



浙江大學

**COMP950**

**Software Quality Assurance & Test**

# COMP950

## Software Quality Assurance & Test

### Instructor Contact Details

Lecturer-in-charge: Dr. Siyu Wang

Email: wlwyxy\_29@zju.edu.cn

Office location: Huajiachi Campus, Zhejiang University, Hangzhou, China

Consultation Time: Book appointment by sending email to: wlwyxy\_29@zju.edu.cn

### Teaching Times, Modes and Locations

Course Duration: 28 Jun 2026 to 17 Jul 2026

Modes: Face-to-face

Location: Huajiachi Campus, Zhejiang University via face-to-face

### Academic Level

Postgraduate

### Credit Points:

The course is worth 6 units of credit point.

### Credit Hours

The number of credit hours of this course equals to the credits of a standard semester- long course.

### Contact Hours

The course contains a total of 53 contact hours, which consists of orientation, lectures, seminars, quiz, discussion, research, case study, small tests, assignments, on-site field trip(s), in-class and after-class activities, revision, self-study, and final exam. Students will receive an official transcript which is issued by Zhejiang University when completing this course.

### Enrolment Requirements

Eligibility requires enrollment in an overseas university as an undergraduate or postgraduate student, proficiency in English, and pre-approval from the student's home institution.

### Course Description:

This unit covers the principles and practices of software quality engineering and testing. Students will learn software quality planning, validation and verification methods, risk analysis, and software review techniques. The course explores various testing techniques, test case design, quality metrics, and software reliability models. Students will develop the skills to define software quality requirements, assess software design quality, implement quality assurance and control activities, and understand industry standards such as ISO, SPICE, CMM, and CMMI. Through practical applications and project-based learning, students will gain the knowledge to establish and maintain effective software quality processes.

### Prerequisite:

None.

### Learning Resources

- Software Testing Principles and Practice by Stephen Brown et al., China Machine Press, 2012.
- Software Quality Assurance by Daniel Galin, China Machine Press, 2005.

### Learning Objectives

By the end of this course, you should be able to:

- Demonstrate an understanding of software quality assurance and testing concepts, including risk assessment and quality improvement strategies.
- Design, implement, and communicate effective test strategies using appropriate tools and frameworks to identify and resolve defects.
- Use testing techniques and QA processes to evaluate and improve software design, development, and operational efficiency.
- Work in teams to develop testing strategies, analyze test results, and present findings professionally.

### Course Delivery:

- Face-to-face Lecture mode includes lectures, seminars, quiz, discussion, research, case study, small tests, assignments, on-site field trip(s), in-class and

after-class activities, revision, and final exam.

The following course will be taught in English. There will also be guest speakers and optional field trips available for students who would like to enhance their learning experience. All courses and other sessions will be run during weekdays.

Topics and Course Schedule:

| WK | Topic  | Activities        |
|----|--|-------------------|
| 1  | Course description and scenario  | Lecture; Tutorial |
| 1  | Software quality in a company  | Lecture; Tutorial |
| 1  | Test and quality assurance planning  | Lecture; Tutorial |
| 1  | Software requirement specification and use cases                             | Lecture; Tutorial |
| 1  | Verification vs. validation  | Lecture; Tutorial |
| 2  | Test design and case methodologies<br>(equivalence classes, boundary values) | Lecture; Tutorial |
| 2  | Test execution: task breakdown, defect management, version control           | Lecture; Tutorial |
| 2  | Test automation: frameworks, data-driven, and keyword-driven approaches      | Lecture; Tutorial |
| 2  | Quiz   | Closed book       |
| 2  | SQE in agile environments  | Lecture; Tutorial |
| 3  | Performance testing: methods, analysis, and tuning                           | Lecture; Tutorial |
| 3  | Unit testing: concepts, frameworks   | Lecture; Tutorial |
| 3  | Unit testing: patterns, stubs, assertions                                    | Lecture; Tutorial |
| 3  | White-box testing: coverage, complexity                                      | Lecture; Tutorial |
| 3  | White-box testing: static analysis   | Lecture; Tutorial |
| 3  | Revision   | Tutorial          |
| 3  | Final exam   | Closed book       |

Assessments:

|                     |     |
|---------------------|-----|
| Class participation | 15% |
| In-class Test       | 15% |
| Assignments         | 20% |
| Final exam          | 50% |

Pass Requirement (Double Pass Rule)

To pass this course, students are required to achieve:

- an overall mark of 50% or above, and
- a pass mark (50% or above) in the Final Examination.

Students who achieve an overall mark of 50% or above but do not achieve a pass in the Final Examination will receive a fail grade for the course.

Grade Descriptors:

|    |                  |        |
|----|------------------|--------|
| HD | High Distinction | 85-100 |
| D  | Distinction      | 75-84  |
| Cr | Credit           | 65-74  |
| P  | Pass             | 50-64  |
| F  | Fail             | 0-49   |

### **High Distinction 85-100**

- Treatment of material evidences an advanced synthesis of ideas Demonstration of initiative, complex understanding, and analysis.
- Work is well-written and stylistically sophisticated, including appropriate referencing, clarity, and some creativity where appropriate.
- All criteria addressed to a high level.

### **Distinction 75-84**

- Treatment of material evidences an advanced understanding of ideas Demonstration of initiative, complex understanding and analysis Work is well-written and stylistically strong.
- All criteria addressed strongly.

### **Credit 65-74**

- Treatment of material displays a good understanding of ideas
- Work is well-written and stylistically sound, with a minimum of syntactical errors.
- All criteria addressed clearly.

### **Pass 50-64**

- Treatment of material indicates a satisfactory understanding of ideas Work is adequately written, with some syntactical errors.
- Most criteria addressed adequately.

### **Fail 0-49**

- Treatment of ideas indicates an inadequate understanding of ideas Written style inappropriate to task, major problems with expression.
- Most criteria not clearly or adequately addressed.

### Academic Integrity

Students are expected to uphold the university's academic honesty principles which are an integral part of the university's core values and principles. If a student fails to observe the acceptable standards of academic honesty, they could attract penalties and even disqualification from the course in more serious circumstances. Students are responsible for knowing and observing accepted principles of research, writing and any other task which they are required to complete.

Academic dishonesty or cheating includes acts of plagiarism, misrepresentation, fabrication, failure to reference materials used properly and forgery. These may include, but are not limited to: claiming the work of others as your own, deliberately applying false and inaccurate information, copying the work of others in part or whole, allowing others in the course to copy your work in part or whole, failing to appropriately acknowledge the work of other scholars/authors through acceptable referencing standards, purchasing papers or writing papers for other students and submitting the same paper twice for the same subject.

This Academic Integrity policy applies to all students of the Zhejiang University in all programs of study, including non-graduating students. It is to reinforce the University's commitment to maintain integrity and honesty in all academic activities of the University community.

### Policy

The foundation of good academic work is honesty. Maintaining academic integrity upholds the standards of the University. The responsibility for maintaining integrity in all the activities of the academic community lies with the students as well as the faculty and the University. Everyone in this community must work together to ensure that the values of truth, trust and justice are upheld.

Academic dishonesty affects the University's reputation and devalues the degrees offered. The University will impose serious penalties on students who are found to have violated this policy. The following penalties may be imposed:

- ✓ Expulsion
- ✓ Suspension
- ✓ Zero mark /fail grade
- ✓ Marking down
- ✓ Re-doing/re-submitting of assignments or reports, and
- ✓ Verbal or written warning