

SHANTILAL SHAH ENGINEERING COLLEGE, BHAVNAGAR

GENERAL DEPARTMENT

MATHEMATICS

- Syllabus of Mid Semester Test- March 2019
- Subject : COMPLEX VARIABLES AND NUMERICAL METHODS(2141905)
- B. E. Semester-IV (Mechanical Branch)

Sr.No.	Topics
1	Complex Numbers and Functions: Exponential, Trigonometric, De Moivre's Theorem, Roots of a complex number ,Hyperbolic functions and their properties, Multi-valued function and its branches: Logarithmic function and Complex Exponent function ,Limit ,Continuity and Differentiability of complex function, Analytic functions, Cauchy-Riemann Equations, Necessary and Sufficient condition for analyticity, Properties of Analytic functions, Laplace Equation, Harmonic Functions, Harmonic Conjugate functions and their Engineering Applications
2	Complex Integration: Curves, Line Integral(contour integral) and its properties, Cauchy Goursat Theorem, Cauchy Integral Formula, Liouville Theorem (without proof).
3	Interpolation: Finite Differences, Forward, Backward and Central operators, Interpolation by polynomials: Newton's forward ,Backward interpolation formulae, Newton's Divided and Lagrange's interpolation formulae for unequal intervals
4	Numerical Integration: Newton-Cotes formula, Trapezoidal and Simpson's formulae.
5.	Solution of a System of Linear Equations: Gauss elimination, partial pivoting, Gauss-Jacobi method and Gauss-Seidel method.

Subject Coordinator