

## CC182: Engineering Mathematics - II

Teaching Scheme			Credits	Marks Distribution				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE	CE	ESE	CE	
3	0	0	3	70	30	0	0	100

### Course Content:

Sr. No.	Topics	Teaching Hrs.
1	<p><b><u>Fourier Series:</u></b></p> <p>Orthogonal and orthonormal functions, Fourier series, half range Fourier sine and Fourier cosine series.</p>	10
2	<p><b><u>Special functions:</u></b></p> <p>Properties of Bessel's function and Legendre polynomials, examples of differential equations leading to Bessel functions and Legendre polynomial.</p>	08
3	<p><b><u>Complex Analysis:</u></b></p> <p>An introduction of limit, continuity and derivative of functions of complex variables, analytic functions, Cauchy – Reimann equations (Cartesian and Polar form), harmonic function, Milne Thompson's method, conformal mapping – translation, magnification and rotation, inversion and reflection, bilinear transformation.</p>	08
4	<p><b><u>Partial differential equation:</u></b></p> <p>Formation of partial differential equations, Lagrange's first order partial differential equation, directly integrable equations, non linear partial differential equation of first order, method of separation of variables, application to wave equation, diffusion equation and Laplace's equation.</p>	10

5 **Matrices:**

10

Rank of a matrix, Solution of simultaneous equations, Eigenvalues, Eigenvectors of a matrix, Quadratic forms.

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**Total Hrs. 46**

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**Reference Books:**

1. Kreyszig, E., *Advanced Engineering Mathematics*, Wiley Eastern Ltd.
2. Grewal, B.S., *Higher Engineering Mathematics*, Khanna Publishers.
3. Dass, H.K., *Advanced Engineering Mathematics*, S.Chand & company Ltd.
4. Bali, N. P. and Iyengar, *A text book of Engineering Mathematics*, Laxmi Publications (P) Ltd.
5. Ramana, D.V., *Higher engineering Mathematics*, Tata Mc-Graw Hill, New Delhi.
6. Greenbar Michae,l D, *Advanced Engineering Mathematics*, Pearson, Singapore Ind. Ed, 2007.