



SILVER OAK UNIVERSITY

Computer Application

Integrated M.Sc(IT)

Subject Name: Mathematics for Computer Applications

Subject Code:

Semester:I

Prerequisite: NIL

Objective: NIL

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Evaluation Scheme				Total Marks
L	T	P		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 <ul style="list-style-type: none"> ➤ 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 <ul style="list-style-type: none"> ➤ Basics of Mathematical Logic ➤ Normal Forms ➤ Indirect Method of Proof ➤ Automatic Theorem Proving ➤ Variables and Quantifiers 	8	16
III	Set Theory <ul style="list-style-type: none"> ➤ Introduction to Set Theory ➤ Relations ➤ Hasse Diagram ➤ Function ➤ Binary Operation 	8	16

	➤ Recursive Function and Lattice		
IV	Combinatorics <ul style="list-style-type: none"> ➤ Basic of Counting ➤ Permutation and Combination ➤ Pigeonhole Principle with applications ➤ Mathematical Induction ➤ Recurrence Relations ➤ Generating Functions 	10	20
V	Analytic Geometry (Cartesian Geometry) <ul style="list-style-type: none"> ➤ Introduction to Regular Cartesian Coordinate System ➤ Distance Formula ➤ Line and Slope Formula ➤ Area ➤ Angle Between The Two Lines 	8	15
VI	Determinants <ul style="list-style-type: none"> ➤ 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.