

MATH-111 MATHEMATICS-I(Algebra)Cr. 3(3+0)

Objectives:

The course aims to:

1. Prepare the students with the essential tools of algebra
2. Develop skills to apply the concepts and the techniques

Course Contents:

1. **Preliminaries:** Real-number system, complex numbers, introduction to sets, set operations, functions, types of functions.
2. **Matrices:** Introduction to matrices, types, matrix inverse, determinants, system of linear equations, Cramer's rule.
3. **Quadratic Equations:** Solution of quadratic equations, qualitative analysis of roots of a quadratic equations, equations reducible to quadratic equations, cube roots of unity, relation between roots and coefficients of quadratic equations.
4. **Sequences and Series:** Arithmetic progression, geometric progression, harmonic progression.
5. **Binomial Theorem:** Introduction to mathematical induction, binomial theorem with rational and irrational indices. Trigonometry: Fundamentals of trigonometry, trigonometric identities.

Teaching-Learning Strategies

Teaching will be a combination of class lectures, class discussions, and group work. Short videos/films will be shown on occasion.

Assignments

The sessional work will be a combination of written assignments, class quizzes, presentation, and class participation/attendance.

Assessments and Examination

Sessional Work: 25 marks

Midterm Exam: 35 marks

Final Exam: 40 marks

Books Recommended:

1. Swokowski, E.W.1986. Fundamentals of Algebra and Trigonometry. 6th Ed., PWS-Kent Company.
2. Kaufmann, J.E., 1987.College Algebra andTrigonometry. PWS-Kent Company, Boston.
3. Dolciani, M.P., Wooton, W., Beckenback, E.F., Sharron, S.1978. Algebra 2 and Trigonometry, Houghton & Mifflin.