

**Department of Electrical and Computer Engineering
Carnegie Mellon University**

18-551: DIGITAL COMMUNICATIONS AND SIGNAL PROCESSING SYSTEMS DESIGN

Fall 2005

<u>Instructor:</u>	Prof. David Casasent, HH-B202, casasent@ece.cmu.edu, x8-2464 Office Hours: Monday/Wednesday, 4:30-5:30 pm
<u>Course Assistant:</u>	TBD
<u>Teaching Assistants:</u>	Kermin Fleming (kfleming@andrew.cmu.edu) Avinash Nehemiah(anehemia@andrew.cmu.edu) Rohit Patnaik (rpatnaik@andrew.cmu.edu, 412-268-3716)
<u>Purpose:</u>	The purpose of this course is to provide the student with a rich, in-depth design and application hardware project experience in the areas of digital communications and/or signal processing systems.
<u>Project:</u>	Teams of students will work on a semester-long project of your choice. A project proposal, oral presentation, plan, budget, midterm and final reports and presentations and demonstrations are required. Topics include: speech and music processing, digital communications, FFT and DSP hardware and software, multimedia processing, data compression, data storage, wireless communications, CD, image and/or signal processing, etc. Examples of prior projects are available under the project links (on the web).
<u>Organization:</u>	<p>The first portion of the course will involve several computer homeworks and labs to familiarize you with MATLAB, DSP hardware, and concepts in communications, filtering, etc. The majority of the course is devoted to your project.</p> <p>Lectures/Recitations will review: basic communications and signal processing concepts, principles and techniques; simulation software and hardware tools; “back of the envelope” calculations and their use; and applications and selected topics. They will also be used to help you in proposing, planning and completing your projects.</p>
<u>Course Information:</u>	Introduction Stuff Course Logistics, Course Schedule and Key Dates Lab Groups Project Remarks and Presentation Information - (later)
<u>Course Assignments</u>	Files for the homeworks Files for the labs
<u>Course Documents:</u>	My lectures, copies prior years projects, sampling, FT, notes FIR/IIR notes 551.3 etc.
<u>Staff Information</u>	Professor, TA's