Syllabus for B.Sc-IT Course at S.P.College

SEMESTER -- II

COURSE TITLE: MATHEMATICS-II **COURSE CODE: BIT- 202**

UNIT-I.

SETS, RELATIONS AND FUNCTIONS

Sets & their representations. Various Types of Sets, Subsets, Power Set, Universal Set. Operations on Sets. Ordered Pairs, Cartesian Product of Sets. Relation, Domain, Co-domain & Range. Equivalence Relation. Functions, Graph of a Function. Various types of function, Application Of Sets & Functions.

UNIT-II.

LIMITS & CONTINUITY

Definition, Concept, Some Simple Applications Related to

$\lim_{x\to a} \frac{x^n-a^n}{x-a}$, $\lim_{x\to 0} (1+x)^{1/x}$, $\lim_{x\to 0} \frac{e^x-1}{x}$, $\lim_{x\to 1} \frac{\log x}{x-1}$

Continuity of a function at a point and over an interval with examples. Sum, difference, product and quotient of two continuous functions.

UNIT-III

DIFFERENTIATION

Introduction, Derivative of a Function, Differentiability, Derivative of Some important functions as x^n, $(ax+b)^n$, sinx, cosx, tanx, logx, a^x, e^{ax}, $\sin^{-1}x$,$\cos^{-1}x$,$\tan^{-1}x$

INTEGRATION

Integrals of the type: $\int x^n dx$, $\int (ax+b)^n dx$, $\int \sin ax dx$, $\int \cos ax\, dx$, $\int \tan ax\, dx$, $\int e^{ax} dx$, $\int a^x dx$, $\int \sin x \cos x dx$.

UNIT-IV

BOOLEAN ALGEBRA

Introduction , Boolean algebra as an Algebric Structure, Principle of duality. The Conditional and Bi-conditional statements. Arguments and their validity. Some simple applications to switching circuits.

BOOKS RECOMMENDED

1. Mathematics Text Book for Class XI Part I & II. (Published by N.C.E.R.T).
2. Mathematics Text Book for Class XII Part I & II (Published by N.C.E.R.T).

SUGGESTED READINGS

1. Differential Calculus by Dr. A.A. Auzeem, Kochar and Chopra.
2. A Text Book of Mathematics By R. S. Aggarwal.