferred method of contact is email. Please allow 24-48 hours to return your correspondence during the normal work week.

Instructor's Office Hours: Monday-Friday – 7:30am to 9:30am

School of: Diesel and Heavy Equipment

School's Main Phone: 918-293-4710

REQUIRED TEXT, REFERENCES, AND MATERIALS

Texts: *Machine Hydraulic Systems, Caterpillar*

References:

Materials: Materials needed include Parker ISO template or equivalent, colored map pencils or markers (minimum 10 colors), calculator, clipboard, notebook, paper and writing utensils. 128 Meg Jump drive

Uniform/Tools: CAT Dealer Prep Required Tool Set

Estimated Cost for Materials: \$ 175.97

Estimated Cost for Uniform/Tools: \$

Upon completion of the course, students should:

Course Objectives	Assessment of Objectives
Explain and demonstrate basic hydraulic fundamental principles (pressure x area = force).	Final Exam*
Explain and demonstrate the effects of flow through an orifice.	
Explain the operation of the gear pump, vane pump, and the piston pump.	
Disassemble, identify, and assemble the components of the gear pump, vane pump, and the piston pump.	
Identify the components and explain the operation of the simple relief valve, the pilot operated relief valve, the flow control valve, the pressure reducing valve, the pressure differential valve, the check valve, the makeup valve, the sequence valve, and the directional control valve.	
Identify the components and explain the operation of single acting cylinders and double acting cylinders.	
Use the basic hydraulic training unit to build open and closed-center hydraulic systems.	
Identify and explain ISO hydraulic symbols.	
Trace oil flow through ISO hydraulic schematics.	
Trace oil flow and explain the operation of the pilot operated implement system.	
Identify the components in the pilot operated hydraulic system, the LS/PC hydraulic system, the PPPC hydraulic system, the electro-hydraulic system, and the hydrostatic drive system.	
State the systems operation of the pilot operated hydraulic system, the LS/PC hydraulic system, the PPPC hydraulic system,	

the electro-hydraulic system, and the hydrostatic system.	
Trace the oil flow through the pilot operated hydraulic system, the LS/PC hydraulic system, the PPPC hydraulic system, the electro-hydraulic system, and the hydrostatic system.	
Perform testing and adjusting procedures on implement hydraulic systems, steering hydraulic systems, and hydrostatic drive systems.	

Aspects of the course objective assessments may be used in the university's assessment of student learning. If applicable, an asterisk (*) above indicates this course is used in the university assessment program.

COURSE ACTIVITIES

In this course students will:

(Please list the specific activities in the course)

- *Participate in class discussions and activities.*
- *View videos that depict the various concepts.*
- *Participate in group and individual presentations.*
- *Take examinations.*
- *Complete reading assignments.*
- *May be required to do quizzes.*

EVALUATION - GRADES WILL BE BASED ON THE QUALITY AND COMPLETION OF THESE TASKS:

Professionalism.....	20%
Lab Assignments.....	20%
Homework.....	20%
Unit Exams.....	20%
Final Exam*	20%

OSUIT Grading Scale
A = 90%-100%
B = 80%-89%
C = 70%-79%
D = 60%-69%
F = 59% & below

*The student's grade for this assignment will be used in the university's assessment of student learning. A 70% competency or higher receives a Pass rating. This Pass/Fail rating is independent of the student's course grade.

Daily and/or weekly quizzes, small weekly assignments and similar type projects: Normal return time to student by next class meeting or no later than one (1) week.

Extensive assignments, large lab projects, extensive quizzes, exams and similar type projects:
Normal return time to students in one (1) to two (2) weeks.

AUTHORIZED TOOLS

Students may use any/all course materials, including books and notes, while participating in classroom activities. All quizzes and written assignments are to be completed independently; no collaboration with classmates is permitted and any instance of such will be considered academic dishonesty.

LATE WORK

General Policy: Deadlines are given for each assignment. All assignments must be turned in and all tests will be taken as scheduled. Assignments are all due at the beginning of the class period on the stated due dates.

Penalty: Late assignments will earn zero credit.

Make Ups: Makeup work is allowed only for absences due to college-sponsored activities, military duty, and jury duty. If a student is absent, it is his/her responsibility to complete assignments on time. It is the student's responsibility to arrange for makeup work with the instructor. When students are absent, they are responsible for obtaining homework assignments and class notes. There is no make-up for the final exam.

Turning In Assignments: All assignments must have complete headings, which include; Student Name, Date, and Course number in the upper right hand corner of the page.

TESTING

General Policy: Test dates will be provided at least 1 day before the exam. All test and quizzes must be completed as scheduled. Once the test begins, you may not leave the classroom or you will receive a zero for a grade. Cell phone use will not be tolerated, if used a zero will be earned. On the day of the test you will be informed of what resources (if any) may be used on the test or quiz.

