Distance Learning Options

- This classroom has many advantages
- DLC 204: seats 48 students, room from which I will teach
- MPEG2: On-campus broadcast to desktops (full screen, high quality), uses streamplayer 2 client installed in general access labs, 1-way audio & video
- Windows Media Stream: 1-way audio & video, need fast connection
- Windows Media Archive: 1-way audio & video, posted within 24 hours of lecture, can skip forwards and backwards
- Video Tape Archive: available at reference desk in Millar Library within 24 hours of class

Lecture Overview

This Time
- Syllabus
- Miscellaneous Notes
- Class overview & logistics
- Begin Fourier Series

My Background

- Ph.D. 1999
- Third year teaching in PSU ECE dept.
- First time teaching this course
- Research area
  - Biomedical signal processing (see http://bsp.pdx.edu)
  - Undergraduate participation is encouraged
  - Weekly meeting & seminar, Tuesdays 10-12 in FAB 155
  - All welcome
Sophomore Sequence

- There are a number of significant changes in the sophomore sequence this year
- Previous course titles
  - ECE 222: Signals & Systems
  - ECE 223: Feedback & Control
- New course titles
  - ECE 222: Signals & Systems I
  - ECE 223: Signals & Systems II
- There were many changes to ECE 222
- ECE 223 is an entirely new course

Course Comments

- First time this course has been taught
- Will be a rough and a little experimental
- Some of the material is borrowed from the previous version of ECE 222
- Most of the material is new and used to be covered in ECE 410-DSP, *Digital Signal Processing*
- The course schedule may change as we progress through the term
- Course notes will be rough and will contain many more errors than ECE 221 or ECE 222

ECE 223 Topics

- Fourier Series Representation of Periodic Signals (Ch. 3)
- Continuous-Time Fourier Transform (Ch. 4)
- Discrete-Time Fourier Transform (Ch. 5)
- Sampling (Ch. 7)
- Introduction to Communications (Ch. 8)
- The Z-Transform (Ch. 10)
- Introduction to Discrete-Time Filters (NA)

Textbook

- *Signals & Systems*
  - One of the gold standards
  - Verbose, but thorough
  - Designed to be read, rather than referenced
  - Problems are more advanced than *Fundamentals of Electric Circuits*
  - Will follow closely
  - Required
### Textbooks Continued

- **Text**: *Signals and Systems Made Ridiculously Simple*
  - Very concise
  - Not comprehensive, but a good short explanation of the most critical concepts
  - Recommended
- **Text**: *Computer Explorations in Signals and Systems*
  - Applies the concepts using MATLAB
  - Required for the ECE 203 labs

### Our Path - Planned

- Fundamentals of Signals (SS Ch. 1)
- Linear Time-Invariant Systems (SS Ch. 2)
- Laplace Transform (EC Ch. 15)
- Laplace Transform Circuit Analysis (EC Ch. 15)
- Transfer Functions (EC Ch. 15)
- Analog Filters (EC Ch. 14 & SS Ch. 6)
- Two-Port Networks (EC Ch.18)
- Fourier Series (SS Ch. 3)
- Fourier Transforms (SS Ch. 4)

### ECE 203 Lab Assignments

- The ECE 203 labs start next week
- Accessible online from http://ece.pdx.edu/~ece2xx/ECE203
- Several of these labs will be new this term and, therefore, coarse
- Will be posted as the term progresses

### Course Resources

- Textbooks
- Recitation sections
- IEEE Tutors
- Lecture notes (first draft)
- Homework solutions
- Distance learning classroom
- Course web site: http://ece.pdx.edu/~ece2xx/ECE222
Homework & Online Lectures

- Homework solutions will be posted shortly after assigned
- Previous students have used the solutions as a learning tool
- Lectures will also be posted online
- Both will be password protected
  - User name: ECE223 (no space)
  - Password: Fourier

Course Web Site

URL: http://ece.pdx.edu/~ece2xx/ECE222

- Syllabus
- Course outline
- Lecture notes
- Online lectures
- Homework assignments & solutions
- Errata (text and homework)
- Exam topics
- Grades

Lecture Notes

- Lecture slides will be created this term
- Posted on the class web site
- Watch for updates as late as 6 pm the day before lecture
- Workspace is provided for examples that will be filled in during lecture

6-digit Codes

- I use 6-digit codes to post your grades online and for anonymous identification on exams
- Email code to me this week
- Can be any character that you can send via a plain-text email
- Remember it for exams
- Label Homework as follows
  - First letter in last name
  - 6 digit code
  - Class & term (ECE 223, Spring Term 2002)
Homework Assignment 1

- Email me 6-digit code
- Reading
  - Review: Chapters 1 & 2
  - Required: Chapter 3, Sections 3.0, 3.2 - 3.8, 3.12
  - Recommended: 3.1, 3.9 - 3.11
- Problems
  - Ch. 3: 1-4, 13, 16, 22, 24, 25, 26, 30, 38
- Assignment is also posted on the class web site
- Solutions will be posted soon
- Due on Wednesday, April 10 - 1.5 weeks

Scientific Calculators

- Less important than for ECE 221
- This term will work more with variables than numbers
- Will probably not be allowed during exams

General Comments on Class

- Challenging
- Little circuit analysis
- Less number crunching, more abstract analysis than ECE 221
- Many new abstract concepts
- Important for electrical & computer engineers
- Good overview of digital signal processing fundamentals

Logistics: Text & Lab Assignment Errata

- Each error worth 50% of a homework
- Find two errors = can skip an assignment
- Cannot receive more than full credit for homework
- Typos and grammar count
- Must be first to email me
- Known errata are posted on the web site
- I do not know how many errors are in the text or HW solutions