UNIT–I : The Foundations(Logic and Proofs):
Propositional logic, Applications of Propositional logic, equivalence, Predicates and Quantifiers, Nested quantifiers, Rules of inference, proof method and strategy.

UNIT-II : Basic structures :
Sets, Functions, Sequences, Sums, matrices and Relations:
Cardinality of sets and Matrices, Relations and their properties, Relations and their applications, representing relations, closures of relations, equivalence relations and Partial orderings.

UNIT-III: Algorithms, Induction and Recursion:
The growth of functions, Complexity of algorithms
Induction and Recursion: Mathematical Induction, Strong induction and well ordering Recursive definitions and structural induction, Recursive algorithms, Program correctness

UNIT-IV: Discrete Probability and Advanced Counting Techniques:
An introduction to Discrete probability, Probability theory, Bayes theorem, Expected value and variance.
Advanced Counting Techniques: Recurrence Relations, Solving linear Recurrence relations.

UNIT-V: Graphs
Representing graphs and Graph isomorphism, Euler and Hamilton paths, Planar graphs, Applications of Trees, Spanning Trees and Minimum Spanning Trees.

Text Books/ References:
1. Discrete and Combinational Mathematics- An Applied Introduction-5th Edition–
Ralph.P.Grimaldi.PearsonEducation
2. Discrete Mathematical Structures with applications to computer science Trembly J.P. &Manohar.P,TMH
3. Mathematical Foundations for Computer Science Engineers,JayantGanguly,Pearson Education
4. Discrete Mathematics and its Applications, Kenneth H. Rosen,FifthEdition.TMH.
5. Discrete Mathematics with Applications, ThomasKoshy,Elsevier
6. Discrete Mathematical Structures, BernandKolman, Roberty C. Busby, Sharn Cutter Ross,

Course Mapping with Programme Outcomes

CO – PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO [1]	2	0	1	1	0	1	1	2	1	3	1	1
CO [2]	3	2	3	1	1	0	1	1	0	2	3	2
CO [3]	0	1	2	1	0	0	2	1	0	3	1	1
CO [4]	1	3	2	2	0	0	2	1	0	3	0	3
CO [5]	1	1	2	0	1	1	1	0	0	3	3	1
Average	1.4	1.4	2	1.4	0.4	0.4	1.4	1	0.2	2.8	1.6	1.6

Nominal Rolls of the Students