Course Code	CSE121
Course Name	Discrete Mathematics
Credits	4
Course Offered to	UG
Course Description	Discrete Mathematics is the study of mathematical structures (objects) which are discrete, distinct in nature. This course provides the mathematical basis for the understanding of computers and modern computation. It is the backbone of computer science and has a lot of applications in cryptography and engineering.

Pre-requisites

Pre-requisite (Mandatory)	Pre-requisite (Desirable)	Pre-requisite(other)
		A good knowledge of elementary mathematics, esp. algebra, calculus and basic programming language.

*Please insert more rows if required

Post Conditions*(For suggestions on verbs please refer the second sheet)

CO1	CO2	CO3	CO4
Students are able to read, interpret and write some basic mathematical notations.	Students are able to recognize and to construct examples of mathematical objects introduced during the course such as the sets and functions.	Students are able to develop several matematical models.	Students are able to develop the problem-solving skills.

Weekly Lecture Plan

Week Number	Lecture Topic	COs Met	Assignment/Labs/Tutorial
Week 1	Intriduction to Logic, Predicates and Quantifiers	C01	Tutorial-01
Week 2	Rules of Inferences, Introduction to Proofs	C01, C02, C03	Tutorial-02
Week 3	Proof Methods, Godel's Incompleteness	C03	Tutorial-03 / Homework-01
Week 4	Recursive Functions, Sequence and Summations	C03, C04	Tutorial-04
Week 5	Introduction to Turing Machines, Bog O Notation and Others	C01, C03	Tutorial-05
Week 6	Chinese Remainder Theorem, Mathematical Induction, Sturctural Induction	C02, C03, C04	Tutorial-06 / Homework-02

Week 7	Basics of Counting, Pigeonhole Principle	C01, C02, C03, C04	Tutorial-07
Week 8	Permutation and Combinatioons (Generalized), Binomial Coefficients	C02, C03, C04	Tutorial-08 / Homework-03
Week 9	Recurrence Relations, Generating Functions	C03, C04	Tutorial-09
Week 10	Relations and their properties, Partial Orderings	C02, C03, C04	Tutorial-10
Week 11	Graphs and their various types, Shortest Path	C01, C02, C03, C04	Tutorial-11 / Homework-04
Week 12	More on Graph Theoretical Objects	C03, C04	Tutorial-12
Week 13	Trees and Traversal, Minimum Spanning Trees	C02, C04	Tutorial-13

*Please insert more rows if required

Weekly Lab Plan

Week Number	Laboratory Exercise	COs Met	Platform (Hardware/Software)

*Please insert more rows if required

Assessment Plan

Type of Evaluation	% Contribution in Grade
Homework	10
Quiz	20
Mid-sem	30
End-sem	40

*Please insert more row for other type of Evaluation

Resource Material

Type	Title
Textbook	Kenneth Rosen, ``Discrete Mathematics and Its Applications'', 7th Edition, 2012.
Reference	Kolman, Busby, Ross, ``Discrete Mathematical Structures'', PHI.