Mathematics II
BIT152SII

Year: I **Semester: II**

Teaching Schedule Hour/ Week			Examination Scheme				
Theory	Tutorial	Practical	Internal Assessment		Final		Total
			Theory	Practical*	Theory**	Practical	
3	2	--	20	--	80	--	100

Course Objective: The main objective of this course is to enable students to apply mathematical tools such as advanced calculus, functions of a complex variables and series in information technology.

Course Contents:

Unit 1: Multiple Integrals **(6 hrs)**

Definition and Evaluation of Double Integrals; Area by Double integration; Introduction to triple integrals & some simple applications; Change of variables.

Unit 2: Differential Equations of the first order **(8 Hrs)**

Variable separable; Exact Differential equations; Homogeneous equations; Linear Differential Equation; Simultaneous differential equations; Equations of higher degree Some applications.

Unit 3: Linear Differential Equations **(7 Hrs)**

Homogeneous equations of second order; Methods of determining particular integrals and application; Vibrations of a particle (SHM).

Unit 4: Fourier Series and Integrals **(10 Hrs)**

Definitions and derivations; Odd and Even functions; Half range series; Change of scale; The Fourier Integral and Fourier Transforms.

Unit 5: Functions of a Complex Variable **(8 Hrs)**

Basic definitions; Functions of a complex variable; Limits, continuity & differentiation; Cauchy Riemann Equations; Analytic Functions; Harmonic Functions; Complex exponential, trigonometric and hyperbolic function.

Unit 6: Complex Series, Residues and poles **(6 Hrs)**

Taylor's Theorem; Laurent's Series; Zeros, Singularities and poles; Residues.

References:

1. Engineering Mathematics Vol II.:--□ S.S. Sastry, Prentice Hall of India.
2. Fraleigh, J.B. Calculus with Analytic Geometry, Addison Wesley pub. Co. Inc (1980)
3. Bajpai, A.C., Calus, I.M and fairley, J.A., Mathematics for Engineering & Scientists, Vol I, John wiley & sons (1973)
4. Goldstain, I.J. Lay, D.C. and schinder, D.I. Calculus and its Applications, Prentice Hall Inc (91977)
5. Spiegel, M.R. Theory and problems of advanced calculus, Scham publishing co

6. Srivastava, R.S.L. Engineering Mathematics, Vol II, Tata, McGraw hill publishing co, (1980)
7. Potter & Goldberg, Mathematical Methods, Prentice Hall of India.