

Oklahoma State University Institute of Technology
Face-to-Face Common Syllabus
Fall 2017

ETDE 2253 HYDRAULICS AND PNEUMATICS

Hydraulic principles, types of hydraulic fluids and their characteristics are covered. Describes components of the hydraulic system and their functions, including filters and strainers, reservoirs and accumulators, pumps, piping, tubing and hoses, control valves, and actuating devices. Covers a variety of operating principles of reciprocating, positive displacement, rotary and dynamic air compressors. Covers primary and secondary air treatment. Includes valves, logic devices, cylinders, and air motors.

Course Purpose:

The purpose of the course is to familiarize students in basic hydraulic & pneumatic devices by designing and simulating basic hydraulic circuits.

Type of Course: Theory/Lab

Credit Hours: 3; Total clock hours of theory per semester: 35;

Total clock hours of lab per semester: 40; Total clock hours of clinical per semester: N/A

Class Length: Full Semester

Class Days and Times: MWF: 2:00 pm to 3:25 pm

Prerequisites: ETDE 1343

Instructor Name: Mark Threadgill

Instructor Phone: (918) 293-4749

Office: ET bldg. A11, Room 15N

Instructor Email: mark.threadgill@okstate.edu

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

Instructor's Office Hours: By appointment.

School Name: Engineering Technologies

School Main Phone: 918-293-5150

REQUIRED TEXT, REFERENCES, AND MATERIALS

Texts: Fluid Power Technology, F. Don Norvelle, ISBN-13: 978-0-314-01218-0

References: N/A

Materials: Notebooks, Pencils or Pens, Calculators, Engineering Work Pad, Thumb Drive

Uniform/Tools: N/A

Estimated Cost for Materials: \$ 210

Estimated Cost for Uniform/Tools: N/A

Optional Resources: N/A

Upon completion of the course, students should:

Course Objectives	Assessment of Objectives
1. Solve problems for flow and pressure, relating to hydraulic and pneumatic systems	Labs, Exams, Homework
2. Simulate hydraulic and pneumatic circuits using automation studio.	Labs
3. Design simple fluid power system using industry standard symbols for manual (discrete /variable) controls	Labs
4. Analyze practical hydraulic systems involved in the implementation of process control systems	Labs, Homework, Exams
5. Identify and draw graphic symbols of various components of a hydraulic system	Labs, Exams
6. Explain the functions of fluid power systems in industrial applications	Labs, Homework, Exams

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

(Please asterisk the assignment above if utilized for the assessment assignment.)

COURSE ACTIVITIES

In this course students will:

- Participate in class discussions and activities.
- Complete reading assignments
- Complete homework assignments
- View videos that depict the various concepts.
- May be required to do quizzes.
- Take Examinations

EVALUATION - GRADES WILL BE BASED ON THE QUALITY AND COMPLETION OF THESE TASKS: *(NOTE-Please indicate the course specific evaluations. List assignment(s) used in the university's assessment of student learning as separate line items and marked with an asterisk.)*

Quizzes.....	10%
Homework.....	25%
Labs and Projects.....	20%
Exams.....	45%
3 Unit Exams	
1 Final Exam	
Total	<u>100%</u>

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.

RECOMMENDED STUDENT COMPETENCIES/SKILLS

Microsoft Windows, Microsoft Word

AUTHORIZED TOOLS

Instructors Policy to Submit Work

To provide students with improved feedback, technical documents shall be submitted electronically via D2L. To ensure students learn to submit documents electronically, students are required to submit work in pdf format and follow a pre-define template and format. Students will be asked to meet a goal in data recording and analysis by submitted data plots in pdf format (after creating in a Microsoft Excel or other professional software format) with the aid of team members and instructor advisement. All submissions must be submitted as **one** pdf document unless instructed otherwise. Documents that are not legible will be given a grade of zero. **NO EXCEPTIONS!**

Submission of Work

1. All work **MUST** be submitted to D2L in one (1) PDF file.
2. **NO** JPEG or other type image files will be accepted.
3. Any type of image files submitted will receive 0 points and will not be graded.
4. **NO** work submitted by email will be accepted. The email will immediately be deleted.
5. **NO** scanned lab book pages of a lab can be submitted in a report except for the signature page.

