MT604: INTEGRAL TRANSFORMS

Syllabus: Laplace transform - Definition and its properties, Rules of manipulation; Laplace transform of derivatives and integrals; Properties of inverse Laplace transform, Convolution theorem and Complex inversion formula; Solution of ordinary differential equation with constant and variable coefficients by Laplace transform; Application to the solution of simple boundary value problems by Laplace transform; Fourier tranform - Definition and properties of Fourier sine, cosine and complex transforms; convolution theorem, Inversion theorems, Fourier transform of derivatives; Mellin transform - Definition and elementary properties; Mellin transform of derivatives and integrals; Inversion theorems; Parseval's theorem; Infinite Hankel transform-Definition and elementary properties, Hankel transform of derivatives; lnversion theorem; Parseval's theorem; Application to the solution of simple boundary problems by Fourier, and infinite Hankel transforms

UNIT SCHEDULE

Unit 1   Laplace transform
Unit 2   Inverse Laplace transform
Unit 3   Solution of ordinary differential equation with constant and variable coefficients and the solution of simple boundary value problems by Laplace transform
Unit 4   Fourier tranform
Unit 5   Mellin transform
Unit 6   Infinite Hankel transform
Unit 7   Application of Fourier and Infinite Hankel transform to the solution of simple boundary problems