

Hour record check prior to the end of the semester you will receive an F grade in EE311.

Course Objectives:

- To introduce class participants to the basic concepts of signal and system analysis as a fundamental analysis and design tool in electrical and computer engineering as well as other disciplines.
- To develop an understanding the fundamental concepts and applications of continuous and discrete time systems, and the special role of linear, time-invariant systems
- To develop an understanding of the time-domain and frequency-domain viewpoints and the role of transforms.
- To develop skills in the mechanics of Fourier, Laplace and z-transforms, and the use of DFT.
- To explore some applications of the above methods in a laboratory setting to include both simulation and hardware-based experiments.

Contribution of EE 311 to Meeting the Professional Component:

This course continues to build the foundation for the electrical engineering curriculum. In this class, students will learn analytical techniques and tools will be used in all subsequent classes and their engineering careers. In the laboratory part they will have further opportunity to apply concepts learned in the classroom, practice using tools, and continue to learn to work in a team setting. *This course consists of four credits of engineering topics.*

Relationship of the Course to Program Objectives:

The educational program objectives of the Department of Electrical and Computer Engineering are to provide students the broad educational background and skills necessary for a successful, fulfilling and life long career in electrical and computer engineering. To assist in supporting these objectives, EE 311 provides the students a solid introduction to continuous and discrete-time signals and systems, transform methods, and frequency domain analysis , which forms the basis for their continued development as electrical engineers. Through the use of our laboratory, students will be exposed to standard simulation tools as well as experimental application of concepts. The students learn to work together and learn from each other as they work on various homework and lab problems.

Students with Disabilities:

If you have or believe you have a disability, you may wish to self-identify. You can do so by providing documentation to the Office for Services for Students with Disabilities, located at Garcia annex (phone 646-6840). Appropriate accommodations may then be provided for you. If you have a condition which may affect your ability to exit safely from the premises in an emergency or which may cause an emergency during class, you are encouraged to discuss this in confidence with the instructor and/or the director of Disabled Student Programs. If you have general questions about the Americans with Disabilities Act (ADA), call 646-3635.

Prepared by: Satish J. Ranade, January 4, 2000. Updated January 4,2001. Updated September 14,2001. Updated August 4,2002.

The calendar schedule of topics and grading information follows.

Tentative Schedule

Lecture	Topic	Text Section	Homework	Laboratory
1 (8/22)	Course Introduction; Classification, Representing Signals	1.1-1.3, Appendix A		
2(8/27)	Operations, Elementary signals Systems and their properties	1.4-1.6		Introduction to Matlab
3	ADD/DROP Deadline	1.7-1.8,2.1-2.2		
4(9/5)	Differential Equations	2.4		More Matlab—Play a note
5(9/10)	Difference Equations	2.4		Differential and
6	Impulse Response, Discrete time convolution	2.1-2.2		Difference Equations
7(9/17)	Discrete time convolution			Convolution
8	Test 1	2.2		
9(9/24)	Properties of IR representations, Step and Sinusoidal Response, Inverse systems	2.3		
10				
11(10/1)	Fourier Representation of signals, DTFS, Fourier Series	3.3		Fourier series;
12				
13(10/8)	Discrete-time Fourier transform for aperiodic signals	3.4		
14	Deadline Drop with W 10/11			
15(10/15)	Fourier transform			Application to Audio
16	Properties of Fourier representations	3.5		
17(10/24)	Properties of Fourier representations; Applications	3.6		
18(10/29)	Laplace Transform			Digitizing Scopes
19	Test 2	4.2,4.4,4.6		
(LT 4)				
20(11/5)	Laplace Transform properties	6.1-6.3		
21	Inverse Laplace Transform, partial fraction expansion			
22(11/12)	Review; solving ODE	6.4		Frequency Response
23		6.5		
24(11/19)	Z-transform	6.7		
25	Test 3	7.1		
(ZT 4)				
26(11/26)	Z-transform	7.1-7.3		Z transform
27(12/3)	Z-transforms	7.4-7.5		
28	Applications			
12/12 8AM	Test 4 (50 minutes) Optional comprehensive final exam(1 hr 10 min)			

SPECIAL NOTE ON SCHEDULE

- 1. I will be willing to give you your tests outside of class but only if every student concurs**
- 2. I will be out of town on the following days**

TBA

LABORATORY

Labs are held in T&B304 and T&B 206. Labs will begin the week of January 15, 2002

Each Laboratory Session will involve the following:

1. Recitation (45 minutes):

You will be asked to work and turn in a set of practice problems. The instructor will assist you where needed. Additionally, you may ask the instructor to work problems from the homework list. It would be helpful if you e-mail any such requests to the lab instructor in advance.

Recitation material is fair game for quizzes and tests in class.

2. Laboratory Lecture/Preparation Time (45 min)
3. Laboratory exercise

GRADING

Course grade will be computed from the weighted average of class (3 cr.) and laboratory (1 cr.) grades.

You must have a passing grade ($\geq 60\%$) in each of the following categories Homework; Tests/Quizzes; and Laboratory in order to pass the class;

Class	80%	Homework	20 %
		Quizzes (3? pop)	5 %
		Tests(4)	75 %

Optional Comprehensive Final replaces worst test grade

Laboratory	20%	Recitation	25 %
		Lab Exercises	75 %

Extra Credit: 1/2 point will be added to your semester average for any of the following activities:

- A. *Active* participation in professional societies; give me a one page report describing your role
- B. Attend seminars related to electrical engineering and write a one-page report summarizing the seminar.

Maximum extra credit is 2 points.

POLICIES

1. Homework is due beginning of class period. Feel free to collaborate on homework. Homework that is less than two weeks late will be accepted for 50% credit unless prior arrangements have been made
2. Tests will focus on the material studied in each preceding period.
3. All work on tests and quizzes must be your own. You are allowed two-sides of a 8.5x11 cheat sheet for formulas for tests and quizzes. Do not put solved examples on the cheat sheet. If you do, you will receive a zero on the test. Turn cheat sheet in with test.
4. There will be no makeup quizzes.
5. Makeup tests can be given if you have a medical excuse, or if you need to miss class for good reason and make arrangements ahead of time
6. Arrangements can be made for makeup laboratory sessions if you have a valid reason(medical, family, out-of-town).
7. Grade scores and averages will be posted periodically and available from me at any time. The last day to drop with a W is October 11,2002.
8. Incomplete grades will be assigned only under exceptional circumstances (e.g., medical, family), with proper and timely documentation, and only if you have a passing grade at mid-semester. Per NMSU rules an Incomplete cannot be given to avoid a bad or failing grade.
9. Failure to follow safety and other specified procedures in laboratory will result in an F grade for the course