ENGR 317

Signals and Systems

Instructor	Dr Siming Guo 123D Smith Science Center Telephone: (843) 349-2765 Email: sguo@coastal.edu
Office Hours	TBA
Class Times	Tuesday and Thursday 9:25 am → 10:40 am
Credits	3 (engineering topic)
Required Text	*Signals & Systems*, 2nd ed., Alan V. Oppenheim, Alan S. Willsky, Syed Hamid Nawab
Pre-/co-requisites	MATH 320
Course Description	This course covers signals and systems in both the time domain and in the frequency domain, including transformations such as Fourier, Laplace, and Z-transforms. Basic signal processing and controls concepts are introduced.
Course Objectives	At the end of the course, the student will be able to: 1. Describe the characteristics of an LTI system 2. Determine if a system is LTI 3. Perform Fourier, Laplace, and Z-transforms and their inverses 4. Interpret the meaning of Fourier, Laplace, and Z-transform representations of signals and systems 5. Calculate the roots and poles of a system

ABET Student Outcomes	This course directly supports assessment of ABET's **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
Topics	The course covers the following main topics (not necessarily in this order): • LTI system properties • Step and impulse response • Convolution • Fourier and inverse Fourier transforms • Laplace and inverse Laplace transforms • Z and inverse Z transforms • Interpretation of magnitude and phase of Bode plots • Poles and zeros

Evaluation and Grading

Letter Grade	Points	Description
A	90-100	exceptional work, significantly above the expectations of the course
B+	85.0 – 89.9	
B	80.0 – 84.9	Very good work, solid understanding of most concepts
C+	75.0 – 79.9	

	C	70.0 – 74.9	good work, solid understanding of main concepts	
	D+	65.0 – 69.9		
	D	60.0 – 64.9	poor work, weak understanding of main concepts	
	F	59.9 or below		

Assignment	Percentage of Grade	Description
Homework	20%	Homework will be assigned on a weekly basis.
Mid-term Exams	50%	Two mid-term exams will be held throughout the semester.
Final Exam	30%	A final exam will be held by the end of the semester.
Total	100%	

Attendance Policy

Students are expected to attend all class sessions as listed on the course calendar. Attendance at class meetings and participation in online activities is essential for the success of your experience.

- Attendance will be taken through, participation in live sessions and discussions, and submissions of assignments by the due dates.

- Absences due to your own illness, family illness and death, or other extenuating circumstances will need documentation. Please make an appointment to meet with me to determine.

- 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, e.g. incapacitating illness, official representation of the university, death of a close relative, or religious holidays.