Pre-Mathematics-I

Code	Credit Hours
MATH-162	3-0

Course Description:

This course covers the basic as well as advanced concepts of Algebra including solution of linear and nonlinear equations. Moreover, the concepts from trigonometry are discussed in detail including their applications in solving real life problems. The successful completion should develop understanding of the concepts which strengthen the understanding of mathematical techniques. Further, it should equip the students with trigonometric identities, their conceptual background and the applications of these concepts in solving mathematical and engineering problems.

Text Book:

- Mathematics-I Algebra and Trigonometry, (1st Edition), Punjab Textbook Board, Lahore

Reference Book:

- Algebra and Trignometry, (3rd Edition), Jacqueline M. Dewar and D. G. Zill

Prerequisites:

NA

ASSESSMENT SYSTEM

Quizzes	10%
Assignments	10%
Mid Terms	30%
ESE	50%

Teaching Plan:

Week No	Topics	Learning Outcomes
1-2	Sets and Logic	Revision of basic concepts of Sets, operations on sets and properties ofoperations on sets, relations, functions. Inductive and deductive logics, implications, truth sets.
3-5	Quadratic Equations and System of Equations	Introduction, solving equations reducible to quadratic equations.Cube roots and fourth roots of unity. Polynomial function, synthetic division. Solving systems of two equations involving two variables.
6-7	Permutation, Combination and Probability	Introduction to factorial of a number. Fundamental principle of counting,permutations, combinations. Basic concept and estimation of probability.
8	Mathematical Induction and Binomial Theorem	Principle of mathematical induction. Binomial Theorem for positive and negative integral indices.
9	**Mid Semester Exam**	
10-11	Trigonometry	Revision of concepts of trigonometry including trigonometric functions atany angle, its signs, basic trigonometric identities. Relationship between length of an arc of a circle and circular measures ofits central angle.
12-17	Identities and Graphs of Trigonometric Functions	Double and half angle identities. Sum, difference and product of sines and cosines. Domain and range of trigonometric functions. Period of trigonometricfunctions. Graphs of six basic trigonometric functions. Domain and range of inverse trigonometric functions. Graphs of inverse trigonometric functions. Introduction and solution of general trigonometric equations.
18	**End Semester Exam**	