Make Ups: Makeup quizzes are allowed only for absences due to college-sponsored activities, military duty, jury duty, and other instructor approved cases. If a student will be absent, it is his/her responsibility to notify the instructor ahead of time to complete assignments. It is the student's responsibility to arrange for makeup work with the instructor before being absent. There is no make-up for the final exam.

UNIVERSITY & COURSE EXPECTATIONS

It is the responsibility of each OSUIT student to read, abide by and maintain a copy of the syllabus for this course. Syllabi are available on the OSUIT website.

Students understand that excerpts or portions of their work may be utilized for institutional assessment purposes. The purpose of institutional assessment is for verification of student learning and program improvement. Every effort will be made to keep this information confidential.

AMERICANS WITH DISABILITIES ACT (ADA)

According to the Americans with Disabilities Act, each student with a disability is responsible for notifying the University of his/her disability and requesting accommodations. If you think you have a qualified disability and need special accommodations, you should notify the instructor and request verification of eligibility for accommodations from the Office of Academic Accommodations/LASSO Center. Please advise the instructor of your disability as soon as possible, and contact The LASSO Center, located in the Noble Center for Advancing Technology – NCAT, top floor, and 918-293-4855 to ensure timely implementation of appropriate accommodations. Faculty have an obligation to respond when they receive official notice of a disability but are under no obligation to provide retroactive accommodations. To receive services, you must submit appropriate documentation and complete an intake process during which the existence of a qualified disability is verified and reasonable accommodations are identified. (Fall 2013)

ACADEMIC DISHONESTY

Academic dishonesty or misconduct is neither condoned nor tolerated at OSUIT. Any student found guilty of academic dishonesty or misconduct shall be subject to disciplinary action. Academic dishonesty and/or misconduct includes, but is not limited to, the following actions: (1) Plagiarism: the representation of previously written, published, or creative work as one's own; (2) Unauthorized collaboration on projects; (3) Cheating on examinations; (4) Unauthorized advance access to exams; (5) Fraudulent alteration of academic materials; (6) Knowing cooperation with another person in an academically dishonest undertaking. Students are required to actively protect their work against misuse by others. For details, refer to The OSUIT Student Handbook (Student Rights and Responsibilities Governing Student Behavior) available online at http://www.osuit.edu/academics/forms/student_rights_responsibility.pdf.

ATTENDANCE POLICY FOR FACE-TO-FACE COURSES

A primary component of OSUIT's Mission is "to prepare and sustain a diverse student body as competitive members of a world-class workforce." Regular and consistent attendance not only aids in academic success, dependable attendance is a requirement in today's real-world employment; therefore, regular and consistent attendance is a requirement in all OSUIT courses.

Definitions: Absent: Failing to attend all or a significant portion of a class or lab session.

A. Students may not be marked as absent if missing class for situations such as, but not limited to

1. participating in a required university activity such as a field trip;
2. fulfilling a military obligation;
3. a mandatory court appearance;
4. death in the immediate family;
5. extreme illness or accident to oneself or immediate family. Instructors, at their discretion, may require proof of such events.

B. It is the responsibility of the student to contact and inform the instructor and/or department in advance of such excused absences whenever possible.

Tardy: Arriving late to class as defined by the individual class instructor. Faculty, at their discretion, may equate three tardies to equal one absence.

Procedures:

Early Intervention

- A. Any student who misses 10% of an individual course (or earlier at faculty discretion) during a regular fifteen-week semester, or the equivalent portion of time in a shorter session, will have their name submitted by that course instructor to the OSUIT Early Alert System for retention intervention.
- B. At the point the Early Alert is issued, the student *must* meet with their assigned faculty advisor or designated faculty/staff member within seven (7) academic calendar days for counseling on how to improve their attendance and academic success.

Excessive Absences

- A. The University reserves the right to administratively withdraw any student from an individual course who misses 20% of that course, whether excused or unexcused, and, in the opinion of the instructor, the student does not have a reasonable opportunity to be successful in the course.
- B. Students should be aware any of the following may impact their financial aid:
 - 1. being administratively withdrawn from a course
 - 2. dropping a course
 - 3. their last date of attendance in a course

Please see OSUIT Policy 2-021 for full details and procedures.

Course Schedule			
Course Outline Schedule	Topic	Assignment	Due Date
Week 1	Unit 1 – Pilot Operated Systems		
Week 2	Unit 1 – Pilot Operated Systems Unit 2 – LS/PC Hydraulic Systems		
Week 3	Unit 2 – LS/PC Hydraulic Systems Unit 3 – PPC Hydraulic Systems Unit 4 – Hydrostatic Systems		
Week 4	Unit 4 – Hydrostatic Systems		
Week 4	Final Exam and Lab		6/21/2018

Schedule is subject to change at instructor discretion.