



Advanced Mathematics I

Course No:	28031
Course Type:	Lecture
Credits:	3
Course Status :	Compulsory Core Course
Prerequisite:	

Aims/Scope/Objectives:

Course Outline:

- **Advanced Theory in Complex Functions:**
Complex Function, Cauchy Riemann Condition, Analytical Functions, Linear Integral, Cauchy Theory, Laurent series, Residuals, Branch point and Branch Cut
- **Review of Tensors and Matrices:**
Matrix, Reversing, Triangular matrix, Tensors, System of Ordinary Differential Equation, Igon Valbo Problems
- **Review of Partial Differential Equations:**
Elliptic, Hyperbolic, Parabolic Partial Differential Equations
- **Integral Transform:**
Fourier Transform, Laplace and Melin Transform and application in solution of partial differential equations, Integral Equations, Green and Integral Kernel
- **Advanced topics in Engineering Mathematics:**
Sturm Liouville, Orthogonal functions, Solution for Wave Equation, Bessel, Legendre, Gamma, Hermite, Gauss, Laguerre Functions
- **Perturbation Method**
- **Calculus of Variation**

References:

- Advanced Engineering Mathematics, C.R. Wylie, McGraw-Hill, 1966
- Advanced calculus for Applications, F.B.Hildebrand, Prentice-Hall, 1976