Indraprastha College for women, Univ. of Delhi

WORK PLAN (January, 2023-May, 2023)

Course Name: B.Sc. (Hons.) Mathematics
Semester: VI
Paper Code:
Paper Name: Complex Analysis
Faculty: Dolly Jain

Week	Theme/ Curriculum
1	Functions of complex variable, Mappings, Mappings by the exponential function
2	Limits, Theorems on limits, Limits involving the point at infinity, Continuity
3	Derivatives, Differentiation formulae, Cauchy-Riemann equations, Sufficient conditions for differentiability
4	Analytic functions, Examples of analytic functions, Exponential function
5	Logarithmic function, Branches and Derivatives of Logarithms, Trigonometric functions
6	Derivatives of functions
7	Definite integrals of functions, Contours
8	Contour integrals and its examples
9	upper bounds for moduli of contour integrals
10	Antiderivatives, proof of antiderivative theorem
11	State Cauchy−Goursat theorem
12	Cauchy integral formula
13	An extension of Cauchy integral formula
14	Consequences of Cauchy integral formula
15	Revision
16	Revision
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Readings/Reference Texts:

1. Brown, James Ward, & Churchill, Ruel V. (2014). Complex Variables and Applications (9th ed.). McGraw-Hill Education. New York.

Additional Readings:

1. Bak, Joseph & Newman, Donald J. (2010). Complex Analysis (3rd ed.). Undergraduate Texts in Mathematics, Springer. New York.

2. Zills, Dennis G., & Shanahan, Patrick D. (2003). A First Course in Complex Analysis with Applications. Jones & Bartlett Publishers, Inc.

3. Mathews, John H., & Howell, Rusell W. (2012). Complex Analysis for Mathematics and Engineering (6th ed.). Jones & Bartlett Learning. Narosa, Delhi. Indian Edition.