Subject Code : NSSM3

Major Paper III – Differential Equations, Lap lace Transformation, Fourier Series and Vector Analysis

Unit I

Particular integral for second order differential equation with constant coefficients – Linear equations with variable coefficients reducible to ø form – First order higher degree and equations solvable for x,y.p – Clairant's form – simultaneous differential equations – variation of parameters.

Unit II

Partial differential equations – formation of equations, general particular and complete integrals of partial differential equations – Charpit's method for solving pp + qp = R the standard forms

Unit III

Transforms Laplace transform and its applications for solving ordinary edifferential equations

Unit IV

Fourier series – Expansion in odd/even functions expansion in half – range series (simple Problems only) vector differentiation – velocity and acceleration – vector and scalar fields – divergence and curl – applications of laplacian operator

Unit V

Vector integration – tangential line integral, normal surface integral, volume integral – problems on these Gauss's divergence theorem and stoke's theorem (no proof) – simple verifications of the theorem - problems

Reference Books:

1. Differential Equations : T.K. Manickavasagam and S. Narayanan
2. Differential Equations : M. L. Khanna
3. Laplace Transformations and Fourier Series : M.K. Venkatraman
4. Vector Calculus : M.L. Khanna