

SE 4367 – Software Testing, Verification, Validation and Quality Assurance

Course Information

Course Number	SE4367
Course Title	Software Testing, Verification, Validation and Quality Assurance
Term	Spring 2025 (in-person/face to face)

Professor Contact Information

Instructor	Dr. Mehra Borazjany
E-Mail	mehra@utdallas.edu

To ensure that your email is not overlooked, kindly include "4367.00X" in the subject line. Please refer to the course book to find the section number for your specific section.

Office hours	Tuesday, Thursday 10:30am-11:30am
Office location	ECSS 4.203

Note: Live office hours will be held by appointment only. Additionally, you are welcome to attend my in-person office hours, which are walk-in sessions and do not require a prior appointment.

Course Modality and Expectations

Instructional Mode	In-person https://www.utdallas.edu/covid/response/ http://go.utdallas.edu/syllabus-policies .
Course Platform	Mode: in-person. Access to all course materials (Calendar, Assignments, Slides, Quizzes, Exams, <u>and more</u>) will be provided through UTD ELearning/blackboard . Quizzes and exams will require the use of UTD lockdown browsers .
Expectations	<ul style="list-style-type: none">This course is designed with modules that focus on course content, learning activities, quizzes, and readings, each lasting approximately 1 to 3 weeks. It is recommended that you allocate approximately 10 to 15 hours per week for this course to ensure you have enough time to complete the required tasks.If you anticipate that you will be unable to meet a specific assignment due date, it is crucial that you inform me as soon as possible. This will allow us to discuss possible alternate arrangements. However, it is essential that you reach out to me before the assignment due date. In situations where you provide less than 24 hours' notice, there may be limited options available to address the issue. It is important to remember that college-level work requires effective time management, and it is expected that you plan to complete tasks in a timely manner. Failure to be prepared at least 24 hours ahead of a due date may indicate a time management problem. Please make every effort to complete all assignments on time. <p>As the instructor in this course, my responsibilities include:</p> <ul style="list-style-type: none">Providing course materials that will help you achieve the stated course goalsGiving timely and helpful feedback according to the guidelinesCreating a positive learning environment for all participants. <p>As a student in this course, your responsibilities are:</p> <ul style="list-style-type: none">Reading and completing all course requirements in a timely mannerStaying attentive and engaged in the course, and interacting with your fellow studentsContributing to maintaining a positive learning environment for everyone.
Learning Guidelines	Please read more about in-person and/or live/synchronous courses and how it will apply to lectures and/or exams: https://www.utdallas.edu/covid/response/ http://go.utdallas.edu/syllabus-policies .

COVID-19 Guidelines and Resources

The information contained in the following link lists the University's COVID-19 resources for students. Please see <http://go.utdallas.edu/syllabus-policies>.

Class Participation

Regular class participation is expected regardless of course modality. Students who fail to participate in class regularly are inviting scholastic difficulty. A portion of the grade for this course is directly tied to your participation in this class. It also includes engaging in group or other activities during class that solicit your feedback on homework assignments, readings, or materials covered in the lectures (and/or labs). Class participation is documented by faculty. Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Class Recordings

The instructor will NOT record meetings of this course.

Class Materials

The instructor will provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course; however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Prerequisite: SE 3306 (Mathematical Foundations of Software Engineering)
CE/CS/SE 3354 (Software Engineering)

Course Description

Concepts and techniques for testing and modifying software in evolving environments. Topics include:

- Software testing at the unit, module, subsystem, and system levels
 - Developer testing
 - Automatic and manual techniques for generating test data
 - Testing concurrent and distributed software
 - Designing and implementing software to increase maintainability and reuse
 - Evaluating software for change
 - Validating software changes
-

Student Learning Objectives/Outcomes

After successful completion of this course, the students are expected to gain these:

1. Ability to understand the goals and different types of software testing
 2. Ability to understand and apply functional testing
 3. Ability to understand and apply structural testing
 4. Ability to understand and apply GUI testing
 5. Ability to understand and apply security-related testing
 6. Ability to understand and apply software testing tool
-

Main Textbooks and Materials

- **Required:** *Introduction to Software Testing (edition 2)*, Ammann and Offutt.
- **Required:** *Test Driven: Practical TDD and Acceptance TDD for Java Developers*, Lasse Koskela, Manning Publications, 2007.

Content (Author of the book)

Reading

This BOOK has two closely related themes.

