ME 330 Fluid Mechanics
School of Engineering and Applied Sciences **Summer 2020**
Western Kentucky University

COURSE OUTLINE

Course: ME 330 Fluid Mechanics 3 Credits
Prerequisite: ME 220 Engineering Thermodynamics I (with "C" or better)
MATH237 Multivariable Calculus
MATH331 Differential Equations
Pre/corequisite: ME332 Fluid Mechanics Lab

Instructor: Kevin Schmaltz **Office:** EBS2112
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Office Hours: See my office door, or by prior arrangement.

Textbooks: Fluid Mechanics – Fundamentals and Applications, by Cengel and Cimbala, 4th ed. (If you use an alternative version of this text you are responsible for identifying the correct assignments)

Course Content:

An introduction to the physical laws governing the mechanical behavior of liquids and gasses, with applications of conservation of mass, energy and momentum equations. Topics include fluid statics, internal and external fluid flow, flow measurement, scale modeling and similitude, hydraulic machinery analysis and pipe networks.

Course Goal:

The overall goal is to teach students to recognize categories of fluid mechanics problems and correctly use engineering principles to approach and solve problems. The course is intended to develop and stimulate independent problem solving skills applied to complex engineering problems, investigate fluid mechanics principles, and effectively communicate engineering data. Specific student learning outcomes are listed below.

Course Objectives:

The students will be able to:

1. Analyze forces and pressures for static fluid problems.
2. Recognize and apply appropriate conservation equations to analyze steady flow fluid problems.
3. Analyze steady state and transient fluid behavior using energy and momentum equations to determine forces and velocities.
4. Perform similitude and dimensional analysis.
5. Determine internal (pipe flow) and external (boundary layer) flow solutions.

6. Describe the operation of pressure and flow measurement devices.
7. Analyze and determine sizes for hydraulic machinery (such as pumps, turbines).

Point Values		**Grading**	
HW and participation	10%	90-100	A
Quizzes (7 given)	60%	80-89	B
Final Exam	30%	70-79	C
TOTAL	100%	60-69	D
		below 60	F

Ground Rules:

1. Attendance and professionalism (attitude, class participation and effort) may be used to change borderline grades. Attendance is expected at every class session
2. Homework will be assigned during most class sessions, and will be due the following class meeting. **No** late homework will be accepted unless an absence has been approved prior to the class. You are encouraged to consult with your peers and the instructor; consulting each other is allowed, not copying the work of someone else.
3. **Seven** closed book/notes quizzes (all will be announced) will be given during the course and count 60% to your course grade. Your lowest quiz grade will be dropped. **No** makeup quizzes will be provided unless an absence has been approved **prior** to the class.
4. A comprehensive Final Exam will be given on the final class meeting of the course. The exam will be closed-book/notes, with a common formula set provided.
5. You will only be allowed to use an NCEES approved calculator on quizzes and the final exam; these are the only calculators allowed on the FE and PE exams. You are encouraged to get one and become familiar with it (list is at http://ncees.org/exams/calculator-policy/)
6. In compliance with university policy, students with disabilities who require academic and/or auxiliary accommodations for this course must contact the Office for Student Disability Services in Downing University Center, A-200. The phone number is (270) 745-5004. Please DO NOT request accommodations directly from the professor or instructor without a letter of accommodation from the Office for Student Disability Services.
7. You are expected to refrain from any form of academic dishonesty or deception such as cheating, stealing, plagiarism or lying on take-home assignments, homework, computer assignments, quizzes, tests or exams. Furthermore, you understand and accept the potential consequences of punishable behavior, as stated in the WKU Catalog under Academic Dishonesty.