

Syllabus
Mid Exam 2024-2025
Complex Variables and Partial Differential Equations (3130005)

Semester: III

Branch: Mechanical

Complex Numbers and Analytic Functions:

- *Polar Form of Complex Numbers,*
- *Powers and Roots,*
- *Complex Variable – Differentiation : Differentiation,*
- *Cauchy-Riemann equations, analytic functions, harmonic functions, finding harmonic conjugate*
- *Elementary analytic functions (exponential, trigonometric, logarithm) and their properties*
- *Conformal mappings,*
- *Mobius transformations and their properties.*

Complex Variable Integration & Power Series:

- *Liouville's theorem and Maximum-Modulus theorem.*
- *Sequences, Series, Convergence Tests, Power Series, Functions Given by Power Series, Taylor and Maclaurin Series, Laurent Series.*

Partial differential equations:

- *First order partial differential equations,*
- *Solutions of first order linear and nonlinear PDEs, Charpit's Method.*