SILVER OAK UNIVERSITY

College of Computer Application

Integrated M.Sc (IT)

Subject Name: Mathematics for Computer Application

Subject Code: 1040275101

Semester: I

Prerequisite: NIL

Objective:NIL

Teaching and Examination Scheme:

Teaching Scheme			Credits	Evaluation Scheme				Total Marks
L	T	P	C	Internal		External		
				Th	Pr	Th	Pr	
4	0	0	4	40	-	60	-	100

Content:

Unit No.	Course Contents	Teaching Hours	Weightage %
I	**Binary Mathematics and Data representation** ➢ Representation of Characters in Computers ➢ Representation of Integers and Fractions, Hexadecimal Representation of Number ➢ Decimal to Binary Conversion, Binary addition and Subtraction ➢ Signed Number & Two Complement Representation of Numbers ➢ Addition/Subtraction of Numbers in 2's Complement Notation ➢ Binary Multiplication and Division ➢ Floating Point Representation of Numbers and Arithmetic Operation with Normalized Floating Point Numbers	10	18
II	**Mathematical Logic** ➢ Basics of Mathematical Logic ➢ Normal Forms ➢ Indirect Method of Proof ➢ Automatic Theorem Proving ➢ Variables and Quantifiers	8	16
III	**Set Theory** ➢ Introduction to Set Theory ➢ Relations ➢ Hasse Diagram ➢ Function ➢ Binary Operation	8	16
	➢ Recursive Function and Lattice		

IV	**Combinatorics** ➢ Basic of Counting ➢ Permutation and Combination ➢ Pigeonhole Principle with applications ➢ Mathematical Induction ➢ Recurrence Relations ➢ Generating Functions	10	20
V	**Analytic Geometry (Cartesian Geometry)** ➢ Introduction to Regular Cartesian Coordinate System ➢ Distance Formula ➢ Line and Slope Formula ➢ Area ➢ Angle Between The Two Lines	8	15
VI	**Determinants** ➢ Introduction to Determinant ➢ Notation, Definition and properties of determinant ➢ Cramer's Rule for solution of linear systems	8	15

Course Outcome:

Sr. No.	CO statement	Unit No
CO-1	Convert decimal to binary and hexadecimal, 2's complement data representation, perform operations like addition, subtraction, division and multiplication.	1
CO-2	Recognize mathematical notations ,carry out technique of indirect proof, Automatic theorem proving, mathematical induction.	2
CO-3	Conceptually use set theory in understanding the data & fetching it from database using query.	3
CO-4	Utilize permutations and combinations on given set of data.	4
CO-5	Describe Cartesian coordinate system and implement different geometric formulas in calculation.	5
CO-6	Use Cramer's rule to solve system of linear equations.	6

Books Recommended:-

- Kevin Ferland - Discrete Mathematical Structure - Cengage Learning India Private Ltd.
- T. Veerarajan - Discrete Mathematics - Tata McGraw Hill.
- H. R. Vyas - Mathematics for Management - B. S. Shah Prakashan
- Rosen - Discrete Mathematics and its Applications – PHI
- P. K. Sinha – Computer Fundamentals – BPB Publication
- G.S.S. Bhishma Rao - Mathematical Foundation of Computer Science - Scitech publication (India) Pvt. Ltd.