17HS051 INTEGRAL TRANSFORMS

UNIT – 1 (12 hrs) Application of Laplace Transform to solutions of Differential Equations

Solutions of ordinary Differential Equations.
Solutions of Differential Equations with constants co-efficient
Solutions of Differential Equations with Variable co-efficient

UNIT – 2 (12 hrs) Application of Laplace Transform

Solution of simultaneous ordinary Differential Equations.
Solutions of partial Differential Equations.

UNIT – 3 (12 hrs) Application of Laplace Transforms to Integral Equations

Definitions: Integral Equations-Abel's, Integral Equation-Integral Equation of Convolution Type, Integro Differential Equations.Application of L.T. to Integral Equations.

UNIT –4 (12 hrs) Fourier Transforms-I

Definition of Fourier Transform – Fourier's in Transform – Fourier cosine Transform – Linear Property of Fourier Transform – Change of Scale Property for Fourier Transform – sine Transform and cosine transform shifting property – modulation theorem.

UNIT – 5 (12 hrs) Fourier Transform-II

Convolution Definition – Convolution Theorem for Fourier transform – parseval's Indentify – Relationship between Fourier and Laplace transforms – problems related to Integral Equations.

Finite Fourier Transforms

Finite Fourier Sine Transform – Finite Fourier Cosine Transform – Inversion formula for sine and cosine transforms only statement and related problems.

Reference Books

1. Integral Transforms by A.R. Vasistha and Dr. R.K. Gupta, Krishna Prakashan Media Pvt. Ltd. Meerut.
2. A Course of Mathematical Analysis by Shanthi Narayana and P.K. Mittal, S. Chand and Co., New Delhi.
3. Fourier Series and Integral Transforms by Dr. S. Sreenadh, S.Chand and Co., New Delhi.
4. Lapalce and Fourier Transforms by Dr. J.K. Goyal and K.P. Gupta, Pragathi Prakashan, Meerut.
5. Integral Transforms by M.D. Raising hania, - H.C. Saxsena and H.K. Dass, S.Chand and Co., New Delhi.

Suggested Activities:
Seminar/ Quiz/ Assignments