Oklahoma State University Institute of Technology Course Syllabus Summer 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:** MW 12:30 pm - 1:55 pm, Main Campus, Donald W. Reynolds Tech Ctr. 153 **Prerequisite:** CET 2323 and MATH 2144

Instructor: Aliasghar Ghadimkhani, PhD, PEPhone: (918) 293-5371Office: Bldg. 300, Rm. 149Email: a.ghadimkhani@okstate.eduContact: My preferred method of contact is email.Please allow 24-48 hours to return yourcorrespondence during the normal work week.Please allow 24-48 hours to return your

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

Division Name: School of Engineering Technologies Division's 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, ISBN # 978-0-07-338032-2				
ISBN (CONNEC	CT access cards): 9780077670245	\$ 100.00			
	2. NCEES, Fundamentals of Engineering Supplied-Reference Handbook, 9.3 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:NoneEstimated Cost for Materials:\$ 50.00Estimated 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	Homework	
calculate hydrostatic parameters.		
Calculate the pressure and force acting on submerged plain	Exam*	
surfaces.		
Integrate theory with lab experiments to understand Bernoulli	Lab	
principle.		
Calculate the design parameters of an open channel flow.	Homework	
Use dimensional analysis and modeling techniques to predict the	Homework	
model-prototype characteristics.		
Apply Bernoulli's principle to solve hydraulic parameters in	Exam	
manometers and stream lines.		

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 Leaning 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.

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 <u>every</u> class. Should you be sick or have an <u>excused</u> absence you <u>MUST</u> 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, <u>LATE</u> <u>WORK IS NOT ACCEPTED</u>.

TESTING

All tests are open book and closed notes. Tests may not be made up on other days without approval and any missed exams will receive a zero grade. **In addition to the final, I offer an optional exam at the end of the semester. This is the only comprehensive exam and serves several purposes. This will be a replacement for any missed unit exam. Also, should a student be unhappy with any unit exam or the final exam, you may take the optional exam to replace a lower grade. This option will NEVER hurt or lower your grade. This is only an option to help you. Should your optional exam grade not help your overall score it will not be used.

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 <u>918.293.4855</u> for more information or fax documentation to <u>918.293.4853</u>.

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 <u>must</u> 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.

Ungrouped Assignments		Due Date	Status	Attempts Remaining
	Chapter 1. INTRODUCTION AND BASIC CONCEPTS	05/14/17 11:59PM	05/04/17 12:00AM	N/A
	Chapter 1-HW	05/14/17 11:59PM	05/04/17 12:00AM	Unlimited
	Chapter 2. PROPERTIES OF FLUIDS	05/28/17 11:59PM	05/15/17 12:00AM	N/A
	Chapter 2-HW	05/28/17 11:59PM	05/15/17 12:00AM	Unlimited
	Exam 1	05/28/17 11:59PM	05/15/17 12:00AM	2
	Chapter 3. PRESSURE AND FLUID STATICS	06/11/17 11:59PM	05/29/17 12:00AM	N/A
	Chapter 3-HW	06/11/17 11:59PM	05/29/17 12:00AM	Unlimited
	Exam 2	06/11/17 11:59PM	05/29/17 12:00AM	2
	Chapter 5. BERNOULLI AND ENERGY EQUATIONS	06/25/17 11:59PM	06/12/17 12:00AM	N/A
	Chapter 5-HW	06/25/17 11:59PM	06/12/17 12:00AM	Unlimited
	Exam 3	06/25/17 11:59PM	06/12/17 12:00AM	1
	Chapter 6. MOMENTUM ANALYSIS OF FLOW SYSTEMS	07/23/17 11:59PM	07/10/17 12:00AM	N/A
	Chapter 6-HW	07/23/17 11:59PM	07/10/17 12:00AM	Unlimited
	Chapter 8. INTERNAL FLOW	08/06/17 11:59PM	07/24/17 12:00AM	N/A
	Chapter 8-HW	08/06/17 11:59PM	07/24/17 12:00AM	Unlimited

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Ungrouped Assignments		Due Date	Status	Attempts Remaining
Exam 4		08/06/17 11:59PM	07/24/17 12:00AM	1
Chapter 13. Oper	n-Channel Flow	08/20/17 11:59PM	08/07/17 12:00AM	N/A
Chapter 13-HW		08/20/17 11:59PM	08/07/17 12:00AM	Unlimited
Exam 5		08/22/17 11:59PM	08/14/17 12:00AM	1

Schedule is subject to change at instructor discretion.