CEEN 3716 - Fluid Mechanics

Fall 2026 Syllabus, Section 01, CRN 40679,

Credit hours: 3

Instructor

Suresh Sharma

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Public Instructor Information

Instructor Title: Associate Professor
Instructor Professional Qualifications: PhD in Civil Engineering from Auburn University
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Course Description

3716. Fluid Mechanics. Proportions of fluids, fluid statics, kinematics; Bernoulli equation; fluid momentum; laminar and turbulent flow through simple pipes; boundary layers; dimensional analysis and similitude. Prereq.: CEEN 2602. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Required	Fundamentals of Fluid Mechanics (8th edition or above)	Munson BR, Young DF, Okishi TH	John Wiley and Sons Inc, Hoboken NJ

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Schedule of Topics and Assignments

Day	Date	Reading(s)	Proposed Topic	Due/To Prepare for Class
Mon	8/24	Chapter 1-4	Introduction and fundamental concepts of fluid mechanics	Tutorial/Class Problems
Wed	8/26	Chapter 1.5-1.7	Fluid characteristics, fluid measurement, ideal gas law	HW due
Mon	8/31	Chapter 1.8-1.10	Surface Tension, Viscosity	Tutorial/Class Problems
Wed	9/2	Chpater 2.1-2.4	Fluid Statics	HW due
Mon	9/7	No Class		
Wed	9/9	Chapter 2.5-2.7	Pressure and fluid measurement	HW due
Mon	9/14	Chapter 2.8-2.9	Hydrostatic force and pressure prism concept	Class Problems/Tutorial
Wed	9/16	Chapter 2.10-2.11	Hydrostatic force on curved surface buoyancy, floatation and stability	HW due
Mon	9/21	Chapter 3.1-3.2	Bernoulli equation	Class Problems/Tutorial
Wed	9/23	Chapter 3.4	Physical interpretation of Bernoulli's equation and numerical problems	HW due
Mon	9/28	Chapter 3.7	Energy and hydraulic grade line, Example use of Bernoulli's equation	Class Problems/Tutorial
Wed	9/30		Exam 1	HW due
Mon	10/5	Chapter 3.5-3.6.3	Static, dynamic, total pressure, and flow rate measurement	Class Problems/Tutorial

Wed	10/7	Chapter 3.6-3.8	Syphon and Cavitation	HW due
Mon	10/12	Chapter 10.6.2- 10.6.3	Sharp and broad crested weir	Class Problems/Tutorial
Wed	10/14	Chapter 10.6.4	Sluice gate	HW due
Mon	10/19	Chapter 5.1-5.2	Continuity and momentum equation	Class Problems/Tutorial
Wed	10/21	Chapter 5.1-5.2	Conservation of energy	HW due
Mon	10/26	Chapter 5.3.1	Dimensional analysis	Class Problems/Tutorial
Wed	10/28	Chapter 7.1-7.4	Dimensional analysis, modeling and similitude	HW due
Mon	11/2	Chapter 7.6-7.10	Flow over immersed bodies, drag and lift concepts	Class Problems/Tutorial
Wed	11/4	Chapter 8.4.1	Pipe flow, major energy losses and Moody chart	HW due
Mon	11/9	Chapter 8.4.2	Pipe flow and minor energy losses	Class Problems/Tutorial
Wed	11/11	No Class		
Mon	11/16	Numerical Problems 8.8, 8.11 and 8.13	Pipe flow and energy loss (numerical problems), pipe flow problems	Class Problems/Tutorial
Wed	11/18		Mid-Term	
Mon	11/23	Chapter 9.1, 9.3 and 9.4	Flow over immersed bodies, drag and lift concepts	Class Problems/Tutorial
Wed	11/25	No Class		
Mon	11/30	Chapters 12.4, 12.4.2	Centrifugal Pump, Pump Performance Characteristics	Class Problems/Tutorial
Wed	12/2	Chapter 12.4.4 and numerical problems	System Characteristics, Pump-System Matching and Pump Selection	HW due
Mon	12/7	Exam Week	Final Exam on Dec 11	
Wed	12/9	Exam Week	Final Exam on Dec 11	

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.