

Syllabus

ELEC 405 – Electrical Measurements Lecture, Spring 2015

Course	ELEC 405 – Electrical Measurements	Instructor	Mark McKinney
Text	<i>Modern Instrumentation for Scientists and Engineers</i> by James A. Blackburn	Email	mckinneym@citadel.edu
Meeting Place	Grimsley Hall Rm. 328 01: MW, 10:00-10:50 81: M, 5:00-6:40	Office	Grimsley Hall Rm. 325 953-4897
Web Page	http://ece.citadel.edu/mckinney/elec405/	Office Hours	MW: 2PM-4:30PM TTh: 2PM-4:30PM, by appointment

COURSE OBJECTIVES

- To understand the following topics:
 - Characteristics of measurement systems
 - Bridge circuits for use in instrumentation systems
 - Amplification, filtering and signal conditioning circuits for instrumentation systems
 - Waveform generation systems
 - DC and AC measurements
 - Data Acquisition systems

ASSIGNMENTS

- Homework assignments will be given each week and will always be due one week from the date assigned. Each homework problem will be given a grade of zero, one, or two. A zero indicates little or no attempt at answering the problem, a one will be assigned for an incorrect or incomplete attempt, and a two will be given for correctly completing all aspects of the assigned problems. Occasionally, for lengthy problems, different parts of the problem may be graded as separate homework problems. Homework is to be done on the front side only of engineering paper in a neat and easy to understand format. The submitted homework should stand on its own so that it is not necessary to consult the actual published problem to understand the solution. Your homework grade will be the ratio of the points you have received to 95% of the possible points. For example, if you have received 87 total points out of a possible 120, your homework average would be 76.3%.
- Quizzes may occasionally be given. These may be announced or unannounced and will count as a 10 point homework assignment.

TESTS

There will be one mid-term exam during the semester and one final exam at the end of the semester. A make-up exam will be given only in the case of an emergency or if prior arrangements have been made. In the case of an emergency, a reasonable attempt must be made as soon as is possible to arrange a suitable time for a make-up exam. The final exam will be cumulative and will be designed as a two-hour test. According to Citadel policy, any exceptions to the time and place of the final exam must be cleared through the provost.

GRADING

This class will be graded along with the ELEC 415 Lab.

Grading Element	Relative Weight
Homework Problems/Quizzes	20%
Midterm Exam	15%
LabVIEW assignments	45%
Final Exam	20%

PRE-REQUISITES

It is assumed that each student has taken any two 300-level electrical engineering laboratory courses and is currently taking both ELEC 405 and 415

COURSE POLICIES

Attendance - According to The Citadel's absence policy, any student missing more than 20% of the scheduled classes (even if excused) will receive a failing grade regardless of class performance.

Late assignments - Late assignments will not be accepted even for approved absences; if a conflict arises on a date an assignment is due, make arrangements to submit the assignment before the due date. There will be buffers built into the grading scheme to provide for at least one missed assignment.

Special needs - If you need accommodations because of a disability, please see me privately after class or in my office within two weeks of the beginning of class or immediately after diagnosis. Requests for academic accommodations must be made through OASIS. OASIS can be reached at 953-1820.

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."

Specific ELEC 405 Guidelines

In this course, collaborative work on homework is permitted with no grade penalty. In the event of joint efforts, every student must submit the problem in their own handwriting and each person cited must have made a significant contribution to the problem.

SCHEDULE (SUBJECT TO CHANGE)

WEEK	WEEK OF	01	81	TOPICS
1	01/12/15	W	M	Introduction, Chapters 1-3 – review of basic electrical components
2	01/19/15	W	W	Chapter 4 – Bridge Circuits
3	01/26/15	MW	M	
4	02/02/15	MW	M	Chapter 5 – Amplifiers
5	02/09/15	MW	M	
6	02/16/15	MW	M	Chapter 6 – Special Purpose Circuits
7	02/23/15	MW	M	
8	03/02/15	MW	M	Midterm Exam
9	03/09/15	MW	M	Chapter 7 – Waveform Generators
10	03/16/15	MW	M	
11	03/23/15			
12	03/30/15	MW	M	Chapter 8 – Filters
13	04/06/15	MW	M	Chapter 16 – DC Measurements
14	04/13/15	MW	M	Chapter 17 – AC Measurements
15	04/20/15	MW	M	Chapter 18 – Data Acquisition
16	04/27/15	M	M	