

**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. 6<sup>th</sup> 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.