Teaching Plan

Dept. Of Computer Science

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Discipline   :   Computer Science (Hons.)
Semester   :   Second
Paper Code   :   CC4
Subject   :   Discrete Structures
Name of faculty :   Sandipan Maity
Duration: 24th April,2023 to 9th July,2023

Unit	Topics	No of Lectures	Duration in Hour
Unit 1	Introduction: Sets – finite and Infinite sets, uncountably Infinite Sets; functions, relations, Properties of Binary Relations, Closure, Partial Ordering Relations; counting – Pigeonhole Principle, Permutation and Combination; Mathematical Induction, Principle of Inclusion and Exclusion	10	10 Hours
Unit 2	Growth of Functions: Asymptotic Notations, Summation formulas and properties, Bounding Summations, approximation by Integrals	6	6 Hours
Unit 3	Recurrences: Recurrence Relations, generating functions, Linear Recurrence Relations with constant coefficients and their solution, Substitution Method, Recurrence Trees, Master Theorem	6	6 Hours
Unit 4	Graph Theory: Basic Terminology, Models and Types, multigraphs and weighted graphs, Graph Representation, Graph Isomorphism, Connectivity, Euler and Hamiltonian Paths and Circuits, Planar Graphs, Graph Coloring, Trees, Basic Terminology and properties of Trees, Introduction to Spanning Trees	12	12 Hours
Unit 5	Prepositional Logic: Logical Connectives, Well-formed Formulas, Tautologies, Equivalences, Inference Theory	6	6 Hours

Reference Book:

1. Discrete Mathematics and Its Applications by Kenneth Rosen, Sixth Edition ,McGraw Hill 2006

2. Introduction to algorithms by T.H. Coremen, C.E. Leiserson, R. L. Rivest, 3rd edition Prentice Hall on India, 2009