

**MA206 – Introduction to Complex Analysis**  
(2026 Autumn semester)

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**Instructor:** Projesh Nath Choudhury

**Email:** projeshnc@iitgn.ac.in

**Google classroom code:** TBA

**Course website:** [http://projesh.people.iitgn.ac.in/Teaching/MA206\\_2026.html](http://projesh.people.iitgn.ac.in/Teaching/MA206_2026.html)

**Office:** AB-6/356

**Office hours:** TBA

**Course goals:** MA 206 is a Mathematics Basket course offered to undergraduate students at IITGN. It aims to help engineering students build a strong foundation in complex analysis for solving problems in engineering, physics, and applied mathematics.

**COURSE CONTENTS**

- (1) Review of complex numbers, complex plane, polar form, powers and roots, regions in the complex plane, topological properties, functions of a complex variable and their mapping properties, limits, Riemann sphere and stereographic projection, continuity, derivatives, analytic functions, Cauchy- Riemann equations, Laplace's equation.
- (2) Elementary functions: exponential function, logarithmic function, general power, trigonometric and hyperbolic functions.
- (3) Complex integration, line integrals, statement of Cauchy's integral theorem, statement of Cauchy's integral formula, Derivatives of analytic functions, statement of Morera's theorem, Liouville's theorem, statement of Maximum modulus principle, Power series, Taylor series, Taylor's theorem, Laurent series, singularities, and zeros, behavior at infinity, residues, statement of residue theorem, evaluation of real integrals, Conformal mappings, and applications.

**SUGGESTED BOOKS AND REFERENCES**

- (1) J.W. Brown and R.V. Churchill. *Complex Variables and Applications*. 8th edition, McGraw-Hill, 2009.
- (2) J.M. Howie. *Complex Analysis*. Springer Undergraduate Mathematics Series, 2003.

**LECTURES AND TUTORIALS**

- **Lectures:** TBA
- **Tutorials:** TBA

**Tutorial and Assignments**

Two types of problem sets will be posted in regular intervals: Tutorials and Assignments.

- **Tutorial problems:** The tutorial problems will be posted well in advance. It is the responsibility of the students to work on the problems before coming to a tutorial session.
- **Assignment problems:** Assignment problems will not be discussed in class. Students are expected to work out these problems and submit them by the appropriate deadline.

Discussing in a group is allowed and encouraged; however, each student should hand in their independently written solutions, written in their own words. Mere copying of others' work is strictly prohibited.

## POLICY FOR EVALUATION

- **Quiz:** 25%
- **Examination II:** 40%
- **Assignments:** 25%
- **Attendance:** 10%

## ATTENDANCE POLICY

Class participation will help you in staying on track and developing a deeper understanding and interest in the subject. As a result, attendance at lectures will be recorded. The following is the policy for the marks based on the percentage in attendance:

<b>% in Attendance</b>	<b>Marks</b>
<b>Above or equal to 70</b>	10
<b>50 to less than 70</b>	5
<b>Below 50</b>	0

\*If you miss a class due to medical reasons and want to record attendance for that day, you need to provide a medical certificate from the institute health center doctor stating that you are not fit to appear for the class on that day.

## HONOR CODE

Students are expected to follow the Institute Honor Code at all times. Any suspected/alleged violations of the Honor Code will be investigated and may lead to disciplinary action, as per Institute policy.

## GRADING POLICY

Relative grading policy will be followed.