WAYNE STATE UNIVERSITY
COLLEGE OF ENGINEERING
Computer Science Department

CSC 4996: Senior Capstone Project

Wayne State University
Section 003

Fall 2024
Lecture: Monday 5:30 pm - 6:45 pm,
Wednesday 5:30 - 8:40 pm
Lab: No official lab; lecture continuation
Location: State Hall, Room 3117

Instructor:

Dr. Seyed Ziae Mousavi Mojab
Email: Mousavi@wayne.edu
Office Location: 5057 Woodward Ave., Suite 14200.4
Office Hours: by appointment

Credit Hours: 4

Course URL: All course materials will be posted on Canvas (https://Canvas.wayne.edu).

Required books

- All necessary reading material for the class will be posted on Canvas

Recommended books

- *A Gift of Fire: Social, Legal, and Ethical Issues for Computing and the Internet 4th Edition*
  Author: Sara Baase
  Publisher: Prentice Hall, ISBN-10: 0136008488 or ISBN-10: 0132492679

- *Design Patterns: Elements of Reusable Object-Oriented Software*
  Authors: Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides Publisher: Addison-Wesley Professional, ISBN-10: 0201633612

- *Object-Oriented Software Engineering: Practical Software Development Using UML and Java* Paperback – December 1, 2004 by Timothy Christian Lethbridge, Robert Laganiere ISBN-13: 978-0077109080 ISBN-10: 0077109082 Edition: 2nd

Prerequisites

- CSC 3110 with a minimum grade of C-, CSC 4110 with a minimum grade of C-, CSC 4420 with a minimum grade of C- (may be taken concurrently), CSC 4710 with a minimum grade of C-, and ENG 3060 with a minimum grade of C- – **Strictly Enforced!!!**

Corequisites

- CSC 4997 – Senior Project Lab Wednesday 7:00 – 8:40 pm

Course objective
Development of skills for planning, managing, implementing, and documenting complex software projects; legal, social, and ethical issues in software development and computer use.

Learning outcomes
- Apply software engineering principles and practices (e.g., requirements elicitation, planning, domain analysis, software design, testing, etc.) to a real-world problem.
- Relate knowledge, information, methods, concepts, and theories of fundamental topics in computer science and software engineering in new problem domains, to develop unique solutions/algorithms for the project problem.
- Research and identify previously unknown techniques and tools necessary for computer science and software engineering practices relevant to the undertaken project.
- Develop skills for working productively in a team on a project that produces a significant software product and interact with external clients.
- Improve oral and written communication skills.
- Understand professional issues, including ethical, legal, and security issues, related to computing and information technology in general.

Joining and participating online via Zoom (if permitted):

The synchronous classroom requires real-time meetings. We will use Zoom software for all meetings. You are strongly encouraged to download the Zoom Desktop Client. Doing so gives you access to many features. You can download Zoom on your computer and smart devices, including smartphones and tablets. See the below link for how to download and setup Zoom on your device.
https://tech.wayne.edu/kb/academic-services/zoom/500261

Technology Access and Support
Because this is a synchronous course, all of your instruction will require reliable hardware and software including the following:
Hardware
- a desktop or laptop computer with
  - reliable internet access
  - webcam (required for all classes)
  - microphone
  - speakers

Note: If your computer does not have a microphone, speakers, and webcam, you'll need to purchase them.
Software
- a web browser (e.g., Firefox, Chrome, Safari)
- Microsoft Office (free to students)
- the [Canvas, Zoom, MS Teams] app (free to students)

For assistance with any of these technology issues, contact C&IT Helpdesk M-F from 7:30 am to 8 pm at 313-577-4357 or helpdesk@wayne.edu.
Students who lack adequate hardware or reliable internet access should email doso@wayne.edu or call 313-577-1010 for assistance.

Find the Zoom meeting link for the lecture or lab
This course will meet at the time indicated in the class schedule. Please be prepared to schedule a minimum of 15 minutes before each meeting to configure your computer. Students are expected to attend all lectures and lab meetings.
All lecture and lab meeting links can be found under the Zoom tool (Upcoming Meetings Tab) or in

Canvas Calendar, as events.

Asking Questions and Speaking in Class
During a zoom class (lecture), you may have questions for the instructor or comments to make in a class discussion.

There are two ways to get the instructor's attention by using "participants" and "chat" features:

- Raise Your "Hand" (Recommended): To show the instructor/class that you want to say something.
    - Click the "Participants" button to open the participants' window. Then click the "Raise hand" button. To "lower your hand" click the button again.
    - Before you speak, remember to "unmute" your microphone. When your microphone is muted, there is a red line through the microphone icon. Clicking on the microphone icon will unmute it. Once you have finished speaking, remember to mute the microphone again.
- Send a Chat Message: Another way to ask questions or make comments is by using the chat feature. To send a chat message.
    - Click the "Chat" button to open the chat window. In the chat window, use the dropdown menu to send the message to the instructor.

