ECE 222 Signals & Systems I

ece.pdx.edu/~ece2xx/ECE222

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Classrooms
We will use the distance learning technology to enable attendance in multiple classrooms
- DLC 204: seats 48 students, room from which I will teach
- DLC 304: seats 32 students, 2-way audio & video
- 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
- Eastern Oregon University will be with us electronically this term

Lecture Overview
This Time
- Syllabus
- Miscellaneous Notes
- Class overview & logistics
- Introduction to Signals & Systems

My Background
- Ph.D. 1999
- Teaching in PSU ECE dept. 3.5 years
- Sixth time teaching this course
- Research area: Biomedical signal processing
  - See http://bsp.pdx.edu
Textbooks

• Text: *Electric Circuits, 6th Ed., Revised Printing*
  - Verbose
  - Many examples
  - Problems of appropriate difficulty
  - Required

• Text: *Signals & Systems*
  - One of the gold standards
  - Verbose
  - Designed to be read, rather than referenced
  - Problems are mostly advanced
  - Fairly advanced treatment of topics
  - Required

Textbooks Continued

• Text: *Signals and Systems Made Ridiculously Simple*
  - Very concise
  - Not comprehensive, but a good short explanation of the most critical concepts
  - Students seem to like it
  - Recommended

• Text: *Computer Explorations in Signals and Systems*
  - Applies the concepts using MATLAB
  - Required for the ECE 202 & 203 labs

Our Path - Planned

• Fundamentals of Signals (SS Ch. 1)
• Linear Time-Invariant Systems (SS Ch. 2)
• Convolution (SS Ch. 2)
• Laplace Transform (EC Ch. 12)
• Laplace Transform Circuit Analysis (EC Ch. 13)
• Two-Port Networks (EC Ch. 18)
• Transfer Functions (EC Ch. 13)
• Analog Filters (EC Chs. 14–15 & SS Ch. 6)

Course Resources

• Textbooks
• Recitation sections
• IEEE Tutors
• Course web site
• Lecture notes (third draft)
• Homework solutions
• Distance learning classroom
• Web site: [http://ece.pdx.edu/~ece2xx/ECE222](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: ECE222 (no space)
  - Password: Convolve
- Lab assignments have no passwords

Lecture Notes

- Lecture slides were created over the last two years
- Posted on the class web site
- I will be updating them slightly this term
- Watch for updates as late as 6 pm the day before lecture
- Updates will be mostly minor
- Workspace is provided for examples that will be filled in during lecture

Course Web Site

URL: http://ece.pdx.edu/~ece2xx/ECE222
- Syllabus
- Course outline
- Lecture notes
- Online lectures
- Errata
- Homework assignments & solutions
- Previous course web pages (old exams)
- Grades

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
- Homework labelling:
  - First letter in last name
  - 6 digit code
  - Class & term (ECE 222, Winter Term 2003)
Homework Assignment 1

- Email me 6-digit code
- Read
  - Chapter 1 of Signals & Systems
  - Can skip sections 1.3.3 & 1.5.2
  - Sections 12.1–12.4 of Electric Circuits
- Problems
  - SS Ch. 1: 3,5,10,11,21,22,23,27
  - EC Ch. 12: 2,3
- Assignment is also posted on the class web site
- Solutions will be posted soon
- Due on Wednesday, January 15 - 1.5 weeks

Scientific Calculators

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

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 do not count
- Must be first to email me
- Known errata are posted on the web site
- New HW will be assigned this term, so expect errors in the HW solutions
- There tend to be more errors in the solutions than the texts

General Comments on Class

- Challenging
- Rapid pace, but slower than ECE 221
- Less number crunching, more abstract analysis than ECE 221
- Many new abstract concepts
- Essential knowledge for other ECE classes, especially ECE 321