

Syllabus

ELEC 312 – Systems I, Spring 2010

Course	<i>ELEC 312 Systems I</i>	Instructor	Dr. Jason S. Skinner
Text	<i>Modern Control Engineering, 5th Edition</i> By Katsuhiko Ogata, Prentice Hall 2009	Email	jason.skinner@citadel.edu
Meeting Time & Place	Section 01 – Tuesday/Thursday 8:00am – 9:15am Section 81 – Tuesday/Thursday 5:15pm – 6:30pm Grimsley 322	Office	Grimsley 310 (843) 953-3352
Web Pages	http://ece.citadel.edu/skinner http://blackboard.citadel.edu	Office Hours	Monday – By appointment only Tuesday – 3:00pm - 5:00pm Wednesday – 8:00am - 12:00pm Thursday – 3:00pm - 5:00pm Friday – By appointment only

PREREQUISITES /CO-REQUISITES

It is assumed that each student has passed *ELEC 309 – Signals and Systems* prior to taking this course and has taken or is currently taking *ELEC 301 - Linear Systems Laboratory*.

COURSE DESCRIPTION

This course serves as an introduction to feedback control systems, system representation, stability, root-locus and frequency response, and compensation.

COURSE OBJECTIVES

1. Introduction to feedback control systems.
2. Understanding the stability and response of feedback control systems.
3. Introduction to control system design and compensation techniques.

SCHEDULE (DATES SUBJECT TO CHANGE DUE TO CLASS PROGRESS)

SECTION 01	SECTION 81	TOPICS	READING
01/14, 01/19	01/12, 01/14	Introduction, Basic Signals	1-1 to 1-4
01/21, 01/26	01/19, 01/21	Laplace Transforms	Appendices A & B
01/28, 02/02	01/26, 01/28	Block Diagrams	2-1 to 2-3
02/04	02/02	Mechanical/Electrical Systems	3-1 to 3-3
02/09	02/04	Signal Flow Graphs	Notes Only
02/11	02/09	Lecture Overflow, Review for Test 1	
02/16	02/11	Test 1	Ch. 1, 2, 3
02/18	02/16	Stability of Systems	5-6
02/23, 02/25	02/18, 02/23	Transient-Response Analysis	5-1 to 5-5
02/30 – 03/04	02/25 – 03/02	Steady-State Error Analysis	5-7 to 5-8
03/09, 03/11	03/04, 03/09	Root Locus Analysis	6-1 to 6-4
03/16, 03/18	03/11, 03/16	Root Locus Design	6-5 to 6-9
03/23	03/18	Lecture Overflow, Review for Test 2	
03/25	03/23	Test 2	Ch. 5, 6
03/30 – 04/13	03/25 – 04/01	Bode Plots	7-1 to 7-2
04/06 – 04/08	04/06 – 04/08	No Class – Spring Break	
04/15 – 04/22	04/13 – 04/20	Nyquist Criterion	7-3 to 7-8
04/27	04/22	Lecture Overflow, Review for Final Exam	
05/03 8:00am	TBD	Final Exam	Ch. 1, 2, 3, 5, 6, 7

BLACKBOARD

Blackboard is the online course management system used by The Citadel. Blackboard will be used to post course information (such as this syllabus), lecture slides and notes, homework and project assignments, online quizzes, corrections and answers to questions about assignments, and individual grades.

HOMEWORK

Homework assignments will be given for each topic and will be collected at the **BEGINNING** of the class period on the day that it is due. Exact due dates will be provided on the class web page, by email notification, and in class when the homework is assigned. Homework is to be done on the front side only of engineering paper in a neat and easy to understand format. **The submitted homework solution should be able to stand on its own.** It should provide enough information so that it is not necessary to consult the actual published problem to understand the solution. Late or incorrectly formatted homework will not be accepted and will be given a zero grade. If you will be absent on the day of an assignment, arrange to have a classmate turn in your work for you. Homework will be graded for effort, completeness, and neatness (legibility). You may obtain assistance when doing your homework. Copying of homework is not the same as assistance. Your homework is a graded assignment and must be your own work.

NOTE: It is possible that at least one of the homework problems assigned from the text has an incorrect solution in the solutions manual. If you use this incorrect solution in your submitted homework solution, you will receive a ZERO for your Homework/Quizzes/Project/Class Participation grade. In addition, you may be formally prosecuted under the Honor Code of The Citadel.

QUIZZES

There may be weekly quizzes throughout the semester. Each quiz will be timed and will be administered through the Blackboard online course management system.

TESTS

There will be two in-class tests and one final exam. The final exam will be cumulative. Assigned tests are required. Unless authorized to the contrary by Dr. Skinner, such tests take precedence over all other duties or activities. If you know you will miss an exam, you must let Dr. Skinner know as soon as possible so a make-up exam time can be arranged. Make-up exams will only be given for those students that have made a reasonable attempt to contact Dr. Skinner.

GRADING

Students will be graded on everything that is required to be turned in. All exams are scheduled well in advance. Due to the potential unfairness of make-up exams, they will only be given in extreme circumstances. Your final grade in the course will be determined as follows:

<i>Relative weights of components</i>	
Homework/Quizzes/Projects/Class Participation	30%
2 In-Class Tests	20% each
Final Exam	30%

A = 90-100, B = 80-89, C = 70-79, D = 60-69, F = 59 or below

COURSE POLICIES

Attendance - Attendance is mandatory. Unless circumstances preclude it, it is your responsibility to notify Dr. Skinner of any schedule conflicts or excused absences that will result in your missing class. It is college policy that a grade of F may be awarded to a student if that student misses more than 20% of the course meetings (excused or unexcused). For this course, **6 classes** constitute 20% of the class meetings.

Classroom Decorum - No food or drink is permitted in the classrooms of this building. Proper attire is encouraged, and ECE department policy prohibits hats, cutoffs, shorts, tank tops, and feet without socks in class.

Special needs - Students currently documented or anticipate being documented as Learning Disabled (LD), as having Attention Deficit Disorder (ADD), or with another condition for which you might need special accommodation during the semester must provide written documentation of the condition and of the accommodation needed to me within two weeks of the semester start. You may then choose, by notifying Dr. Skinner before the start of each exam or assignment, whether you will need any accommodation. Notification after the start of an exam or last minute notification on an assignment will not be accepted. Please Note: To request academic accommodations (for example, a note taker), students must also register with Academic Support/Special Services, 953-1820, located in Thompson Hall. It is the campus office responsible for reviewing documentation provided by students requesting academic accommodations, and for accommodations planning in cooperation with students and instructors, as needed and consistent with course requirements.

Cheating and Collaborative Work - According to The Citadel's policies for the preparation of work performed outside the classroom:

All papers, reports, senior essays, theses, or other written work performed outside the classroom for which a grade is received will be the individual's work and is subject to the limitations imposed by the definition of plagiarism.

According to Webster's New International Dictionary, 3rd Edition: to plagiarize is defined as "to steal and pass off as one's own the ideas or words of another" or to "present as new and original an idea or product derived from an existing source."

CHEATING IN ANY FORM WILL BE FULLY PROSECUTED.