



**WAYNE STATE**  
College of Engineering

## CSC4110: SOFTWARE ENGINEERING

Winter 2026

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<b>Professor:</b>	Dr. Amiangshu Bosu	<b>Time:</b>	Synchronous, 10:00 –11:15AM (in person)
<b>Email:</b>	<a href="mailto:abosu@wayne.edu">abosu@wayne.edu</a>	<b>Place:</b>	M. Roy Wilson State Hall, Room #1109

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**Course Page:** WSU Canvas (<https://canvas.wayne.edu/>)

**Office Hours:** Appointment by email.

**Grader:** Arif Rahman ([arif.shariar@wayne.edu](mailto:arif.shariar@wayne.edu)) and Ujunwa Mgbah ([ujunwa.mgbah@wayne.edu](mailto:ujunwa.mgbah@wayne.edu))

**Description:** History of Software Engineering; Version control systems; Software life cycle; Agile development principles; Software requirement analysis; Software models; Software system design; Software architecture; Software implementation and testing; secure software development; Software maintenance; team programming; and software engineering ethics.

**Text:** *No text book required. Required materials will be supplied.*

**Prerequisites:** CSC 2200, CSC 2201, CSC 3020, each with a grade of C or better

**Credit Hours:** 4 Credit Hours

## Course outline:

Introduction to Software Engineering (3 lectures)	<ul style="list-style-type: none"><li>o History</li><li>o Version control</li><li>o Software Requirements</li></ul>
Software Lifecycle (3 lectures )	<ul style="list-style-type: none"><li>o Life Cycle models</li><li>o Agile Development</li><li>o Scrum</li></ul>
Modeling and Design (4 lectures)	<ul style="list-style-type: none"><li>o UML</li><li>o Software Architecture</li><li>o Design patterns</li><li>o SOLID design</li><li>o AI assisted design</li></ul>
Software Maintenance (2 lectures)	<ul style="list-style-type: none"><li>o Software change</li><li>o Refactoring</li></ul>
Quality Assurance (5 lectures)	<ul style="list-style-type: none"><li>o Software Quality Assurance</li><li>o Testing input selection</li><li>o Unit Testing</li><li>o Code Reviews</li><li>o Software Security</li></ul>
Contemporary topics (2 lectures)	<ul style="list-style-type: none"><li>o Continuous integration</li><li>o Software Engineering Ethics</li></ul>

## Laboratory:

The lab complements the lectures and gives students a grip on practical aspects of software engineering. This lab is NOT intended as an introductory programming course. An excellent working knowledge of object-oriented programming is required. Students must attend their scheduled lab sessions.

## Grading Policies:

1. The lab section is associated with the lecture. You would need to apply the software engineering concepts taught in the lecture to your term project conducted in the lab section. The term project will evaluate how well you can apply those concepts in a real-world scenario. Please review your lab syllabus for more details on the term project grading policy.
2. Make-up examinations for exams will not be given. If you have a compelling and documented reason for not being able to attend the exam, you must make alternative arrangements before the examination.
3. All students must access their Wayne State e-mail account regularly. You may be contacted when important matters arise. If you have any questions about the course or need

assistance, please contact the instructor and/or the TA by email at any time.

### **Grading Components:**

Daily Quizzes	15%
Midterm	17%
Assignments	16%
Final Exam	17%
Lab grades	30%
Attendance	5%

### Grading scheme:

The following plus/minus grading scheme would be used:

A	93 - 100
A-	90 - 92
B+	87 - 89
B	83 - 86
B-	80 - 82
C+	77 - 79
C	73 - 76
C-	70 - 72
D+	67 - 69
D	64 - 66
D-	60 - 63
F	0 - 59

### Exam schedule:

Exam	Date	Time
Daily quiz	Every class	Online (Quiz would remain open only for 12 hours)
Midterm	(≈Second week of March)	In class
Final	April 30th	In class at 8:00AM

### ABET Student outcomes:

- An ability to analyze a problem and identify and define the computing requirements appropriate to its solution.
- An ability to design, implement, and evaluate a realistic computer-based system, process, component, or program to meet desired needs.
- An ability to analyze the local and global impact of computing on individuals, organizations, and society.
- Recognition of the need for, and an ability to engage in, continuing professional development.

- (e) An ability to use current techniques, skills, and tools necessary for computing practices.
- (f) An ability to apply design and development principles in constructing software systems of varying complexity.

## Course Learning Objectives:

Upon successful completion of this class, the student will be able to:

1. Ability to identify and apply mathematics, science, and software engineering principles in the modeling and design of computer-based systems that demonstrate comprehension of the trade-offs involved in various design choices.
2. Ability and skills to effectively use state-of-the-art techniques and computing tools for analysis, design, and implementation of software systems.
3. Ability to design, implement, and evaluate software systems to meet desired needs and specifications.
4. Ability to identify the most suitable software lifecycle model for a given context based on an analysis of the pros and cons of various alternatives.
5. Ability to make ethically informed and responsible decisions while understanding their personal responsibility to make sound judgments and/or decisions in a manner that is globally, economically, socially, and environmentally conscious.
6. Ability to apply appropriate metrics to assess the quality and identify improvement areas of a software system.
7. Learn and practice project management principles in the development and leading of team-based assignments and projects.
8. Ability to function effectively as a member of a team assembled to undertake a common goal.
9. Ability to demonstrate the workflow and functionality of a software system and answer user queries.