- First, more than half the effort in software development is devoted to activities related to testing, including test design, execution and evaluation. This course will teach quantitative, technical, practical methods that software engineers and developers can use to test their software, both during and at the end of development.

- *Second, more than half of software development effort is not new development, but maintenance activities such as adding new features, correcting problems, migrating to new platforms, and integrating third-party components into new projects. These two themes are intertwined because much of the effort during maintenance is testing the changes, and much of the effort in testing is about evaluating changes.*

This course covers these two themes quantitatively, with a solid basis in theory and with practical applications. These topics will be useful to strong programmers in the Computer Science program, as well as engineers, physical scientists, and mathematicians who regularly integrate software components as part of their work. These topics are of interest to and accessible to students in a wide variety of specializations.

I expect you to read the relevant material before coming to the class. The lectures may not cover everything in the readings and will often include material not found in the readings.

Technical Requirements

In addition to a confident level of computer and Internet literacy, certain minimum technical requirements must be met to enable a successful learning experience. Please review the important technical requirements on the [Getting Started with eLearning](#) webpage.

Course Access and Navigation

This course can be accessed using your UT Dallas NetID account on the [eLearning](#) website.

Please see the course access and navigation section of the [Getting Started with eLearning](#) webpage for more information.

To become familiar with the eLearning tool, please see the [Student eLearning Tutorials](#) webpage.

UT Dallas provides eLearning technical support 24 hours a day, 7 days a week. The [eLearning Support Center](#) includes a toll-free telephone number for immediate assistance (1-866-588-3192), email request service, and an online chat service.

Communication

This course utilizes MS-Teams channels, for interaction and communication.

Student emails and discussion channel messages will be answered within 3 working days under normal circumstances.

Server Unavailability or Other Technical Difficulties

The University is committed to providing a reliable learning management system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and also contact the online [eLearning Help Desk](#). The instructor and the eLearning Help Desk will work with the student to resolve any issues at the earliest possible time.

Academic Calendar

The course calendar will be posted on eLearning.

Proctored Final Exam Procedures (TBD – PLEASE FOLLOW THE COURSE ANNOUNCEMENTS)

This course has a proctored exam requirement, please see the [UTD Testing Center](#) webpage.

Grading Policy:

Here is a clear breakdown of the grading policy for this course:

1. Homework Assignments: 15% of your overall grade

- Graded assignments will be posted on the eLearning platform
- Clarifications or hints will be provided on the discussion channel
- Do not submit assignments as zip files
- Late submissions will receive a 10% penalty per day
- Submitting identical or highly similar solutions may result in a zero point and academic discipline

2. Exam1: 25% of your overall grade

- Exam1 will be online using the UTD eLearning lockdown browser
- There is no opportunity for a retake for the Exam1.

2. Exam2: 25% of your overall grade

- Exam2 will be online using the UTD eLearning lockdown browser
- There is no opportunity for a retake for the Exam2.

3. Final Exam: 25% of your overall grade

- There is no opportunity for a retake for the Final Exam
- Final Exam will be online using the UTD eLearning lockdown browser

4. Participation (quizzes and exercises and discussions in MS-Team discussion channel): 10% of your overall grade

- Participation includes both discussion channel activity and completion of **exercises**
- Exercises will be graded on a *pass* or *fail* basis and will contribute to your overall grade
- Initial exercise submissions must be done before the due date.
- One resubmission per exercise is allowed for students who miss or perform poorly
- All resubmissions must be completed before the end of the **reading period** (usually one week)
- Participation on the discussion channel is encouraged and will be factored into your participation grade
- The discussion channel is the appropriate place to ask technical questions, report errors, or discuss topics related to the course content.

Grading Policy Summary

- *Assignments: 15%*
- *Exam1: 25%*
- *Exam2: 25%*
- *Exam3: 25%*
- *Participation (quizzes, discussion channel and exercises): 10%*

The base grading scale given below may be adjusted based upon the performance of the class as a whole:

Total Score	>=97	>=94	>=90	>=87	>=84	>=80	>=77	>=74	>=70	>=67	>=64	>=60	<60
Grade	A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

Even if you get 86.99 your grade will be "B", not "B+" though it is so close to 87.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

Academic Support Resources

The information contained in the following link lists the University's academic support resources for all students.

Please go to [Academic Support Resources](#) webpage for these policies.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to [UT Dallas Syllabus Policies](#) webpage for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.