Module Code:	Math - 111
Module title:	Elementary Mathematics – I (Algebra)
Name of Scheme:	BS Chemistry (4 Years)
Semester :	2nd
Module Type:	Compulsory
Module Rating:	3 Credits

1. **Introduction of the Course:**
   This course is designed in view of the algebra and Quadratic Equations. This course would familiarize students with basics of sequence and series.

2. **Course 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.

3. **Course Contents**
   Preliminaries: Real-number system, complex numbers, introduction to sets, set operations, functions, types of functions.
   Matrices: Introduction to matrices, types, matrix inverse, determinants, system of linear equations, Cramer's rule.
   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.
   Sequences and Series: Arithmetic progression, geometric progression, harmonic progression.
   Binomial Theorem: Introduction to mathematical induction, binomial theorem with rational and irrational indices.
   Trigonometry: Fundamentals of trigonometry, trigonometric identities.

4. **Teaching-learning Strategies**
   1. Lectures
   2. Group Discussion
   3. Laboratory work

4. Seminar/ Workshop

5. **Learning Outcome:**
   1. Students are expected to get familiarized with the mathematical induction, binomial theorem with rational and irrational indices.
   2. They will learn about the fundamentals of trigonometry and trigonometric identities.

6. **Assessment Strategies**:
   1. Lecture Based Examination (Objective and Subjective)
   2. Assignments
   3. Class discussion
   4. Quiz
   5. Tests

7. **Recommended Readings:**

   1. Dolciani, M.P., Wooton, W., Beckenback, E.F., Sharron, S.1978. Algebra2 and Trigonometry, Houghton & Mifflin.
   2. Kaufmann, J.E., 1987. College Algebra and Trigonometry. PWS-Kent Company, Boston.
   3. Swokowski, E.W.1986. Fundamentals of Algebra and Trigonometry. 6th Ed., PWS-Kent