

ECE 202/371

CIRCUITS, SIGNALS AND LINEAR SYSTEMS

Fall Semester, 2007

(The list of topics given below is tentative and may be modified if necessary.)

Topic	Text Sections
I. COURSE INTRODUCTION	
A. Course Overview - Course Format and Procedures B. Signals: An Introduction C. Mathematical Preliminaries	---
II. INTRODUCTION TO LAPLACE TRANSFORMS	
A. Motivation and Context B. Definition and Basic Transform Pairs C. Transform Properties D. Inverse Transforms - Partial Fraction Expansion E. Solution of Differential Equations	(1) 8-1,2,3,4,5,6,7,8,9 (2) 4-1,2,3 (2) B-5
III. LAPLACE TRANSFORM ANALYSIS OF CIRCUITS	
A. The Laplace Transformed Circuit B. Network Reduction Techniques C. Formulation of Circuit Equations	(1) 9-1,2,3,4,5 (2) 4-4
IV. INTRODUCTION TO SIGNALS AND SYSTEMS	
A. Overview and Motivation B. Classification of Systems C. Classification of Signals	(2) 1-1,2,3,4,6,7,8
V. REPRESENTATION AND ANALYSIS OF LLTI SYSTEMS	
A. Differential Equation Techniques B. Time Domain Techniques 1. Impulse Response Function 2. Convolution Analysis C. Frequency Domain Techniques 1. Transfer Function 2. Laplace Transform Analysis	(1) 9-6,7,8 (2) 2-1,2,3,4,5,6,7,8
VI. FREQUENCY DOMAIN REPRESENTATION OF SIGNALS	
A. Periodic Power Signals 1. Fourier Series 2. Line Spectrum and Power Distribution B. Energy Signals 1. Fourier Transform 2. Spectral Density and Energy Distribution	(2) 6-1,2,3,4,5 (2) 7-1,2,3,4,6
VII. APPLICATIONS	
A. Two-Port Filters B. Signal Sampling C. Signal Multiplexing	(2) 7-5,7 (2) 8-1,2

COURSE INFORMATION

INSTRUCTOR	GRADER
Manish Wadhwa <i>Lab. 232, Kaufman Hall</i> Telephone: 757-683-3470 Fax: 757-683-3220 E-Mail: mwadh001@odu.edu Office Hours: MW 2:20-4:20 pm	HEBER HERENCIA-ZAPANA <i>Lab. 233, Kaufman Hall</i> Telephone: 757-683-5165 Fax: 757-683-3220 E-Mail: hhere001@odu.edu Office Hours: TR 3:00 – 5:00 pm

COURSE TEXTS

- (1) J. W. Nilsson and S. A. Riedel, *Introductory Circuits for Electrical and Computer Engineers*, Upper Saddle River, NJ: Prentice Hall, 2002.
- (2) B. P. Lathi, *Linear Systems and Signals*, Second Edition, New York: Oxford University Press, 2005.

COURSE SCHEDULE

4:20pm – 5:35pm, Mondays and Wednesdays
OCNPS 200

COURSE WEB SITE

Old Dominion University Blackboard

PROBLEM ASSIGNMENTS AND QUIZZES

Problem assignments will be made approximately weekly. Assignments will be collected approximately one week following assignment. Selected problems will be graded and returned one week after collection. Some problem assignments may require the use of a computer. Quizzes will be assigned frequently during the semester. There would be surprise quizzes.

EXAMINATIONS

Three 75-minute examinations will be given during the whole semester.

COURSE GRADE

A final grade will be determined by performance on examinations, problem assignments and quizzes according to the following percentages:

Problem Assignments	20%
Class Quizzes and other Assignments	15%
First Examination	20%
Second Examination	20%
Third Examination	25%

IMPORTANT DATES

First Class Period	Monday, August 27, 2007
First Examination	Wednesday, October 3, 2007
Deadline to Withdraw	Tuesday, October 23, 2007
Second Examination	Monday, November 5, 2007
Third Examination	Wednesday, December 5, 2007

HONOR CODE

Students are encouraged to discuss problem assignments with each other; however, submitted problem assignment solutions are to be your own original work. Examinations will be closed-book, closed-notes. You are not to receive or give assistance on examinations and quizzes. Honor code violations will be reported following official university procedures.