ALGO – Design and Analysis of Algorithm.

Monsoon 2025

Instructor(s): **Siddharth Pritam**

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Office Hours: Thursday 3:00pm - 4:00pm Siddharth Pritam G6

Course Summary

This course introduces students to the fundamental principles of algorithm development and evaluation. It covers core topics such as asymptotic analysis, recurrence relations, and complexity classes, while exploring key algorithm design paradigms including divide and conquer, greedy methods, dynamic programming, and backtracking. The course also delves into essential graph algorithms, such as shortest paths and minimum spanning trees, and may touch on advanced concepts like NP-completeness and approximation algorithms. Students learn to design efficient solutions for computational problems and rigorously analyze their performance.

Evaluation components

Homework Assignments	20%
Midterm Exam	25%
Final Exam	35%
Class participation,quizes	20%

Policy on attendance:

Regular class attendance is strongly encouraged, as it is essential for effective learning. To incentivize this, we will conduct surprise quizzes during class. Students who miss these quizzes will not be eligible for make-up exams, unless they notify us in advance or provide valid medical documentation.

– Use of **laptops and mobile phones are strongly discouraged** during the lectures and problem sessions. Please **use pen and paper** to take notes. We will attempt to upload transcripts of the lectures regularly.

Policy on cheating:

As you already know that, the institute is very serious about cheating and malpractices during the exams. Last semester, strict actions were taken against the students who did not follow the guidelines. We would like to remind you again to go through the institute guidelines on this carefully. And any form of malpractice would lead to very strict action including de-registration from the course.

Policy on make-up exams:

One make-up exam will be conducted towards the end of the semester for all missed graded component based on genuine reasons like medical grounds. The marks corresponding to each missed component will be computed on the basis of their respective weight.

References

[1] Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, and Clifford Stein, *Introduction to Algorithms*, 3rd ed., MIT Press, 2009.

[2] Jeff Erickson, *Algorithms*, Available online at https://jeffe.cs.illinois.edu/teaching/algorithms/, 2019.