

Medi-Caps University
Programme: B.Tech
Semester: Even

Subject Name	Subject Code	L	T	P	Credit
Engineering Mathematics -II	EN3BS02	3	1	0	4

Unit I

Laplace Transform: Introduction of Laplace Transform, Laplace Transform of elementary functions, properties of Laplace Transform, Inverse Laplace transform and its properties, Convolution theorem, Applications of Laplace Transform to solve the Ordinary Differential Equation, Laplace transform of Unit step function and Impulse function.

Unit II

Fourier Series and Fourier Transform: Introduction of Fourier series, Fourier series for Discontinuous functions, Fourier series for Even and Odd function, Half range series. Fourier Transform, definition and properties of Fourier Transform, Sine and Cosine Transform.

Unit III

Partial Differential Equations: Definition, Formulation, Solution of Partial Differential Equations (By Direct Integration Method & Lagrange's Method), Non-Linear Partial Differential Equations of First order {Standard form I, II, III & IV), Charpit's method. Partial Differential Equations with Constant Coefficients (Higher Orders Homogeneous and Non- Homogeneous equations), Method of Separation of Variables, Application to heat and wave equations (one dimension).

Unit IV

Vector Calculus: Scalar and Vector fields, Vector Differentiation, Laplacian operator, Gradient, Divergence and Curl, Line and surface integrals, Green's theorem, Gauss Divergence theorem, Stoke's theorem.

Unit V

Probability: Elementary concepts of Probability, Discrete and Continuous random variable, Probability distribution functions, Binomial, Poisson and Normal Distribution.

Text Books / References :

1. B.S. Grewal, Higher Engineering Mathematics, Edition-43, Khanna Publishers, New Delhi, 2014.
2. B.V. Ramana, Higher Engineering Mathematics, Tata McGraw Hill Publishing Company Ltd., New Delhi, 2006.
3. R.K. Jain and S.K Iyengar, Advanced Engineering Mathematics, Narosa Publishing House, New-Delhi, 2006.
4. G.Paria, Partial Differential equation, Scholars Publishing House, 1981.

5. Shanti Narayan, A text book of Vector Calculus, S. Chand & Co., New Delhi.
6. S.P. Gupta , Statistical Methods ,Sultan chand & Sons, Delhi,2014.
7. Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons 1999.