MA 102: MATHEMATICS-II (3-1-0 : 4)

Differential Equation of Higher Order: Linear differential equation of higher order with constant/variable coefficient, method of variation of parameter; Cauchy Euler's and Legendre's equations; series solution of ODEs with special emphasis on Legendre's and Bessel's differential equations; linear differential equation of second order in some real world problems.

Fourier Series: Periodic functions; trigonometric series; Fourier series of a function with arbitrary period with special emphasis on functions of period 2pi, Fourier series of even and odd functions, half range Fourier series.

Fourier Transform: Fourier integral theorem; Fourier sine and cosine integral; complex form of Fourier integral; Fourier transform of the derivative of a function; applications of Fourier transforms in boundary value problems.

Laplace Transform: Laplace transform of a function; existence theorem; Laplace transform of derivatives and integrals; inverse Laplace transform; convolution theorem, use of Laplace transform in solving differential and integral equations .

Text Book:

1. E. Kreyszig , Advanced Engineering. Mathematics, John Wiley & Sons

Reference Books:

1. Jain and Iyengar, Engineering. Mathematics, Narosa Publishing House.
2. B. S. Grewal, Higher Engineering Mathematics, Khanna Publications.