MAL 205: NUMERICAL METHODS AND PROBABILITY

Course No.: MAL205
Course Title: Numerical Methods & Probability Theory
Course Type: Elective
Course Credits: 3

Objective:

The objective of this subject is to expose students to understand the basic numerical analysis, probability study and its application to chemical engineering.

Syllabus:

The objective of this subject is to expose the student to understand the basic importance of numerical methods to tackle the problems which cannot be solved analytically. It also focuses the probability theory and its applications in science and engineering.


Probability theory: Random variables, discrete and continuous random variable, probability density function; the probability distribution function for discrete and continuous random variable joint distributions. Definition of mathematical expectation, functions of random
variables, The variance, and standard deviations, moment generating function other measures of central tendency and dispersion, Skewness and Kurtosis. Binomial, Geometric distribution, Poisson distribution, Relation between Binomial and Poisson’s distribution, Normal distribution, Relation between Binomial and Normal distribution. Random processes, continuous and discrete, determinism, stationarity, ergodicity etc. correlation functions, autocorrelation and cross-correlation, properties and applications of correlation functions.

Text Books:


Reference Books:


Class Schedule: Three 55 minutes session per week.