Paper Code : MAT:201
Paper Name : **Mathematics II**

Teaching Hours (Per Week)		Examination Scheme		
TH. (hours)	Pr. (hours)	Internal	External	Total
		Th. (marks)	Th. (marks)	100 (marks)
3		30	70	

Lectures = 68 Hours

Objective:
Mathematics is about pattern and structure; it is about logical analysis, deduction, calculation within these patterns and structures. When patterns are found, often in widely different areas of science and technology, the mathematics of these patterns can be used to explain and control natural ha ppenings and situations.
Qualifying in mathematics helps in having a wide range of career choices. The abilities
- to use logical thought,
- to formulate a problem in a way which allows for computation and decision,
- to make deductions from assumption,
- to use advanced concepts,
are all enhanced by a mathematics course.

Detailed Syllabus

UNIT I
SETS & RELATIONS **14 Hrs.**

Definition -Operation on sets, Principal of Inclusion and Exclusion, Difference and symmetric difference of sets, Cartesian products and results related to Cartesian products. Relations- Types of relations, Equivalence relations, .

UNIT II
CO-ORDINATE GEOMETRY: **14 Hrs**
Concept of limits, fundamental theorems on Limits(without proof),
3Dimensional geometry:-co-ordinates of points in space,results of points in space and lines in space,Equation of straight lines in space- vector form,Cartesian form.

UNIT III
PROBABILITY: **14 Hrs.**

Introduction,Sample,Space and events, Conditional Probability, Independent events, Addition and Multiplication theorem on probability, Random variables,Mathematical Expectation, Theorems on Expectations, Variance of a variable in terms of Expectations.

UNIT IV
TRIGONOMETRY : **14 Hrs.**

Trigonometric or Circular Functions,Conditional Identities involving the angles of a triangle, Trigonometric equations,Graphs of trigonometric functions.

UNIT V
FUNCTIONS: **13 Hrs.**
 Types of Functions-one to one, onto, into and inverse functions, composition of functions-inverse of composition of functions, Logarithmic and exponential functions,Factorial Functions,Fibonacci sequence.

RECOMMENDED BOOKS
1. Elements of Discrete Mathematics- C. L L IU
2. Discrete Mathematics- a)Semyour Lipschutz, Marc Lipson ,b) Vinay Kumar.
3. Fundamentals of Statistics- S.C.Gupta
4. Business Mathematics- Thukral J.K