Course Syllabus

Course Title

STOCHASTIC PROCESSES (IEE5620), FALL 2009

Lecture Hour

3:40 pm - 6:30 pm, Tuesday

Instructor

Feng-Tsun Chien EC 713, Department of Electronics Engineering Tel: 03-5712121 ext. 54194 E-mail: ftchien@mail.nctu.edu.tw

Office Hour

1:30 pm – 4:00 pm, Monday By appointment preferred

Teaching Assistants

Chong-You Lee E-mail: leelityo@gmail.com LAB: ED 421. Tel: 54232 <u>Yi-Ru Liao</u> E-mail: wasiyiru@gmail.com LAB: ED 421. Tel: 54232

Textbook

"Probability and Random Processes with Applications to Signal Processing" Third edition, Prentice Hall Author: Henry Stark and John W. Woods

Course Website

Course materials can be downloaded from the NCTU e-campus platform http://dcpc.nctu.edu.tw

Reference Material

Gallager's notes on random process at MIT http://web.mit.edu/gallager/www/pages/pubs.html

Prerequisites

Probability

Course Objectives

- 1. Learn to formulate a real world problem, typically in communications, control, and networking, using an appropriate probabilistic model
- 2. Learn to solve the intended and formulated problem

Homework

Homework will be assigned roughly every 2 3 weeks. Late homework will **NOT** be accepted. Discussions are encouraged; however, homework must be finished and written individually.

Course Outline

Week 1	Review – Linear Algebra and Probability
Week 2 – Week 4	Jointly Gaussian Random Variables
Week 5	Midterm I (10/20/2009)
Week 6	Fundamentals of Detection
Week 7	Fundamentals of Estimation
Week 8 – Week 12	Random sequence/Random Processes
Week 11	Midterm II $(12/1/2009)$
Week $13 - Week 14$	Mean Square Calculus
Week 15 – Week 16	Applications (Kalman Filter, EM Algorithm, etc.)
Week 17	Final exam $(01/12/2010)$

Grading

 $\begin{array}{l} \mbox{Homework (20\%)} \\ \mbox{Midterm I (Date: $10/20/2009, 25\%)} \\ \mbox{Midterm II (Date: $12/1/2009, 25\%)} \\ \mbox{Final (Date: $01/12/2010, 30\%)} \\ \mbox{All exams are closed-book and closed-notes.} \end{array}$