Course Title: Design and Analysis of Algorithms

Semester and Year: Autumn 2021

Credit Structure (L-T-P-Cr): 3-1-0-4

Course Code: IT216

Prerequisites (if any): Data Structures

Instructor’s Name with email: Anuj Tawari, anuj_tawari@daiict.ac.in

Course Objectives: This course intends to provide a rigorous introduction to fundamental techniques in the design and analysis of algorithms.

- Algorithm Design - Kleinberg and Tardos [Addison-Wesley, 2005.]

Mode of Delivery: Online lectures

Evaluation Scheme

- Labs and Assignments: 15%
- InSem Exam: 25 + 25%
- End Sem Exam: 35%

Lecture Plan:
- Asymptotic Notation 1 lecture.
- Divide and Conquer 2 lectures.
- Recurrences 1 lecture
- Sorting and Searching 7 lectures.
- Depth first Search 1 lectures.
- Breadth first search 2 lectures.
- Topological Sort 1 lectures.
- Minimum Spanning tree 3 lectures.
- Greedy Algorithms 3 lectures.
- Dynamic Programming 4 lectures
- Pattern Matching 2 lectures
- NP-completeness 1 lecture
- Approximation Algorithms 2 lectures