Complex Analysis

Syllabus:

Conformal mapping, Linear transformations, cross ratio, symmetry, oriented circles, families of circles, use of level curves, elementary mappings and Riemann surfaces. Complex integration, rectifiable curves, Cauchy's theorem for rectangle and disc, Cauchy's integral formula, higher derivatives Local properties of analytic functions, removable singularities, Taylor's theorem, Taylor series and Laurent series, zeros and poles, local mapping, the maximum principle Chains and cycles, simple connectivity, locally exact differentials, multiply connected regions, residue theorem, argument principle, evaluation of definite integrals Harmonic functions, mean value property, Poissons formula, Schwarz theorem, reflection principle, Weierstrass theorem.