

Report of the Subcommittee to review the course number: (MTH205: modular)

Title of the course: (Introduction to Complex Analysis) 3L-1T-0P-0A (6 credits)

Specialized Infrastructure requirement: Lecture rooms of sufficient size.

Instructional aspects: Tutorial placed at end of week.

Course content: As given in table below

Lecture-wise break-up:

Topics	No. of lectures
Complex numbers, polar form, De Moivre's formula, convergent sequence, Continuity, Complex Differentiation.	2
Complex Differentiation and Cauchy-Riemann equation, Applications of C-R equations.	2
Analytic functions and Power series.	2
Derivative of a power series, Exponential function.	1
Logarithmic function and trigonometric functions.	1
Contour and Contour integral, Anti-derivative.	1
ML inequality, Cauchy's Theorem,	1
Cauchy integral formula, Examples: evolution of contour integrals, Derivatives of analytic functions.	1
Cauchy's estimate, Liouville's Theorem, Fundamental Theorem, of Algebra, Morera's Theorem, (without Proof), Taylor's Theorem.	1
Examples: Computation of Taylor's series, Zeros of Analytic functions, Identity theorem, Uniqueness theorem, Applications.	1
Identity theorem, theorem, Application, Maximum modulus principle, Laurent series.	1
Computation of Laurent expansion, Cauchy residue theorem.	1
Poles, Residue at a pole, Examples.	1
Residue at a pole and Examples (cond.), Evaluation of real improper integrals.	1

Evaluation of real improper integrals of different forms.	2
Linear fractional transformations.	1
TOTAL	20

Text book: Advance Engineering Mathematics, E. Kreyszig

Reference Book: Complex Variables and Applications, R.V. Churchill and J.W. Brown

CS Upadhyay
CS Upadhyay P Shunmugaraj V. Shankar A. Maloo S. Madan A. Mitra

S. Ghorai