

## Lesson Plan

**Name of Faculty** : Gaurav Singh Sisodia  
**Discipline** : Mathematics  
**Semester** : CSE-3<sup>rd</sup>  
**Subject** : Discrete Mathematics (PCC-CSE-203-T)  
**Lesson Plan Duration:** 15 weeks (from September, 2022 to January, 2023)  
Work Load (Lecture/Practical) per week (in hours): **Lectures 03 hours.**

Week	Theory		Actual Lesson plan covered
	Lecture Day	Topic (Including Assignment/Test)	
1 <sup>st</sup>	1	Introduction to set theory, Venn diagrams, Set operations, Algebra of sets	
	2	Duality , Finite and Infinite sets, Counting principal	
	3	Classes of sets , Power Sets, Partitions, Multi sets	
2 <sup>nd</sup>	4	Cartesian Product, Representation of relations, Types of relation	
	5	Equivalence relations and partitions	
	6	Partial ordering relations, Function and its types	
3 <sup>rd</sup>	7	Composition of function, inverse functions, Recursively defined functions	
	8	Propositions and compound propositions, Basic logical operations	
	9	Prepositions and Truth tables	
4 <sup>th</sup>	10	Tautologies and Contradictions, Logical Equivalence, Algebra of Propositions	
	11	Conditional and Bi-conditional Statements	
	12	Algebraic Structures: Group Axioms, Monoid	
5 <sup>th</sup>	13	Semi-Groups, Subgroups	
	14	Abelian Group, Cosets, Normal Subgroup, Lagrange's Theorem	
	15	Cyclic Group, Permutation Group	
6 <sup>th</sup>	16	Homomorphism, Isomorphism, Automorphism	
	17	Rings	
	18	Integral Domains and Fields	
7 <sup>th</sup>		-----1 <sup>st</sup> Minor Test-----	
8 <sup>th</sup>	19	Polynomials and their evaluation, Sequences	
	20	Introduction to AP, GP and AG Series	
	21	Partial Fractions, Recurrence Relation	
9 <sup>th</sup>	22	Linear Recurrence Relations with Constant Coefficients	
	23	Linear Homogeneous Recurrence Relations with Constant Coefficients	
	24	Particular Solution	
10 <sup>th</sup>	25	Homogeneous Linear Difference Equations	
	26	Non-Homogeneous Linear Difference Equations, Total Solution	
	27	Generating Functions	
11 <sup>th</sup>	28	Graphs Theory: Introduction to Graphs, Multi Graph	
	29	Directed and Undirected Graphs	
	30	Subgraphs, Bipartite Graphs	
12 <sup>th</sup>	31	Regular Graphs, Connected Graphs	
	32	Homomorphic and Isomorphic Graphs	
	33	Cut points and Bridges	
13 <sup>th</sup>	34	Paths and Circuits	
	35	Euler Graph, Hamiltonian Graph, Planar Graph, Euler Formula	
	36	Weighted Graphs	
14 <sup>th</sup>		-----2 <sup>nd</sup> Minor Test-----	
15 <sup>th</sup>	37	Dijkstra's Shortest Path Algorithm for Weighted Graphs	
	38	Trees, Spanning Trees	
	39	Minimum Spanning Tree (Prim's and Kruskal's Algorithm)	