SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Mathematics)
Semester: IV
Syllabus with Effect from: November-2013

Paper Code: PS04CMTH01	**Total Credit: 4**
Title Of Paper: Complex Analysis - II	

Unit	Description in detail	Weighting (%)
I	The index of a close curve, behavior of the index on the components, different versions of Cauchy's theorem and Cauchy's integral formula, Morera's theorem, analogy between entire function and polynomials, open mapping theorem.	25%
II	Counting zeroes, Meromorphic functions, the argument principle, Rouche's theorem and its application, maximum principle, Schwarz lemma and its application, convex functions, Hadmard's theorem.	25%
III	Spaces of continuous functions $C(G, \omega)$, topology of uniform convergence on compact sets, space of analytic functions, Arzela-Ascoli theorem, Montel's theorem, Hurwitz's theorem, Riemann mapping theorem. Behavior of the function and Riemann's theorem on removable singularity, Casorati-Weierstrass theorem.	25%
IV	Comparison of entire functions and polynomials with respect to singularity, analytic continuation. Poisson's integral formula on a circle, Luca's theorem, Parsevals identity, Weierstrass factorization theorem, Genus and order of entire functions, Walli's formula, Jensen's inequality, Poisson-Jenson's inequality, Runge's theorem, harmonic functions.	25%

Basic Text & Reference Books:-

- J. B. Conway - Functions of one complex variable, Springer Verlag.
- W. Rudin, Real and Complex Analysis, McGraw Hill, 1967.