SARDAR PATEL UNIVERSITY
Programme: B.Sc
Semester: II
Syllabus with effect from: November-2011

Paper Code: US02CMTH02	**Total Credit: 2**
Title of Paper: Matrix Algebra & Differential Equations	

Unit	Description in detail	Weightage (%)
I	Review of matrix theory, algebra of matrices, special types of matries, sub-matrices , determinant and minors of matrices.	**25%**
II	Characteristic equation of a matrix; and Cayley-Hamilton theorem, eigen-value and eigen vector of square matrices, eigenvalue of special type of matrices, The construction of orthogonal matrices.	**25%**
III	Linear differential equations with constant coe±cients; complimentary function and particular integral; operators; Products of operators, Determination of complimentary function. Inverse operators; determination of Particular integral and working rules for f(D)y = emx .	**25%**
IV	Determination of Particular integral and working rules for f(D)y = X where X = sinmx, cosmx, xm , eaxV , xV (where V is a function of x only). Homogeneous linear differential equations. Method of variation of parameters for solving second order nonhomogeneous differential equation.	**25%**

Basic Text & Reference Books:

- Shanti Narayan and Mittal P.K., A textbook of Matrices, S. Chand and Co. New Delhi, 2005, 11th revised edition.
- Introduction to calculus and differential equations. - D J Karia, N Y Patel,B P Patel, M L Patel
- Shanti Narayan. Differential calculus. Fourteenth Edition, Shamlal charitable trust, New Delhi, 1996
- Advanced Engineering Mathematics, Fifth Ed.- Kreyszig E. [New Age International Publishing Co.
- Higher Engineering Mathematics, Thirtyfifth edition. Grewal, B.S. [Khanna Publ]