

CLASS: B. Sc (Information technology)		Semester – II
SUBJECT: Applied Mathematics – II (USIT202)		
Periods per week	Lectures – 5	3 Credits

Unit – I	Complex Numbers: Cartesian, Polar & Exponential form, De-Moivre's theorem, Hyperbolic functions, Logarithms of Complex numbers	8 Lect.
Unit- II	Complex Variables : Cauchy Riemann Equations, , Conformal Mapping and Bilinear Mapping, concept of Line Integral, Riemann Integral, Singularities –Poles, Evaluation of Residues theorem.	8 Lect.
Unit – III	Laplace Transform: Introduction, Definition, Properties of Laplace Transform, Laplace Transform of standard function. Inverse Laplace Transform: Inverse Laplace Transform , Methods of obtaining Inverse Laplace transform, Laplace transform of Periodic Functions, Heavyside Unit-step Function, Dirac-delta function (Unit Impulse Function), Application of Inverse Laplace transform to solve differential equations.	8 Lect.
Unit – IV	Differentiation under Integral sign, Beta and Gamma Functions, Properties and Duplication Formula, Error Functions	8 Lect.
Unit – V	Fourier Series: Fourier Series, Change of Interval, Even and odd functions, Half range expansions. Fourier Transform and Inverse Fourier Transform: Fourier transform of Even and Odd functions, Fourier Transform of sine and cosine functions	8 Lect.
Unit – VI	Integral Calculus: Double Integral, Area, Triple Integral, Volume	8 Lect.

References:

Differential Calculus by Shanti Narayan.

B. S. Grewal, “Higher Engineering Mathematics.

Advanced Engineering Mathematics: R.K.Jain, S.R.K. Iyengar, Narosa Publishing House.

Engineering Mathematics : T Veerajan, Tata McGraw-Hill

Integral Transforms: A. R. Vasishta, Dr. R.K. Gupta, Krishna Prakashan Mandir.

Term Work for USIT202

- i) Assignments: Should contain at least 2 assignments covering the Syllabus.
- ii) Class Tests: One. Also Known as Unit Test or In-Semester Examinations
- iii) Tutorial : Minimum Three tutorials covering the syllabus

Practicals (USIT2P2):

Problem Solving	3 Lectures per Week (1 Credit)
<p>List of Problems</p> <ul style="list-style-type: none">i) Problem solving based on Complex Numbersii) Problem solving based on Complex Variablesiii) Problem solving based on Laplace Transformsiv) Problem solving based on Inverse Laplace Transformsv) Problem solving based on Differentiation under the integral signvi) Problem solving based on Beta and gamma functionsvii) Problem solving based on error functionsviii) Problem solving based on Fourier seriesix) Problem solving based on Fourier transformsx) Problem solving based on double integrals and areaxi) Problem solving based on triple integrals	