COL758: Advanced Algorithms

(Semester-II-2022-23)

Grading

Grading component	#	%
Homework	3	15%
Quiz	3 *(best 2 out of 3)*	10%
Minor	2	40%
Final	1	35%

Logistics

Grading component	Comments
Homework	• Can be done in groups of size at most 2. • Submissions to be made over Gradescope. Please avoid missing deadlines. • We will prefer if you submit typed solutions. Latex source files will be provided. • May include a programming component.
Quiz	• Conducted either using **online** Gradescope feature or in class.
Exam	• As per institute schedule

Important points

- Please register on Piazza (no code required).

- You will be registered on Gradescope by syncing with Moodle.

- Course webpage:
  - *https://www.cse.iitd.ac.in/~rjaiswal/Teaching/2023/COL758/*

- Audit:
  - You will need to **get (C) or better grade** for Audit-pass. You should plan to take all the grading components even if you audit.

Topics

- Tentative list of topics:
    - NP-hardness recap.
    - Linear programming: *Rounding, Primal-dual*
    - Hardness of approximation:
    - Semidefinite programming
    - Johnson Lindenstrauss
    - Singular Value Decomposition (SVD)
    - Streaming algorithms: *Distinct elements, Frequency moments, majority element*
    - VC dimension