CS490-103 Fall 2023 Syllabus

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Course overview

CS490-103 is a project-based course in software engineering, focusing on the underlying processes that drive an engineering organization. **CS490-103** achieves this with a focus on:

- Self-driven, requirements-based engineering.
- Planning and executing with a scrum-based project workflow.
- Mitigating risk, triaging issues, and resolving ambiguity.
- Managing and monitoring system health, quality, and complexity through tooling and testing.

Students are encouraged to collaborate and learn from other groups, discuss tradeoffs and compare design decisions.

Student outcomes

Students will be able to:

- explain the major theories and methods applicable to professional software engineering.
- design, implement and evaluate a computer based system to meet desired needs.
- function effectively on a team to accomplish a goal.
- use current techniques, skills and tools necessary for computing practice.

Textbook

Software Engineering (9th Edition), by Ian Sommerville

ISBN: 978-0137035151

Grading criteria

- 20% - Participation
- 20% - Exam
- 60% - Group project
    - 5% - Milestone 0 (**design document**)
    - 10% - Milestone 1 (**user authentication**)
    - 10% - Milestone 2 (**domain-specific features**)
    - 15% - Milestone 3 (**build system**)
    - 20% - Milestone 4 (**engineering excellence**)

Grading breakdown

Participation

Participate in a weekly stand-up and workshop session with your group.

Exam

Covers materials from the slides and lectures **only**.

All slides will be posted online.

Group project

Create a full-stack app implementing a set of common user journeys.

- Start from a **design document**, and iterate into a fully tested/peer-reviewed piece of software.
- Configure a **build system** with an emphasis on consistency, alerting, and correctness.
- Implement secure **user authentication** using OAuth, discuss alternatives, tradeoffs.
- Implement **domain-specific features** to demonstrate engineering proficiency.
- Apply code reviews, tests, and best practices to achieve **engineering excellence** in your codebase.

More detailed description and breakdown of milestones in project overview slides.

Important dates

Milestone 0: Design document - **draft** due Sept. 23

Milestone 1: User authentication - TBD

Milestone 2: Domain-specific features - TBD

Milestone 3: Build system - TBD

Milestone 4: Engineering excellence - TBD

Exam - TBD

Cheating policy

Cheating on assignments results in zero credit for all students involved.

Please see the NJIT Honor Code.