## AI tools such as ChatGPT

This course assumes that all work submitted by students will be generated by the students themselves, working individually or in groups. Students should not have another person/entity do the writing of any substantive portion of an assignment for them, which includes hiring a person or a company to write assignments and using artificial intelligence tools like ChatGPT.

The following actions are prohibited in this course :

- Submitting all or any part of an assignment statement to an online learning support platform;
- Incorporating any part of an AI-generated response in an assignment;
- Using AI to brainstorm, formulate arguments, or template ideas for assignments;
- Using AI to generate solutions.

## Final notes:

- You are pledging that the required coursework will be solely done by you.
- Plagiarism is a serious concern in an online course. The minimum penalty for cheating is a failing grade. I must also report any cheating to the Dean of Students Office (DOSO).
- Cell phones and other two-way communication devices: Students are expected to turn off their devices or turn them to silent mode when they come to the lecture or the lab. If a device is used in any way in the lab, you will receive a verbal warning first, and then you will be asked to leave immediately.
- Instructor reserves the right to change exam dates and grading allocations.



## **Syllabus Supplement**

**(updated 11/2025)**

### **University policies**

#### **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 they cannot, such as discussion of confidential or protected information. Violations of this syllabus policy may result in charges under the student code of conduct.

#### **Religious holidays (from the online Academic Calendar)**

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.

#### **Land acknowledgement**

Wayne State University rests on Waawiyaataanong (Waa-we-yaa-tih-nong), also referred to as Detroit, the ancestral and contemporary homeland of the Three Fires Confederacy. These sovereign lands were granted by the Ojibwe (Oh-jib-way), Odawa (Oh-daa-waa), Potawatomi (Pow-tuh-waa-tuhmee), and Wyandot nations, in 1807, through the Treaty of Detroit. Wayne State University affirms Indigenous sovereignty and honors all tribes with a connection to Detroit. With our Native neighbors, WSU can advance educational equity and promote a better future for the earth and all people.

#### **Student Disability Services**

If you have a documented disability that requires accommodations, you will need to register with Student Disability Services (SDS) for coordination of your academic accommodations. Please visit <https://studentdisability.wayne.edu> to register your condition. Once you have accommodations in place, please inform your instructor. 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 WSU. SDS supports students with a variety of conditions, such as mental health disorders, learning disabilities, chronic health conditions, etc.

## Counseling and Psychological Services (CAPS)

It is quite common for college students to experience mental health challenges, such as stress, anxiety, and depression, that interfere with academic performance and negatively impact daily life. Help is available for any currently enrolled WSU student who is struggling with a mental health difficulty. Go to <https://caps.wayne.edu> for information on the services offered and how to access them. Other options, for students and non-students, include the [Mental Health and Wellness Clinic at the College of Education](#). Services at all these clinics are free and confidential. Remember that getting help, before stress reaches a crisis point, is a smart and courageous thing to do – for yourself, and for those you care about. CAPS provides after-hours/weekend crisis support at (313) 577-2277. In a life-threatening emergency, call the WSU Police at 313-577-2222.

## Title IX Statement

**Title IX** and WSU's sexual misconduct policy prohibit discrimination on the basis of sex and provide protections against sexual harassment, sexual assault, dating and domestic violence, stalking, and related retaliation.

As a faculty member, I am a **mandatory reporter**. This means that if you share information with me regarding any incident of sexual misconduct, I am **required to report** it to the university's **Title IX Office**. This ensures that the university can provide you with support and information about your rights and options.

If you wish to speak with someone **confidentially**, the following resources are available:

- **Counseling and Psychological Services** – 313-577-3398 | <https://caps.wayne.edu>
- **Campus Health Center** – 313-577-5041 | <https://health.wayne.edu>
- **Office of Sexual Violence Prevention and Education** – 313-577-9220 | <https://wayne.edu/sexualviolenceprevention>

If you are in **immediate danger** or need urgent help, call:

- **WSU Police:** 313-577-2222

For more information on Title IX, reporting options, support resources and your rights, please visit: <https://titleix.wayne.edu>.

## WSU Police

The [WSU Police Department \(https://police.wayne.edu/\)](https://police.wayne.edu/) is available 24/7 to assist individuals reporting criminal activity or concerns on or near campus. Report off-campus incidents to the appropriate police



jurisdiction. In the event of an emergency or imminent threat, reporting to the police is highly encouraged.  
Phone: 313-577-2222

## Food Pantry and Basic Needs

Wayne State has a food pantry, a free resource available for all students. See the hours on the website <https://thew.wayne.edu/pantry>.

