

3rd Semester

MATHEMATICS II

Module I (12 hours)

Probability

Sample Space, Probability, Conditional Probability, Independent Events, Random variables, Probability distributions, Expectations, Mean and Variance, Moments.

Bernoulli Trials, Binomial, Poisson, Hypergeometric distributions and Normal Distribution. Distribution of several random variables, Weibull distribution.

Module II (12 hours)

Statistics

Mathematical Statistics: Random sampling, Estimation of Parameters, Confidence Intervals, Testing of hypothesis, Acceptance sampling, Chi square test for goodness of fit, Fitting Straight Lines, Correlation and Regression Analysis, Rank Correlation.

Module III (12 hours)

Numerical Methods

Numerical root finding techniques to non-linear equation: Bisection Method, Newton's Method, Numerical Differentiation: Forward difference and Backward difference method, Numerical Integration: Trapezoidal Rule, Simpson's Rule, Gauss Quadrature, Numerical solution to System of linear equation: Gaussian Elimination, Solving of ODE: Euler's Method, Runge-Kutta method.

Text and Reference Books:

1. E. Kreyszig, Advanced Engineering Mathematics, Eighth Edition, Wiley India,
2. Jay L. Devore, Probability and Statistics for Engineering and Sciences, Seventh Edition, Thomson/CENGAGE Learning India Pvt. Ltd
3. P. V.O'Neil, Advanced Engineering Mathematics, CENGAGE Learning India Pvt. Ltd
4. R. L. Burden, J. D. Faires, Numerical Analysis, CENGAGE Learning India Pvt. Ltd
5. K. Sankara Rao, Numerical Methods for Scientists and Engineers, PHI