



ENGR 199

Cohort Grand Challenge I

Fall

Instructor:

Name

Office Address TBA

Phone Number TBA

Email address

Class Times:

TBA

Description:

Great engineering achievements such as safe drinking water and electricity have revolutionized society. While these achievements are remarkable, future engineers are faced with many more great challenges and opportunities yet to be realized. With input from people around the world, an international group of leading technological thinkers were asked to identify the Grand Challenges for Engineering in the 21st century. Their 14 game-changing goals for improving life on the planet, are introduced in this course as a means introducing complex engineering problems, how to identify and formulate them by applying principles of engineering, science, and mathematics. (1 credit hours, Pre-requisites: none.) F-I.

Objectives:

The main objective for this course is for students to identify and formulate complex engineering problems utilizing the National Academy of Engineering's 14 Grand Challenges as a framework. By the end of the semester, students should be able to recognize the following characteristics of complex problems:

- (1) Involving wide-ranging or conflicting technical issues,
- (2) Having no obvious solution,
- (3) Addressing problems not encompassed by current standards and codes,
- (4) Involving diverse groups of stakeholders,
- (5) Including many component parts or sub-problems,
- (6) Involving multiple disciplines, or
- (7) Having significant consequences in a range of contexts.

Student Outcomes: This course supports ABET Student Outcome 1

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

Assignments: *Engineering Notebook:* students are required to maintain a bound engineering notebook that records their design process and accompanying notes through the course sequence. The notebook is used during every class meeting and is intended to record notes, thoughts, solution designs, in addition to document failures and successes in the engineering design process.
Oral Report: Students will complete an oral report on the process and the progress of their project. This report will be graded based on the Oral Report Rubric established by the department.

Grading: Grades will be assigned based on performance on assigned tasks discussed above. Weighting of learning tasks is as follows:

Engineering Notebook:	50%
Oral Report:	50%

Grading Scale:	A	89.5% and above
	B+	84.5% — 89.4%
	B	79.5% — 84.4%
	C+	74.5% — 79.4%
	C	69.5% — 74.4%
	D+	64.5% — 69.4%
	D	59.5% — 64.4%
F	59.4% and below	

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

Exams: TBA

Honesty: Code of Student Conduct: Plagiarism, cheating, attempted cheating and all other forms of academic dishonesty is prohibited. The Code of Student Conduct or the Academic Integrity Code <<https://www.coastal.edu/academicintegrity/code/>> provides further information, including other examples of cheating and the list of possible sanctions. In essence, academic dishonesty is pretending someone else’s work is your own. Turnitin may be used for written assignments. **All academic dishonesty violations will be reported.**

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 and schedule are tentative and subject to change by the instructor with notice to the student as the semester progresses.