

The University of Texas at Tyler
Department of Electrical Engineering

EENG 5307 Intro. Random Processes

Syllabus

Description:

Review of probability, transformation of random variables, random processes, correlation function and power spectral density, system response to noise, optimal processing.

Prerequisites:

Probability or statistics and linear systems.

Credits:

(3 hours lecture, 0 hours laboratory per week)

Text(s):

Henry Stark, "Probability and Random Processes with Applications to Signal Processing", Third Edition, Prentice Hall

Additional Material:

- Schaum's Outline of Probability, Random Variables, and Random Processes, ISBN-10: 0070306443
- Papoulis, Therrien, Stark and Woods, Shanmugan and Breipohl.

Course Coordinator:

Hector A. Ochoa, Professor

Topics Covered: (paragraph of topics separated by semicolons)

Probability and Random Variables Review; Functions of Random Variables; Expectation and Estimation; Random Vectors and Parameter Estimation; Random Sequences; Random Processes

Evaluation Methods: (only items in dark print apply):

- 1. Examinations / Quizzes**
- 2. Homework**
3. Report
- 4. Computer Programming**
- 5. Project**
6. Presentation
7. Course Participation
8. Peer Review

1. Calculate basic probabilities [1,2]
2. Make use of random variables to solve engineering problems [1,2]
3. Make use of random vectors to solve engineering problems[1,2]
4. Make use of random sequences to solve engineering problems[1,2]
5. Model engineering problems using random process [1,2]
6. Analyze the response of linear systems to random inputs[1,2]
7. Analyze power spectral densities [1,2]
8. Simulate the response of linear systems to random inputs and random process. [1,4,5]

1. Graduates of the program will possess a breadth and depth of knowledge in electrical and computer engineering. [1,2,3,4,5,6,7]
2. Graduates of the program will possess and demonstrate oral and written communication skills. [8]
3. Graduates of the program will demonstrate the capability to perform independent learning and investigation.[8]

<u>Prepared By:</u>	Ralph Hippenstiel, professor	<u>Date:</u>	8-20-04
<u>Modified By:</u>	Hector A. Ochoa, Professor	<u>Date:</u>	12-3-08
	Hector A. Ochoa, Professor		8-19-10