19MA614   PROBABILITY AND STATISTICS FOR ENGINEERS   2-0-0 2

Unit 1: Probability- Objective- History of Probability- Random Variables- Fundamental Concepts- Probability Distributions- Expectations and Moments- Discrete Distributions- Continuous Distributions- Examples- Reliability- Weibull Distribution and Applications

Unit 2: Statistics- Descriptive Statistics- History of Statistics- The Role of Statistics in Engineering- Random Sampling and Data Description- The Big Data in the Modern context- Statistical Inference- Hypothesis Testing -Decision for Single Sample-Decision for Two Samples- Building Empirical Models- Simple and Multiple Linear Regression-Least Square Estimation of Parameters-Introduction to Design of Experiments- Factorial Design and Experiments- Factorial Experiments with More Than Two Levels.   (30 hours)

References:
1.   Montgomery D.C and Runger G.C 'Applied Statistics and Probability for Engineers', JohnWiely and Sons-2014,6th edition
2.   Jay L Devore, 'Probability and Statistics for Engineering and the Sciences', Cengage Leaning-2012, 8th edition

Course objective
- To impart the knowledge of basic statistical tools for analysis and interpretation of qualitative and quantitative data for decision making

Course Outcomes

CO1: Apply basic probability and statistics concepts for various business problems
CO2: Perform test of hypothesis
CO3: Compute and interpret the result of regression and correlation analysis for forecasting
CO4: Solve real time problems by applying different decision making methods