Syllabus
Mid Exam
Complex Variables and Partial Differential Equations (3140610)

Semester: IV
Branch: Civil

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:

- *Contour integrals, Cauchy-Goursat theorem (without proof), Cauchy Integral formula (without proof).*
- *Liouville's theorem and Maximum-Modulus theorem.*
- *Sequences, Series, Convergence Tests, Power Series, Functions Given by Power Series, Taylor and Maclaurin Series, Uniform Convergence.*

Partial differential equations:

- *First order partial differential equations,*
- *Solutions of first order linear and nonlinear PDEs, Charpit's Method.*
- *Separation of variables method to simple problems in Cartesian coordinates, second-order linear equations and their classification.*