Remember to be polite and professional when asking questions or making comments this way. Anybody, host, or participant, can save the meeting chat as a text file at any time, so don't type anything you might regret!

Class format:
In the first part of the semester, the instructor will cover the background material necessary for the start of the student projects. Each student will participate in a team project. During the class, students will present regularly scheduled updates to their projects. The instructor and the attending students will provide feedback on these presentations. In addition, each student will make a presentation on a topic related to legal, social, and ethical issues in computing. A detailed schedule will be posted and updated on Canvas. Students are expected to meet with their clients outside the class schedule.

Attendance
Attendance at classes is essential and it is the student's responsibility to get the material covered in classes that are missed. There will be weekly student presentations scheduled throughout the semester and attending the students' presentations is mandatory.
Students must attend the first two weeks of classes in order to get assigned a project or they will be asked to drop the course. Class participation and presentations are a major part of the final grade.

Graded assignments/activities
The final delivery and presentation of the project will be graded as well as intermediary deliverables, presented during the semester as assignments (such as, requirements analysis, design, testing plan, etc.). A set of deliverables must be created throughout the semester and stored in the repository of each project (see details below). Each deliverable will be graded. A delivery schedule will be available via Canvas.

Grading criteria

- **Code Contribution** (including quality & quantity): 50%
- **Documentation** (Development Plan, SRS, Design Doc, Test Plan, User Manual, and ReadMe): 20%
- **Class Presentations** (including prototype demos): 15%
- **Professionalism & individual reports**: 15%

Grading scale:

93% - 100%	A
90% - 92.99%	A-
87% - 89.99%	B+
83% - 86.99%	B
79% - 82.99%	B-
75% - 78.99%	C+
71% - 74.99%	C
67% - 70.99%	C-
63% - 66.99%	D+
59% - 62.99%	D
55% - 58.99%	D-
Below 55%	Fail

Major deadlines (tentative):

These deadlines may change during the semester. Updates will be posted on Canvas and communicated during the class.

- Development Plan – TBD
- Software Requirements Specification (SRS)– TBD
- First prototype presentation – TBD
- Design Specifications – TBD
- Second prototype presentation – TBD
- Third prototype presentation – TBD
- Test Plan – TBD
- Final presentation – TBD

Project deliverables

During the semester, each team will produce the following deliverables for their projects:

1. Development plan
- 1.1 Project overview
- 1.2 Project purpose, scope, objectives
- 1.3 Team organization (roles and responsibilities)
- 1.4 Problem resolution policies
- 1.5 Project plan (iterations, project schedule)
- 1.6 Configuration management plan
- 1.7 Technologies

2. Requirements specification
- 2.1 Problem description
- 2.2 Users/perspectives
- 2.3 Functional requirements (required/desired)
- 2.4 Non-functional requirements
- 2.5 Business constraints
- 2.6 Technical constraints
- 2.7 Requirements traceability matrix

3. Design specification
- 3.1 Domain analysis (domain model, dictionary)
- 3.2 System context
- 3.3 Architecture design (components/modules)
- 3.4 System design (DB design, GUI design, diagrams, etc.)

3.5 Other issues (standards, technologies, etc.)

4. Testing plan

4.1 Approach for each type of testing (including pass/fail criteria)
4.2 Functional testing (features to be tested, features not to be tested)
4.3 Non-functional testing
4.4 Integration testing
4.5 System testing
4.6 User acceptance testing
4.7 Schedule

5. User/admin manuals

6. Source code

6.1 First prototype
6.2 Second prototype
6.3 Third prototype
6.4 Final prototype

7. Final report

7.1 Lessons learned
7.2 Challenges
7.3 Team evaluation

Religious Holidays:
Because of the extraordinary variety of religious affiliations of the University student body and staff, the Academic Calendar makes no provisions for religious holidays. However, it is University policy to respect the faith and religious obligations of the individual. Students with classes or examinations that conflict with their religious observances are expected to notify their instructors well in advance so that mutually agreeable alternatives may be worked out.

Student Disabilities Services:

- If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located in the Adamany Undergraduate Library. The SDS telephone number is 313-577-1851 or 313-202-4216 (Videophone use only). Once your accommodation is in place, someone can meet with you privately to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University.
- Students who are registered with Student Disability Services and who are eligible for alternate testing accommodations such as extended test time and/or a distraction-reduced environment should present the required test permit to the professor at least one week in advance of the exam. Federal law requires that a student registered with SDS is entitled to the reasonable accommodations specified in the student's accommodation letter, which might include allowing the student to take the final exam on a day different than the rest of the class.

