THIRD YEAR

Detection and Estimation Theory	COE308
Prerequisite: COE204, COE212,	(2-2-1-0)
COE301 and COE302	

Introduction to classical signal detection theory and statistical signal processing, Law of large numbers and central limit theorem. Jointly Gaussian random vectors and their properties. Hypothesis testing and detection: Maximum likelihood (ML), maximum a posterior probability (MAP), and Bayes criteria; Likelihood ratios, Neyman-Pearson test. Estimation: Minimum mean-square (MMSE) and linear least square estimation, orthogonality principle; Recursive estimation, Kalman filtering; Parameter estimation, Cramer-Rao bound; Sparsity and compressed sensing.