E-Mail Communication Standards

Students are encouraged to use e-mail when communicating personal issues with their instructor. E-mail corruption is a significant problem and unidentified e-mails are simply purged. Therefore a strict standard is necessary to identify a legitimate student communication. The “message line” of student e-mails must contain in order – Subject, Name, Course, and Trimester. Example: **Missing Assignment, John Smith, ETDE 1263, Fall 2014.**

LATE WORK

- **NO LATE WORK WILL BE ACCEPTED *unless it meets the requirements for an excused absence according to OSUIT policy or at instructors’ discretion.***
- **Quizzes and Group Activities** are in-class lecture assessments that cannot be made-up under any circumstances. Attendance is mandatory.
- **Research, Homework, Lab and Project** reports submitted before the posted due date and time on D2L or written assignment sheet is considered to be on time. Presentations CANNOT be made up.
- **Unit Exams and Final Exam** CANNOT be made up without strict approval and penalty! If you miss an exam, it cannot be made up unless your absence meets the requirements for an approved absence. Make-up exams may be different from the exam given in class and may be more difficult. If you know in advance that you will miss an exam, special arrangements to re-schedule the exam may be possible for hardship circumstances.

TESTING

The following guidelines will be enforced during in class exams:

- All materials not required for the exam must be placed off the desk
- Scientific/Engineering Calculators are allowed unless otherwise noted
- Once testing has started you are not allowed to leave the room until you have completed the test. Doing so will immediately end the test for you.
- All material associated with the exam must be submitted upon completion.
- All tests will have a defined time for completion.
- Exceptions may be made to these rules at the instructor’s discretion

OTHER LAB AND CLASSROOM POLICIES

Students are expected to cooperate in maintaining a classroom environment conducive to learning. Courteous and respectful behavior will be expected from all students each day, every day.

Students will be expected to stay focused on the material being presented during lecture and lab and not to engage in any activity that will distract them or anyone else around them from the material being presented. Texting and inappropriate use of electronic devices is detrimental to the learning process. **Use of ear buds, headphones etc. is not allowed in the classroom or during lab at any time. TEXTING and other such disruptive activities will not be permitted during both lecture and lab.** If you choose to do so anyway, I will document this fact and deduct points accordingly with the date and time of the occurrence. So, please do not do these activities. If you feel you must respond to an emergency text, then please leave the area then return when you have finished your texting. The use of tobacco in any form in University buildings is prohibited.

- Students are not allowed to listen or watch any type of electronic device at any time in the classroom environment.
- Students are expected to maintain a clean and organized lab work place. After completion of a lab or at the end of the class period, components must be returned to the appropriate storage location they were obtained from. Instruments, test probes, and any items used to perform an experiment must also be returned to the appropriate storage location. All other instruments must be turned-off.
- Class computers are to be used for teaching/learning only. Do not use for entertainment or casual internet surfing or chatting.
- Students are expected to maintain a respectful manner during class. Sleeping or otherwise assuming a laid down position will not be tolerated.
- **NO FOOD OR DRINK IN LAB/COMPUTER AREA!**
- Students are expected to check D2L and e-mail for announcements and assignments on a regular basis.
- All research assignments, written formal Lab Reports, project work, etc. must be submitted in the appropriate folder in the D2L drop box by the due date and time.

Dress Code

1. Shoes must cover entire foot.
2. Clothing with obscene logos are not to be worn.
3. Hats and sunglasses may not be worn in the classroom setting.
4. Clothing that is saggy/baggy should not be worn for safety reasons.
5. Jewelry should be removed in the lab setting.

SYLLABUS ATTACHMENT

View the Syllabus Attachment, which contains other important information, by visiting http://osuit.edu/center/student_syllabus_information

Course Schedule			
Course Outline Schedule	Topic	Assignment	Due Date
<i>Day/Week 1</i>	Introduction to Fluid Power	Homework 1	9/22/17
<i>Day/Week 2</i>	Basic Hydraulic Concepts	Homework 2	9/29/17
<i>Day/Week 3</i>	Hydraulic Pumps	Homework 3 Lab 1	10/6/17 10/6/17
<i>Day/Week 4</i>	Hydraulic Pumps	Homework 4 EXAM 1	10/13/17 9/29/17
<i>Day/Week 5</i>	Hydraulic Motors	Lab 2	10/13/17
<i>Day/Week 6</i>	Hydraulic Motors	Homework 5 Lab 3	10/20/17 10/27/17
<i>Day/Week 7</i>	Hydraulic Cylinders	Exam 2	10/20/17
<i>Day/Week 8</i>	Directional Control Valves	Homework 6 Lab 4	10/27/17 11/10/17
<i>Day/Week 9</i>	Pressure Relief Valves	Lab 5	12/1/17
<i>Day/Week 10</i>	Flow Control Valves	Homework 7	11/10/17
<i>Day/Week 11</i>	Electro hydraulics	Exam 3	11/17/17
<i>Day/Week 12</i>	Electro hydraulics	Homework 8	12/8/17
<i>Day/Week 13</i>	Ancillary Devices Review		
<i>Day/Week 14</i>	Review		
<i>Day/Week 15</i>	Exam Review Final Grade		12/11/17 12/13/17

Schedule is subject to change at instructor discretion.