ITMD 511 - Application Dev Methodologies

Spring 2024 Travis Smith

Professor: **Travis Smith**
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Course Catalog Description: Students learn concepts in a systematic approach to the analysis, design, implementation, and maintenance of software. Includes studies of the various models of the software life-cycle, software development project management, system requirements analysis, and methodologies for practical application of these models to software development, including the use of CASE (Computer Aided Software Engineering) tools. Students apply these principles in projects to improve the quality of their development process and final products.

Lecture Day, Time & Place: Monday 6:25pm - 9:05pm | Galvin-Tower Room: IT 14C7-1 & Online

Attendance Policy: This class is optimized for online instruction to accommodate the majority of our students who are enrolled online and internationally. Every lecture is recorded and uploaded to Blackboard on Monday evening for everyone to access. All assignments, quizzes, and exams are administered online through Blackboard. **While in-person attendance is not mandatory for grading, you must watch the recordings.**

Late-arrival students must follow the online and stay updated with the coursework. You cannot "catch up" once you arrive on campus.

Prerequisites: ITM Development 510 - Minimum Grade of C

Credit: 3 Credit Hours

TextBook: **Required** - **Software Engineering, Tenth Edition, Ian Sommerville** | ISBN-13 : 978-0133943030

You can purchase or rent a physical, digital, or PDF copy—whichever is most affordable and convenient for you. **It must be the 10th edition.** The international 10th edition is fine too.

Course Outcomes: Students will explore the theoretical and practical aspects of the modern software engineering life cycle.

Course Student Outcomes: Students completing this course will be able to:

- Describe the most common software development lifecycles.
- Understand the agile software development lifecycle.
- Describe basic software architecture concepts at a high level.
- Describe approaches and techniques for basic high- and low-level requirements analysis.
- Describe approaches and techniques for writing high-quality and secure software.
- Understand how modern software applications communicate with each other
- Describe approaches and techniques for publishing or deploying software.
- Understand how the teams deploying the software fit in with the developers.

Course Schedule

Week	Date	Topic(s)	Readings
1	1/8	Introduction to the Class	Syllabus
2	1/15	**Martin Luther King Jr. Da –No Classes**	**None - Get the book!**
3	1/22	Introduction to SWE	Chapter 1
4	1/29	Software Processes	Chapter 2
5	2/5	Agile & Requirements Engineering	Chapter 3 & 4
6	2/12	System Modeling & Architectural Design	Chapter 5 & 6
7	2/19	Design, Implementation & Software Testing	Chapter 7 & 8
8	2/26	Safety and Security Engineering	Chapter 12 & 13
9	3/4	**Midterm Exam - Online via Blackboard.**	**Midterm Exam**
10	3/11	**Spring Break – No Classes**	**None**
11	3/18	Resilience Engineering	Chapter 14
12	3/25	Software Reuse & Component-based SWE	Chapter 15 & 16
13	4/1	Distributed SWE	Chapter 17
14	4/8	Service-Oriented SWE	Chapter 18
15	4/15	Systems Engineering	Chapter 19
16	4/22	**Review**	**Chapters 14-19**
Final	4/29	**Final Exam - Online via Blackboard**	**None**

Readings: Readings for this class are meant to broaden the students' knowledge on the subject and should be read before class time. Comprehension will be verified by quizzes.

Course Notes: Copies of the course lecture notes in the form of a PDF of the PowerPoint presentations accompanying each lecture will be provided for each student on Blackboard. You should be aware that note-taking is encouraged and should help your understanding of the material. (Entirely optional!).

Announcements: Class communications will be made through Blackboard announcements, which will also be forwarded to everyone's IIT email. Is it expected that you check your IIT email regularly.

Midterm Exam: The midterm exam will feature both multiple-choice questions and short-answer questions, encompassing all material covered up to the exam date. The exam window begins on Monday, 3/4, at 12:00 am and concludes on Sunday, 3/10, at 11:59:00 pm. While you can choose to take the exam at any moment within this window, please note: You'll have a total of 3 hours to complete the exam. Once you begin the exam, it must be completed in one continuous session. Late submissions will automatically receive a score of zero. **There will be no exceptions to this rule.**

Blackboard: We will utilize Blackboard for this course. It will feature links to download the weekly PowerPoint presentations, lab instructions, and homework directions. Additionally, you can submit written assignments and take quizzes or exams through this platform.

Final Exam: The final exam will feature both multiple-choice questions and short-answer questions, encompassing all material from after the midterm exam, covered up to the exam date. The exam window begins on Monday, 4/29, at 12:00 am and concludes on Friday, 5/3, at 11:59:00 pm. While you can choose to take the exam at any moment within this window, please note: You'll have a total of 3 hours to complete the exam. Once you begin the exam, it must be completed in one continuous session. Late submissions will automatically receive a score of zero. **There will be no exceptions to this rule.**

Exercises: Each chapter will have exercises for the students to complete. These exercises will be a combination of short answer questions, and/or short projects to practice the material lectured about in class and discussed in the textbook.

