

W.e.f. 2005 - 2006 AB

SX-S 331, M 302 - Complex Analysis II Syllabus

UNIT I : The maximum modulus theorem: The maximum principle - Schwarz's lemma - Convex functions and Hadamard's three circles theorem - Phragmen - Lindelof theorem.

(§1, §2, §3, §4 of Chapter - VI of the prescribed textbook)

UNIT II : Compactness and convergence in the Spaces of Analytic Functions: The space of continuous functions $C(G, \Omega)$ - Spaces of analytic functions - Spaces of meromorphic functions - The Riemann Mapping Theorem - Weierstrass Factorization theorem - Factorization of sign functions.

(§1, §2, §3, §4, §5, §6 of Chapter - VII of the prescribed textbook)

UNIT III : Runge's Theorem: Runge's Theorem - Simple connectedness - Mittag-Leffler's Theorem, Analytic Continuation and Riemann Surfaces, Schwarz Reflection Principle - Analytic Continuation Along A Path - Monodromy Theorem.

(§1, §2, §3 of Chapter - VIII, §1, §2, §3 of Chapter - IX of the prescribed textbook)

UNIT IV : Harmonic Functions: Basic Properties of Harmonic functions - Harmonic functions on a disk. Jensen's formula, The genus and the order of an entire function Hadamard's factorization theorem.

(§1, §2 of Chapter - X and §1, §2, §3 of Chapter - XI of the prescribed textbook)

Prescribed Textbook :

Functions of one complex variables by J.B. Conway: Second Edition, Springer International Student Edition. Narosa Publishing House, New Delhi.