**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Session Odd Semester**

**(2018-19)**

**Class: BCA II (3rd semester) Name of the Teacher: Ms. Nidhi Goyal**

**Subject: Computer Algorithms Period : 3rd and 2nd**

**Paper : MS-62 Room No : Lab1 and Lab 3 (IT Block)**

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| **S. No** | **Date From** | | **Date Upto** | **Topics to be covered** |
| Week 1 | **(For ongoing classes)** | | |  |
| July 24, 2018 | | July 28, 2018 |
| Week 2 | July 30, 2018 | August 4, 2018 | | Introduction to Data Structures: Definition, Types of Data Structures |
| Week 3 | August 6, 2018 | August 11, 2018 | | Stacks and its operations(Push, Pop), Queue and its operations (Insert, Delete), Tree (Binary Tree, General  Tree and its Traversal), Graph(Types and its Traversal) |
| Week 4 | August 13, 2018 | August 18, 2018 | | Algorithms and Analysis:  Definition; Analysing algorithms; space and time complexity, Asymptotic Notation (O, Ω,θ) practical complexities, |
| Week 5 | August 20, 2018 | August 25, 2018 | | Best, average and worst case performance of algorithms, examples, Recursive algorithms, Introduction to recurrence  relations. |
| Week 6 | August 27, 2018 | September 1, 2018 | | Divide and Conquer: General method, Binary search, Merge sort, |
| Week 7 | September 3, 2018 | September 8, 2018 | | Quick sort, Selection problem, Strassen's matrix multiplication and analysis of these problems. |
| Week 8 | September 10, 2018 | September 15, 2018 | | Greedy Method: General Method, Knapsack problem, Job sequencing with deadlines, |
| Week 9 | September 17, 2018 | September 22, 2018 | | Minimum spanning Trees (Prim's Algorithm, Kruskal's Algorithm), Single source shortest paths and analysis of these problems. |
| Week 10 | September 24, 2018 | September 29, 2018 | | Dynamic Programming: General method, Optimal binary search trees, 0/1 Knapsack, the traveling salesperson problem, |
| Week 11 | October 1, 2018 | October 8, 2018 | | Revision and class tests of the syllabus covered |
| **MID SEMESTER EXAMINATION (October 11, 2018 to October 17, 2018)** | | | | |
| Week 12 | October 20, 2018 | October 27, 2018 | | Dynamic Programming: Single Source Shortest Path Problem (Bellman Ford Algorithm), All pair shortest path problem (Floyd's  Algorithm). |
| Week 13 | October 29, 2018 | November 3, 2018 | | Back Tracking: General method, N queen's problem, Graph coloring, |
| Week 14 | November 5, 2018 | November 10, 2018 | | Hamiltonian cycles,  Analysis of these problems |
| Week 15 | November 12, 2018 | November 17, 2018 | | Branch-And-Bound: General Method, 0/1 Knapsack, Traveling Salesperson problems. |
| Week 16 | November 19, 2018 | November 22, 2018 | | NP-hard and NP-complete problems:  Basic concepts, Statement of Cook's Theorem, Satisfiability SAT, Examples of NP-hard graph [Clique Decision Problem, Chromatic Number 8  Decision Problem] and NP-scheduling problems [Scheduling Identical Processors, Job Shop Scheduling]. |
| Week 17 | November 26, 2018 | December 1, 2018 | | Revision of whole syllabus |