

Oklahoma State University Institute of Technology
Course Syllabus
Fall 2017

CET - 3313 Fluid Mechanics/ Hydraulics - Required Course

Students will learn and apply basic fluid properties in related engineering problems. This course includes the study of conservation equations, dimensional analysis, modeling structures in hydraulic applications, flow in conduits, open channel flow, water pumps and pump selection, hydraulic measurements, and forces acting on submerged bodies.

Type of course: *Theory*

Credit Hours: 3; Total clock hours of theory per semester: 45;

Total clock hours of lab for the semester: 0; Total clock hours of clinical per semester: 0.

Class length - Full Semester

Class: TR 12:30 pm - 1:55 pm, Main Campus, Donald W. Reynolds Tech Ctr. 153

Prerequisite: CET 2323 and MATH 2144

Instructor: Aliasghar Ghadimkhani, PhD, PE

Phone: (918) 293-5371

Office: Bldg. 300, Rm. 149

Email: a.ghadimkhani@okstate.edu

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

Office Hours: *MW 9:30 – 11:30pm CST* or by appointment.

School Name: Engineering Technologies **School Main Phone:** (918) 293 - 5150

REQUIRED TEXT, REFERENCES, AND MATERIALS

Texts: **1. Essentials of Fluid Mechanics: Fundamentals and Applications,**
John M. Cimbala, Yunus A.Cengel, 4e, ISBN # 978-0-07-338032-2

ISBN (CONNECT access cards): 9780077670245 \$ 100.00

2. NCEES, Fundamentals of Engineering Supplied-Reference Handbook, 9.4 Edition, (or reproduce pages from:

http://www.ncees.org/exams/study_materials/fe_handbook/

References: None

Materials: Engineering paper, Scientific
Calculator, Notebook, Pen or pencils.

Uniform/Tools: None

Estimated Cost for Materials: \$ 50.00

Estimated Cost for Uniform/Tools: \$ 0.00

Upon completion of the course, students should:

Course Objectives	Assessment of Objectives
Use energy conservation, Bernoulli principle knowledge to calculate hydrostatic parameters.	Homework
Calculate the pressure and force acting on submerged plain surfaces.	Exam*
Integrate theory with lab experiments to understand Bernoulli principle.	Lab
Calculate the design parameters of an open channel flow.	Homework
Use dimensional analysis and modeling techniques to predict the model-prototype characteristics.	Homework
Apply Bernoulli's principle to solve hydraulic parameters in manometers and stream lines.	Exam

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.

COURSE ACTIVITIES

In this course students will:

- *Participate in class discussions and activities.*
- *View videos that depict the various concepts.*
- *Compile a portfolio of work produced.*
- *Take examinations.*
- *Complete reading assignments.*
- *Complete Learning Smart, quizzes and homework assignments.*
- *Use D2Land Connect to view assignments and grades.*

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

Learning Smart.....39.11%
 Homework.....22.90%
 Exams.....37.99%

Grading Scale
A = 90.00 - 100.00
B = 80.00 - 89.99
C = 70.00 - 79.99
D = 60.00 - 69.99
F = 00.00 - 59.99

*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

McGraw-Hill smart learning, FE manual, Excel, Basics of physics, chemistry, and Geometry.

NCEES approved calculators:

- ✓ **Casio:** All fx-115 and fx-991 models (Any Casio calculator must have “fx-115” or “fx-991” in its model name.)
- ✓ **Hewlett Packard:** The HP 33s and HP 35s models, but no others
- ✓ **Texas Instruments:** All TI-30X and TI-36X models (Any Texas Instruments calculator must have “TI-30X” or “TI-36X” in its model name.)

AUTHORIZED TOOLS

Scientific and/or graphing calculator, textbook and notebook

Students may use any/all course materials, including books and notes, while participating in classroom activities and homework. All quizzes are to be completed independently with no access to any tools other than a calculator; and exams will be open book. No collaboration with classmates is permitted and any instance of such will be considered academic dishonesty.

Unauthorized collaboration on homework is also prohibited.

LATE WORK

A tentative course schedule is provided with this syllabus. Homework is due at the beginning of class as assigned unless otherwise noted (due date posted on the Connect and D2l as well).

Quizzes will take place at the beginning of class when they occur unless noted otherwise. It is important that you plan to attend every class. Should you be sick or have an excused absence you MUST contact the instructor or make arrangements before the class period begins on that day. Excused absences include but are not limited to: participating in a required university activity such as a field trip, fulfilling a military obligations, mandatory court appearances, death in the immediate family, extreme illness or accident to oneself or immediate family. Instructors, at their discretion, may require proof of such events.

Emails, texts, and phone messages will be time stamped. If you let me know you will be absent the work due that day is to be made up the next day that you attend class. Otherwise, LATE WORK IS NOT ACCEPTED.

TESTING

All tests are open book and open notes. Tests may not be made up on other days and any missed exams will receive a zero grade. All homework, quizzes, and exams are online.

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, 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. The LASSO Center is located on the 3rd floor of the Noble Center. You may call [918.293.4855](tel:918.293.4855) for more information or fax documentation to [918.293.4853](tel:918.293.4853).

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.

SYLLABUS ATTACHMENT

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

CET 3313: Fluid Mechanics/Hydraulics – Fall 2017

Ungrouped Assignments	Due Date	Status	Attempts Remaining
Chapter 1. INTRODUCTION AND BASIC CONCEPTS	10/01/17 11:59PM		N/A
Chapter 1-HW	10/01/17 11:59PM		Unlimited
Chapter 2. PROPERTIES OF FLUIDS	10/01/17 11:59PM		N/A
Chapter 2-HW	10/01/17 11:59PM		Unlimited
Exam 1	10/01/17 11:59PM		2
Chapter 3. PRESSURE AND FLUID STATICS	10/01/17 11:59PM	Available 09/17/17 12:00AM	N/A
Chapter 3-HW	10/01/17 11:59PM	Available 09/17/17 12:00AM	Unlimited
Exam 2	10/01/17 11:59PM	Available 09/17/17 12:00AM	2
Chapter 5. BERNOULLI AND ENERGY EQUATIONS	10/15/17 11:59PM	Available 10/01/17 12:00AM	N/A
Chapter 5-HW	10/15/17 11:59PM	Available 10/01/17 12:00AM	Unlimited
Exam 3	10/15/17 11:59PM	Available 10/01/17 12:00AM	2

Ungrouped Assignments	Due Date	Status	Attempts Remaining
Chapter 6. MOMENTUM ANALYSIS OF FLOW SYSTEMS	10/29/17 11:59PM	Available 10/15/17 12:00AM	N/A
Chapter 6-HW	10/29/17 11:59PM	Available 10/15/17 12:00AM	Unlimited
Chapter 8. INTERNAL FLOW	11/12/17 11:59PM	Available 10/29/17 12:00AM	N/A
Chapter 8-HW	11/12/17 11:59PM	Available 10/29/17 12:00AM	Unlimited
Exam 4	11/12/17 11:59PM	Available 10/29/17 12:00AM	1
Chapter 13. Open-Channel Flow	11/26/17 11:59PM	Available 11/12/17 12:00AM	N/A
Chapter 13-HW	11/26/17 11:59PM	Available 11/12/17 12:00AM	Unlimited
Exam 5	12/10/17 11:59PM	Available 11/26/17 12:00AM	1

Schedule is subject to change at instructor discretion.