



# ENGR 333

## Engineering Fluid Mechanics

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- Instructor: **TBA**
- Office Address TBA  
Office Hours TBA  
Phone Number TBA  
Email address TBA
- Textbook: *Fluid Mechanics*, R.C. Hibbeler, 2<sup>nd</sup> ed., Pearson Education Inc., 2018.
- Class Times: TBA
- Description: ENGR 333 - Engineering Fluid Mechanics (3 credits). (Prereq: ENGR 244 and ENGR 323, or permission of the instructor) This course develops methods for analyzing fluid behavior while at rest or in motion starting from Newton's Laws and control volume concepts. Important representations for fluid kinematics are developed, such as streamlines and students are introduced to the Reynold's Transport theorem. Energy and momentum methods of fluid dynamics problem solving are developed and applied to engineering problems in the design of pipe flow systems. S.
- Objectives: Students will gain an understanding of:
1. Important representations in fluid kinematics
  2. Importance of fluid properties as predictors of flow behavior
  3. Issues surrounding design of pipe networks, such as for water access and sanitation
- Outcomes: After completion of ENGR 333, students will be able to:
- (1) Define fluids properties and describe how each affects fluid flow
  - (2) Analyze fluid statics situations to determine hydrostatic force on submerged surfaces, buoyancy and stability of submerged objects
  - (3) Classify types of fluid flows, in terms of graphical representations such as vector fields and streamlines
  - (4) Understand and solve fluid kinematics and dynamics problems using energy and momentum methods
  - (5) Understand and use methods of control volume analysis to enforce conservation of mass, momentum and energy in the analysis of ideal and real fluid flows
- ABET Outcomes: This course supports the achievement of the following ABET outcomes:
1. ***an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics***
  2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
  3. an ability to communicate effectively with a range of audiences

4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a **team** whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

**Assessment:** Grades will be assigned based on performance on the assignments listed in Course Structure. Weighting of assignments is as follows:

Pre-lecture reading quiz:	5%
Homework:	25%
Two semester exams:	40% (20% ea.)
Final Exam:	30%

**Attendance:** STUD-SENA-332: Unexcused Absence Penalties – an instructor is permitted to impose a penalty, including assigning the grade of F, for unexcused absences in excess of 25 percent of the regularly scheduled class meetings.

STUD-SENA-332 also lists the valid circumstances for an excused absence, notably:

- Incapacitating illness
- Official representation of the university
- Death of a close relative
- Religious holidays

**Course Structure:** **Pre-Lecture Reading and Quiz:** Prior to lecturing on a given topic, a reading assignment will be given. Pre-lecture reading quizzes determine if a student has read to prepare for the lecture and gauge the degree of understanding. Quizzes will be assigned using the [MasteringEngineering](#) online assessment system.

**Lecture:** Fundamental concepts are discussed and example problems are solved. As a courtesy to others, please no use of cell phones or other personal electronic devices.

**Homework:** Following discussion of major topics in lecture, homework assignments will be given. Homework will be assigned using the [MasteringEngineering](#) online assessment system. Collaboration, but not copying, is encouraged.

**Exams:** There will be two in-class exams during the semester and one final exam during the University final exam period. Times of these are TBD.

**Honesty:** **Coastal Carolina University's Statement of Community Expectations:**  
*Coastal Carolina University is an academic community that expects the highest standards of honesty, integrity and personal responsibility. Members of this community are accountable for their actions, reporting the inappropriate action of others and are committed to creating an atmosphere of mutual respect and trust.*

**Contingencies:** If normal class and/or lab activities are disrupted due to illness, emergency, or crisis situation, the syllabus and other course plans and assignments may be modified to allow

completion of the course. If this occurs, an addendum to your syllabus and/or course assignments will replace the original materials.

Communication: I will try to respond to emails within one business day. Please use your @coastal.edu email.

ADA statement: Coastal Carolina University is committed to equitable access and inclusion of individuals with disabilities in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. Individuals seeking reasonable accommodations should contact Accessibility & Disability Services (843-349-2503 or <https://www.coastal.edu/disabilityservices/>).

Revisions: This syllabus describes the course as best it can. The instructor reserves the right to make changes in its content. If changes must be made to it during the semester, students will be immediately notified.