

The extended plane and its spherical representation. Power series, Analytic functions and Mobius transformations. (Chapters I and III of text).

UNIT II : Power series representation of Analytic functions, zeros of an analytic function, the index of a closed curve, Cauchy's theorem and Integral formula, the homotopic version of Cauchy's theorem and simple connectivity, counting zeros : The open mapping theorem. (Chapter IV of Text).

UNIT III : Classification of singularities, Residues, The argument principle (Chapter V of Text).

UNIT IV : The Maximum Principle, Schwartz lemma, Convex function and Hadamard's three circle Theorem, Phragman-Lindeloff theorem, Weierstrass factorization theorem. (Chapter VI and article 5 of Chapter VII of Text).

*Textbook* : Functions of one Complex variable, John, B. Conway, Second Edition, Springer International student edition, Narosa Publishing House.

*Reference* :

Walter Rudin : Real and Complex Analysis : Tata-McGraw Hill 1987 3rd Edition.

The definition of an analytic function be considered from reference book.