COLORADO STATE UNIVERSITY

COURSE SYLLABUS
ECE 512: Digital Signal Processing

Instructor Information

Name: V. Chandrasekar

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Phone: 970-491-7981

Office Location: B117 Engineering Building

Office Hours: Open and on demand

Communication Policy: Contact during office hours or by email.

Prerequisites for Course

ECE 312 or ECE 412 or consent from instructor

Course Description & Objectives

This course will provide the student with an intuitive and practical understanding of the fundamental concepts of discrete-time signal processing. The intended audience include: All electrical and computer engineering senior -level undergraduates of first-year graduate students; Students in related fields (music, geophysics, mathematics, and other branches of engineering) which may require a technical understanding of the fundamentals used in digital signal processing; industry-based students requiring a foundation in discrete-time systems. The goal is also to provide the student with the necessary background for taking advanced level courses in signal and image processing, and ideally, for reading technical literature in DSP. Computer simulation exercises are intended to familiarize the student with implementation aspects and the application of theoretical knowledge to practical problems.

Upon the completion of this course, students will be able to:
Know the fundamentals of DSP as well develop skills on applications.

Assignments' description & Alignment with course objectives

The assignments will be for learning the basic theory as well as applications of digital signal processing.

Course Schedule – Alignment of Course Topics, Learning Outcomes, and Assessments

#	DATE	TOPIC/SUB-TOPIC
1	TBD	Analysis of Linear Time Invariant Systems
2	TBD	Various signal and system representation and manipulations.
3	TBD	Z Transforms
4	TBD	Multirate signal processing – sampling and interpolation.
5	TBD	Transform Analysis of Linear Time Invariant Systems
6	TBD	Digital filter structure and design.
7	TBD	The discrete Fourier transform and its computation via FFT
8	TBD	Analyses of signals using discrete Fourier transform and Spectral Estimation.

Textbook / Course Readings

Discrete Time Signal Processing, A.V.Oppenheim and R.W. Schafer, Prentice-Hall, 2010 (3rd Edition)

Course Materials & Equipment

The Student Edition of MATLAB, The Math Works, Inc, Prentice-Hall, 1997

Introduction to Digital Signal Processing, J.Proakis & E. Manolakis, MacMillan, 2007 (4th Edition)

Participation/Behavioral Expectations

Turn in assignments on time. Please work individually.

Course Policies (late assignments, make-up exams, etc.)

If you need an extension on the due date, you need to request in advance with a stated reason to support the extension.

Grading Policy

Final Exam – 33.33 %

Midterm Exam – 33.33 %

Final/second Exam – 33.33 %

ASSIGNMENT	**GRADE POINTS**	**GRADE PERCENTAGE**
Assignments		33.33 %
Midterm Exam		33.33 %
Final Exam		33.33 %
Total:		**100 %**

Academic Integrity & CSU Honor Pledge

This course will adhere to the CSU Academic Integrity/Misconduct policy as found in the General Catalog and the Student Conduct Code.

Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community. Because academic integrity, and the personal and social integrity of which academic integrity is an integral part, is so central to our mission as students, teachers, scholars, and citizens, I will ask that you affirm the CSU Honor Pledge as part of completing your work in this course.