CS345A (Design and Analysis of Algorithms)
1st semester of 2021-22
First handout

Aim of the course:
To empower each student with the skills to design algorithms
(1) With provable guarantee on correctness.
(2) With provable guarantee on efficiency.

Topics: Advanced applications of Divide and Conquer, Greedy Algorithms, Dynamic Programming, Shortest paths algorithms, Depth First Search Tree in directed graphs with applications, Algorithms for maximum flow and its applications, Amortized Analysis and its applications, NP-Completeness and polynomial time reduction, a gentle introduction to approximation algorithms. In addition to these topics, many interesting and elegant algorithms of various fundamental problems will be discussed during the course.

Course Evaluation:
Assignments: 3 Assignments of 6.7% marks each.
Quizzes : 3 quizzes of 7.5% marks each. Each quiz will be **announced**.
Class room participation: 7.5% marks. Rule for getting these marks is as follows.
A student will be asked a question during lectures.
If he/she **attempts** each question that is asked then and there,
he/she will get 7.5% marks. Otherwise, he/she loses these marks.
Mid semester exam : 20% marks
End semester exam : 30% marks

Passing criteria: Minimum 25% marks in all exams combined together(Quizzes, Mid semester exam, and end semester exam).

Lectures: 9:00 AM to 9:50 AM on Monday, Wednesday, and Friday.
Important: The first lecture will be held at 9:00 AM on Monday, 2nd August 2021.

Mode of instruction and interaction:
The lectures will be held online through zoom meetings. The details of these meetings are as follows:
Zoom link:
https://iitk-ac-in.zoom.us/j/97923228307?pwd=QXAwMDlHdGFKbE41a2dzeU9QbmhTZz09
Meeting id: 979 2322 8307
Passcode: 234575

Course Website: https://hello.iitk.ac.in/ Please use your iitk email credentials to login.

Anti Cheating Policy:

Please visit the following link for the anti-cheating policy that will be followed during this course:
https://www.cse.iitk.ac.in/pages/AntiCheatingPolicy.html