Quizzes: A quiz will be administered weekly on Blackboard, addressing topics from both the lecture and the relevant book chapters**.**

Grading: Grading criteria for ITMD 511, students in the graduate curriculum will be as follows:

A *Outstanding work reflecting substantial effort*	**90% and above**
B *Adequate work fully meeting that expected of a graduate student*	**80% to less than 90%**
C *Weak but marginally satisfactory work not fully meeting expectations*	**65% to less than 80%**
E *Unsatisfactory work*	**0% to less than 65%**

Grade Weighting: The final grade for the class will be calculated as follows:

Exercises	**30%**
Quizzes	**30%**
Midterm Exam	**20%**
Final Exam	**20%**

Late Submission Policy: **This policy applies to everyone fairly and equally. No Exceptions.**

- **Definitions:**
  - **Late Submission:** Any assignment or quiz submitted after the specified deadline, even if only by one second.
  - **Duration of the Exception**: The one-time exception allows for a submission up to 7 days after the original deadline.
- **General Rules:**
  - For assignments and quizzes, students are granted a one-time exception for a single late submission, either for an assignment or a quiz, but not both.
  - **This exception does not apply to the Midterm or Final Exam under any circumstances.**
  - If multiple assignments or quizzes are due on the same day, the exception applies to only one of those assignments or quizzes.
  - Technical difficulties are not grounds for exceptions beyond the one-time late submission allowance. It's the student's responsibility to ensure they have a reliable internet connection and to anticipate potential technical issues, and not wait until the last minute to submit work.
- **To utilize your one-time exception:**
  - Submit your assignment or quiz within the 7 day extended period.
  - Email me to notify me that you are using your exception. **Failure to email will invalidate the exception, and the submission will receive a score of zero**. Please follow the email guidelines specified further down this page.
- **Consequences for Additional Late Submissions:**
  - Once you've utilized your single exception, any subsequent late submissions will receive a score of zero. **No late assignments will be accepted after May 3rd at 11:59:00 pm.**
- **Final Note:**
  - This policy is applied consistently and equitably to all students. To ensure fairness and transparency, requests for special considerations or deviations from this policy will not be entertained. If you have special accommodations, kindly refer to the **'Disabilities**' section of the syllabus for guidance on how to receive accommodations.

How to send me an email: Please follow these instructions to ensure a timely response

- **Only use your IIT-assigned email**.
  - Messages from personal email accounts will not be seen or responded to.
- Format your email subject as follows:
  - Subject: **ITMD-511-XX, [Your Name]**
- Alternatively, you can send emails via Blackboard:
  - Find the 'Email' tab on the left side of the platform.
  - From there, you can send emails to me.
- **NOTE:** If you are a beacon education student, the Blackboard and IIT email guideline does not apply to you. However, please still follow the email subject format mentioned above.

Academic Honesty: All work you submit in this course **must be your own.**

Plagiarism: You must fully attribute **all** material directly quoted in papers and you must document all sources used in the preparation of the paper using complete, APA-style bibliographic entries. Including directly quoted material in an assignment without attribution or a bibliography entry for the source of the material is always plagiarism and will always be treated as such by me. No more than thirty-three percent of material included in any paper may be direct quotes. Students have submitted plagiarized material in seven of the last eight times I have taught this course and **I will not tolerate it**. If you submit plagiarized material, you **WILL** receive a grade of **ZERO** for the assignment or exam question, an Academic Honesty Violation Report will be filed, and it may result in your expulsion from the course with a failing grade as per the IIT and ITM academic honesty policies. **There is no excuse for not understanding this policy** and if you do not understand it please let me know and I will be happy to discuss it with you until you do.

Collaboration: Students may only collaborate on assignments or projects that are explicitly designated as group assignments or projects. Students submitting work that is identical or in some cases even substantively the same will be asked to discuss the assignment with me. If one student admits to having copied the work, or if there is clear evidence who is guilty, the guilty student will be assigned a grade of zero. If no one admits to the offense or a reasonable determination of guilt cannot be made, each student involved will be assigned a grade of zero. In either case, an Academic Honesty Violation Report will be filed, and it may result in your expulsion from the course with a failing grade as per the IIT and ITM academic honesty policies.

Our Contract: This syllabus is my contract with you as to what I will deliver and what I expect from you. If I change the syllabus, I will issue a revised version of the syllabus; the latest version will always be available on Blackboard. Revisions to readings and assignments will be communicated via Blackboard.

Disabilities: Reasonable accommodations will be made for students with documented disabilities. In order to receive accommodations, students must obtain a letter of accommodation from the Center for Disability Resources and make an appointment to speak with me as soon as possible. My office hours are listed on the first page of the syllabus. The Center for Disability Resources (CDR) is located in 3424 S. State St., room 1C3-2 (on the first floor), telephone 312 567.5744 or disabilities@iit.edu.

Illinois Tech Sexual Harassment and Discrimination Information: Illinois Tech prohibits all sexual harassment, sexual misconduct, and gender discrimination by any member of our community. This includes harassment among students, staff, or faculty. Sexual harassment of a student by a faculty member or sexual harassment of an employee by a supervisor is particularly serious. Such conduct may easily create an intimidating, hostile, or offensive environment.

Illinois Tech encourages anyone experiencing sexual harassment or sexual misconduct to speak with the Office of Title IX Compliance for information on support options and the resolution process.

You can report sexual harassment electronically at iit.edu/incidentreport, which may be completed anonymously. You may additionally report by contacting the Title IX Coordinator, Virginia Foster at foster@iit.edu or the Deputy Title IX Coordinator, Esther Espeland at eespeland@iit.edu.

For confidential support, you may reach Illinois Tech's Confidential Advisor at (773) 907-1062. You can also contact a licensed practitioner in Illinois Tech's Student Health and Wellness Center at student.health@iit.edu or (312)567-7550

For a comprehensive list of resources regarding counseling services, medical assistance, legal assistance and visa and immigration services, you can visit the Office of Title IX Compliance website at https://www.iit.edu/title-ix/resources.