**Course Topics**

**EEE 554: Random Signal Theory**

**Prerequisites:** (a) EEE 350 (Random Signal Analysis) or equivalent upper-division undergraduate course on basic concepts of axiomatic probability, random variables, expectations, moments and density functions; (b) thorough knowledge of calculus.

**Course Description:** Applies statistical techniques to the representation and analysis of electrical signals and to communications systems analysis.

**Course topics:**

• Review of probability theory: Axioms of probability, experiments, outcomes, events, conditional probability and independence

• Random variable (RV): Continuous and discrete distribution and density functions (normal, uniform, binomial), conditional distributions, functions of one RV, mean, variance, moments, characteristic functions

• Two RVs, sequence of RVs, joint distributions and density functions, marginal statistics, functions of two RVs, joint moments and characteristic functions, conditional distributions

• Stochastic processes: properties, white noise, Gaussian random processes, stationary processes, power spectrum, systems with stochastic inputs, Markov chains, applications.