Academic Dishonesty - Plagiarism and Cheating:
Academic misbehavior means any activity that tends to compromise the academic integrity of the institution or subvert the education process. All forms of academic misbehavior are prohibited at Wayne State University, as outlined in the Student Code of Conduct (http://www.doso.wayne.edu/student-conduct-services.html). Students who commit or assist in committing dishonest acts are subject to downgrading (to a failing grade for the test, paper, or other course-related activity in question, or for the entire course) and/or additional sanctions as described in the Student Code of Conduct.

- **Cheating:** Intentionally using or attempting to use, or intentionally providing or attempting to provide, unauthorized materials, information or assistance in any academic exercise. Examples include: (a) copying from another student's test paper; (b) allowing another student to copy from a test paper; (c) using unauthorized material such as a "cheat sheet" during an exam.
- **Fabrication:** Intentional and unauthorized falsification of any information or citation. Examples include: (a) citation of information not taken from the source indicated; (b) listing sources in a bibliography not used in a research paper.
- **Plagiarism:** To take and use another's words or ideas as one's own. Examples include: (a) failure to use appropriate referencing when using the words or ideas of other persons; (b) altering the language, paraphrasing, omitting, rearranging, or forming new combinations of words in an attempt to make the thoughts of another appear as your own.
- **AI and ChatGPT Utilization:** Maintaining intellectual integrity is a fundamental principle for both the academic community and the unbiased evaluation of your coursework. All submitted work should be entirely your own, produced in alignment with the University's academic standards. Unauthorized engagement with AI composition software, including ChatGPT, is strictly prohibited. Prior permission from the instructor is mandatory if you intend to employ AI tools for assignments. Utilizing such tools without approval jeopardizes your academic integrity. By adhering to these guidelines, you contribute to the credibility of your academic pursuits and uphold the values of honesty within our educational community.
- **Othe**r forms of academic misbehavior include, but are not limited to: (a) unauthorized use of resources, or any attempt to limit another student's access to educational resources, or any attempt to alter equipment so as to lead to an incorrect answer for subsequent users; (b) enlisting the assistance of a substitute in the taking of examinations; (c) violating course rules as defined in the course syllabus or other written information provided to the student; (d) selling, buying or stealing all or part of an un-administered test or answers to the test; (e) changing or altering a grade on a test or other academic grade records.

Course Drops and Withdrawals: In the first two weeks of the (full) term, students can drop this class and receive 100% tuition and course fee cancellation. After the end of the second week there is no tuition or fee cancellation. Students who wish to withdraw from the class can initiate a withdrawal request on Pipeline. You will receive a transcript notation of WP (passing), WF (failing), or WN (no graded work) at the time of withdrawal. No withdrawals can be initiated after the end of the tenth week. Students enrolled in the 10th week and beyond will receive a grade. Because withdrawing from courses may have negative academic and financial consequences, students considering course withdrawal should make sure they fully understand all the consequences before taking this step. More information on this can be found at:
http://reg.wayne.edu/pdf-policies/students.pdf

Student services:

- The Academic Success Center (1600 Undergraduate Library) assists students with content in select courses and in strengthening study skills. Visit www.success.wayne.edu for schedules and information on study skills workshops, tutoring and supplemental instruction (primarily in 1000 and 2000 level courses).
- The Writing Center is located on the 2nd floor of the Undergraduate Library and provides individual tutoring consultations free of charge. Visit http://clasweb.clas.wayne.edu/ writing to obtain information on tutors, appointments, and the type of help they can provide.

Class recordings:
Students need prior written permission from the instructor before recording any portion of this class. If permission is granted, the audio and/or video recording is to be used only for the student's personal instructional use. Such recordings are not intended for a wider public audience, such as postings to the internet or sharing with others. Students registered with Student Disabilities Services (SDS) who wish to record class materials must present their specific accommodation to the instructor, who will subsequently comply with the request unless there is some specific reason why s/he cannot, such as discussion of confidential or protected

information.

Other Notes:

- Any modifications to the syllabus will be made on the canvas (https://canvas.wayne.edu/) and announcements will be posted.
- The Wayne State University Student Code of Conduct applies to online behavior as well as in-person or classroom behavior. You are expected to be professional and respectful when attending classes.
- Wear appropriate clothing.
- Please stay engaged in class activities. Turn off all your electronic devices during class.
- No disrespect or hate speech. Respectful behavior is always expected.
- You are prohibited from making a recording in any medium of any one-on-one or group meeting with the instructor and/or students without obtaining the prior written consent of all those participating.