Learning is always more challenging when you are struggling to meet basic needs. Wayne State recognizes that you may face a number of challenges during your time here, and we are here to support you. Any student who faces challenges securing food, housing, or medical care is encouraged to contact relevant university offices noted on the [Financial Aid website](https://wayne.edu/financial-aid/) (<https://wayne.edu/financial-aid/>) for support. You are also encouraged to contact Care, Support, and Intervention services in the Dean of Students Office (DOSO) for assistance with connecting to resources for basic needs. Students can call DOSO at 313-577-1010 or submit a [care referral form](https://doso.wayne.edu/conduct/student-support-intervention) (<https://doso.wayne.edu/conduct/student-support-intervention>).

## Academic Dishonesty – Plagiarism and Cheating

[Academic misconduct](https://doso.wayne.edu/conduct/academic-misconduct) (<https://doso.wayne.edu/conduct/academic-misconduct>) is any activity that tends to compromise the academic integrity of the institution or undermine the education process. Examples of academic misconduct include:

- Plagiarism: To take and use another's words or ideas as your own without appropriate referencing or citation.
- Cheating: Intentionally using or attempting to use or intentionally providing unauthorized materials, information, or assistance in any academic coursework. This includes using artificial intelligence (AI) tools/systems in academic coursework, except where such use has been authorized in advance by the instructor and disclosed through appropriate referencing or citation.

Cheating can take many forms, including but not limited to the following:

- Collusion: Working with other student(s), when told not to do so or other than as authorized by your instructor, to complete any course work, in whole or in part. This includes using messaging services to exchange information or answers to any coursework.
- Contract Cheating: Paying or soliciting an individual, private company, or other source, for the completion of any coursework (e.g., exams, papers, etc.), or parts of coursework. These include





essay mills, auction platforms, commercial services for hire, and private parties (family, classmates, former students, tutors, etc.), even if not for money, but in exchange for favors or special privileges.

- Other: Selling, giving, offering, or stealing all or part of a test or term paper or any other academic assignment or course materials, unauthorized use of resources, enlisting in the assistance of a substitute when taking exams, destroying another's work, threatening students or instructors, or any other misconduct identified in the course syllabus or other written information.

Such activity may result in failure of a specific assignment, an entire course, or, if flagrant, dismissal from Wayne State University.

## Course drops and withdrawals

For courses running the full term, students can drop classes and receive 100% tuition and course fee cancellation for the first two weeks. After the end of the second week there is no tuition or fee cancellation. For more information, please see "How to drop a class" (<https://wayne.edu/registrar/drop>)

Students who wish to withdraw from the class can withdraw on Academica (<https://academica.wayne.edu/>) through the tenth week of classes. You will receive a mark of W at the time of withdrawal. For "Important information about withdrawals," please see (<https://wayne.edu/registrar/withdrawals>)

Students enrolled beyond the withdrawal deadline will receive a grade. For classes that are shorter than the full term, deadlines for dropping and withdrawal can be found on the section's detail in the Schedule of Classes (<https://registration.wayne.edu/>).

## Student Services

### Academic Success Center

The Academic Success Center (1600 Undergraduate Library) assists students with content in select courses and in strengthening study skills. Visit the [Academic Success Center](https://success.wayne.edu/) (<https://success.wayne.edu/>) for schedules and information on study skills workshops, tutoring and supplemental instruction (primarily in 1000 and 2000 level courses).

### Writing Center & Writer's Studio

The Writing Center provides a variety of tutoring options free of charge for graduate and undergraduate students at WSU. Tutoring sessions are available in the following modes:

- In-person during our Writer's Studio open hours (to learn more, please visit our website)
- Online, synchronous sessions (up to 50-minutes)



Tutoring services are provided by trained undergraduate and graduate student tutors. Our tutors assist with writing from all disciplines and on a range of topics including but not limited to: brainstorming, drafting, revising, organization, and editing. All tutoring sessions are collaborative, so please come prepared to work with your tutor (whether online or in-person). We look forward to working with you!

To schedule a one-on-one appointment, please visit our website: <https://writing.wayne.edu>

For in-person services or just a dedicated space to write and study, you're welcome to drop into our Writer's Studio any time during our regular business hours – no appointment necessary! You can find our current hours at our website: <https://writing.wayne.edu>

For more information about the Writing Center and Writer's Studio, please contact the Director, Chris Susak (email: [writingcenter@wayne.edu](mailto:writingcenter@wayne.edu))

## Library research assistance

Assistance from the University Libraries is available 24 hours, 7 days a week to help students locate and access articles, books, streaming media, primary sources, web sources, and other credible and reliable resources you need for your research assignments. Librarians can also help you understand the research materials you may need and assist you with citation styles. You can connect with librarians at <https://library.wayne.edu/help> for chat, email, phone, drop-in hours, or appointments.