



**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)	
3		30	70	100 (marks)

**Lectures = 68 Hours**

### 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.



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**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