SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Mathematics)
Semester: III
Syllabus with Effect from: June-2013

Paper Code: PS03CMTH02	**Total Credit: 4**
Title Of Paper: Mathematical Methods - I	

Unit	Description in detail	Weighting (%)
I	Fourier series and applications to boundary value problems and summation of infinite series.	25%
II	Fourier integral representation and applications. Fourier transforms, computations of Fourier transforms of functions, properties of Fourier transforms, convolution and Fourier transform, applications to the boundary value problems involving Heat equation, Wave equation and Laplace equations.	25%
III	Laplace transform, Laplace transforms of some functions, properties of Laplace transform, inverse transform, convolution theorem, applications to solutions of ordinary differential equations, applications to the solutions of diffusion equation and wave equation.	25%
IV	Green's function and its applications, Gram-Schmidt orthonormalization method to Legendre polynomials, Hermite polynomials, Jacobi polynomials, Z-transform.	25%

Basic Text & Reference Books:-

- ➢ Shankar Rao, Introduction to Partial Differential Equations.
- ➢ Courant and Hilbert; Mathematical Methods.
- ➢ N. Sneddon; Special Functions of Mathematical Physics and Chemistry.
- ➢ L.A. Pipes, Applied Mathematics for Engineers and Physicists.
- ➢ B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, New Delhi, 2004.
- ➢ M. D. Raisinghania, Advanced Differential Equations.