NOC:Probability and Random Variables/ Processes for Wireless Communications - Video course

NPTEL

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Electronics & Communication Engineering

COURSE OUTLINE

Concepts in probability and random variables/ processes play a fundamental role in understanding various aspects of wireless communication systems. Characterizing several components of wireless systems such as the average transmit power, bit-error rate and behavior of the fading channel coefficient requires knowledge of principles of random variables and processes. This course is designed to serve as a basic course towards introducing the students to various aspects of probability from the perspective of modern digital and wireless communications. Thus, it will focus on basic concepts in probability, random variables and random processes, while also illustrating digital/ wireless communication specific examples to better bridge the gap between theory and application.

COURSE DETAIL

Week No	Topics
1	Basics of Probability, Conditional Probability, MAP Principle
2	Random Variables, Probability Density Functions, Applications in Wireless Channels
3	Basics of Random Processes, Wireless Fading Channel Modeling
4	Gaussian Random Process, Noise, Bit-Error and Impact on Wireless Systems

Pre-requisites:

- BE/ME/MS /PhD can be allowed
- Basic knowledge of sets, calculus and mathematical basics

Coordinators:

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References:

- Communication Systems by Simon Haykin
- Fundamentals of Wireless Communication by David Tse