

# Design and Analysis of Software Systems (DASS)

## Spring 2026

### COURSE OBJECTIVES

- Inculcate software engineering knowledge and skills, and use essential technologies to build a reasonably complex piece of usable and maintainable software.
- Emphasis on structured approach and disciplined process (iterative) to develop software
- Enhance written and oral communication skills

### INSTRUCTOR

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### TEACHING ASSISTANTS

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### Lectures:

Monday and Thursday 10:05 am -11: 30 pm (105 – Himalaya Bldg).

Bring your **pen/paper/notebook** to the classroom. Unless explicitly stated, DO NOT open your laptops during class. **You MUST bring plain A4 sheet with you to every class for the entire semester !**

### BOOKS/RESOURCES

- Software Engineering – A Practitioner’s Approach, 9<sup>th</sup> Edition, Roger Pressman.
- Student Resources: [http://highered.mcgraw-hill.com/sites/0073375977/student\\_view0/](http://highered.mcgraw-hill.com/sites/0073375977/student_view0/)  
- has Chapter Overviews and Practice Quizzes from 7<sup>th</sup> edition of the book

- Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design, 3<sup>rd</sup> Edition, Craig Larman.
- Object-Oriented Software Engineering: Practical Software Development using UML and Java, Second Edition by Lethbridge and Laganier
- Head-First Object Oriented Analysis and Design, 1<sup>st</sup> Edition, Brett McLaughlin, Gary Police, and David West

## GRADING

### Distribution

- 12 % : Quiz 1 & Quiz 2
- 12 % : Mid-Sem Exam
- 16 % : Final - Comprehensive
- 18 % : Assignments (Assignment 1 – 6%; Assignment 2 – 6%; Assignment 3 – 6 %)
- 34 %: Team Project (see Project section)
- 8 % : Class Activities

### Cut-off (Tentative):

>= 90.0 :	A
>=85.0 and < 90.0 :	A-
>=80.0 and < 85.0 :	B
>=75.0 and < 80.0 :	B-
>=70.0 and < 75.0 :	C
>=65.0 and < 70.0 :	C-
>=60.0 and < 65.0 :	D
< 60.0 :	F

The cut-off ***may be revised upward or downward*** if the instructor deems it necessary.

## QUIZ/EXAMS

Quizzes/Mid-sem exam will be based on topics covered up to that point. A comprehensive final exam shall be conducted during the finals week. Note that exam topics may cover class activities, assignments, project and text book reading - whether discussed in class or not.

## ASSIGNMENTS

Assignments shall be given to supplement the learning. Tutorials shall be delivered (as needed) to help with the assignments.

## CLASS ACTIVITIES/PARTICIPATION

Impromptu in-class activities will be given throughout the semester. Some of these activities might be individual and some others might be team based. Not all activities will be graded. Specific activities that might be graded shall be randomly decided. So, ensure you submit all activities.

Overall about 6 activities will be graded. Please note there will be no make up activities. So, if you miss an activity you will get a "0" (unless there is valid medical exemption from academic office), it can't be compensated with another that you may have attended.

## COURSE PROJECT

### Team work

The focal point of the course is a 3 month long project executed by a team of 5 students. The goal of the project is to introduce and practice the fundamental software development life-cycle activities of planning, tracking, designing, implementing and delivering an actual software product. Teams will be formed in the first week and will remain together throughout the semester. The instructor and TAs will choose the teams.

For most of the students this might be the first time you are developing a team project. Working in teams will be challenging in various ways due to the short amount of time teams are able to meet in person. Teams have to decide on their meeting schedules and stick to it till the end of the semester. At times, the instructor may allocate time during the class session for project teams to meet/work and clarify questions (if any).

Participating in the team project is perhaps the most valuable experience you will take away from this course. Far more projects fail as a result of poor collaboration and communication within project teams than due to technical shortcomings. Becoming an effective team member is a critical career skill and the one of the goals of this course is to gain some experience with effective (and non-effective) teaming practices. The expectation is that all students will make an honest effort to work with their team members to the best of their ability. Should non-constructive conflict arise, your instructor will expect the team to first make an effort to resolve issues internally. Beyond that your instructor will intercede as needed to help in resolving team issues. In extreme cases, if a particular student does not cooperate with, he/she may be “FIRED” from the team. In such cases the student will NOT have the opportunity to contribute to the project any more and will end up getting failing grade for the project.

Team work does not imply 80/20 rule. Everybody is expected to contribute equally. The instructor will seek explicit **Individual evaluations** from team members at the end of every release (or as needed). The student project grade may be **increased/decreased by up to 50%** depending on the individual evaluations and TA/faculty/client evaluations. So make sure you actively contribute towards the success of this project.

### Project Artifacts

Each team should have version control repository set up by week 2 or week 3. All project artifacts including Project Plan, Requirements Specification, Test Plan, Design document, etc. should be submitted through the repository. More details on the set up of the version control repository and other artifact submissions will be announced soon.

### Project Releases

This project will be implemented using an iterative incremental process. Each team is expected to produce minimally two project releases – **R1** during Week 11 or 12 (tentative) and **R2** during Week 15 or 16 (tentative). The initial project plan should clearly specify the functionality being implemented in the two releases. The release plan should be approved by the mentor (project sponsor) and TA. A release includes the current state of all project artifacts created till that point including executable source code. Each release may be accompanied by an in-class team presentation and product demonstration.

More details shall be announced in class as and when necessary.

### **Project Grading**

Your TA and instructor will grade your project using the following point distribution. The course schedule states the expected project deliverables. Project grades are assigned on a team basis with each member initially receiving the same grade. Your instructor reserves the right to adjust individual grades up or down after each of the project releases (for all prior artifacts submitted) based on team member peer evaluations, TA, and the instructor's observations.

Total Points Available (tentative) - 350

- Status reports (60 points) - 12 weeks
- Project Synopsis (10 points)
- Project Plan (20 points)
- SRS (35 points)
- Test Plan Tracker (25 points)
- Design Document (35 points)
- Release 1 (75 points)
- Release 2 (90 points)

The assessments provided by **each project mentor/sponsor** will be taken into consideration for each of these components. So make sure you meet the **client (mentor) and TA/faculty expectations!!!**

### **POLICIES & MISCELLANEOUS ITEMS**

- We have approximately 26 scheduled sessions. Class sessions shall at times be supplemented by activities (some graded/some not graded). So, if you don't attend, you will miss credit for activities that took place during the classes you were absent. Additionally, the university attendance policy shall apply.
  - Bottom line: **Come to class** and also be ON TIME.
- No make up exams/assignments/activities will be given. Exceptions may be granted for extreme cases as per university policies.
- Be professional. Practice common courtesy when I or your fellow students are speaking.
  - Avoid colloquial talk
  - Do not distract other students with chitchats
  - No cellphones/email/IM/Tweeting/browsing/game play or use the computers in any other unprofessional manner
- You are encouraged to actively interact with your fellow students in class. However, Plagiarism of any kind is a strict **NO**. If the content is deemed as plagiarized/copied, the person who has copied the content will get a straight **F** for the course.
  - This includes utilization of any/all of the GEN AI applications to solve class related activities/assignments. Students **MUST AVOID** use of GEN AI tools until explicitly allowed by the instructor.