San José State University
Computer Engineering Department
CMPE/SE 187 Software Quality Engineering
Fall 2015 Syllabus

Refer to Canvas for the most current version

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Office Hours:	Posted on CMPE Website
Class Days/Time:	Tuesday 6:00 PM – 8:45 PM
Classroom:	ENGR 325
Prerequisites:	CMPE 131

Course Description

Software testing and quality assurance engineering concepts, processes, models, criteria, and methods. Software unit testing, integration, function validation, system performance and reliability evaluation; Software security testing methods and tools; software quality assurance management, control systems, standards, and evaluation metrics.

Program Outcomes and Course Learning Objectives

At the end of the course, the student will understand and be able to address the following areas as highlighted below:

Program Outcome	Program Outcome Descriptions
Outcome-b	Ability to design and conduct experiments, as well as to analyze and interpret data
Outcome-d	Ability to function on multi-disciplinary teams
Outcome-e	Ability to identify, formulate, and solve engineering problems
Outcome-k	Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Course Learning Objectives (CLOs):

CLOs	Descriptions
CLO 1	Understand software testing and quality assurance concepts, process, strategies, objectives, and criteria
CLO 2	Understand the different software testing techniques and quality assurance

	methods and apply them to solve software quality engineering issues
CLO 3	Understand how to plan, conduct, manage, and implement a software test project; and manage and control software product quality
CLO 4	Understand software quality assurance processes, standards, control systems, and evaluation metrics
CLO 5	Communicate effectively in a team environment.
CLO 6	Understand software security validation issues and solutions
CLO 7	Effectively work on a software testing project, including planning, design, test execution, and result analysis using modern testing tool.

Course Learning Objectives Support Program Outcomes

	Outcome-b	Outcome-d	Outcome-e	Outcome-k
CLO 1	X			
CLO 2	X		X	
CLO 3	X		X	
CLO 4	X		X	
CLO 5		X		
CLO 6	X		X	
CLO 7				X

Required Textbooks and Materials:

None required. However the books listed in the next section are highly recommended. Slides and notes from #3 below will be used and followed.

Readings:

1. Gao, Jerry Zeyu, Tsao, Jacob H.S., & Wu, Ye (2003). Testing and Quality Assurance for Component-based Software. Norwood, MA: Artech House
2. Merkow, Mark S., Raghavan, Lakshmikanth (2012). Secure and Resilient Software: Requirements, Test Cases and Testing Methods. Boca Raton, FL: Auerbach Publication
3. Naik, Kshirsagar & Tripathi, Priyadarshi (2008). Software Testing and Quality Assurance: Theory and Practice. Hoboken, NJ: Wiley
4. Watkins, John (2009). Agile Testing: How to Succeed in an Extreme Testing Environment

Course Conduct

The course provides students practice-oriented project experience to work on software testing and quality assurance projects using real world software quality assurance and testing tools. Through the assigned project, students will learn how to control software quality and conduct test planning, design, and validation of software components or systems by applying well-defined test coverage criteria. Besides, students also have chances to learn and study some advanced subjects, such as security testing software and test automation. For the term project, students need to apply software testing techniques

and quality assurance standards to software testing projects, and use the modern testing tools.

Canvas

This courses will use Canvas for receiving assignments and project information, assignment submission, online discussion, plagiarism detection, grading, surveys, etc. Please use your MySJSU login to access Canvas at https://sjsu.instructure.com.

Student can register for workshops entitled "Getting started with Canvas" at: http://www.sjsu.edu/at/ec/aboutus/ecampusevents/index.html If you are having problems logging on, please submit a ticket https://isupport.sjsu.edu/ecampus/ContentPages/Incident.aspx Canvas student resources: http://www.sjsu.edu/at/ec/canvas/student_resources/index.html

Grading

- Homework/Quizzes 20%
- Midterm Exam 30%
- Team Project 20%
- Final Exam 30%

Grading Policy

94% and above	A
90% - 93.99%	A-
87% - 89.99%	B+
84% - 86.99%	B
80% - 83.99%	B-
77% - 79.99%	C+
74% - 76.99%	C
70% - 73.99%	C-
60% - 69.99%	D
0% - 59.99%	F

Workload

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in University Policy S12-3 at http://www.sjsu.edu/senate/docs/S12-3.pdf.

Attendance

University policy F69-24 states "Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to ensure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading."

Dropping and Adding
Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester's Catalog Policies section at *http://info.sjsu.edu/static/catalog/policies.html*. Add/drop deadlines can be found on the *current academic calendar* web page located at *http://www.sjsu.edu/academic_programs/calendars/academic_calendar/*.

The Late Drop Policy is available at *http://www.sjsu.edu/aars/policies/latedrops/policy/*. Students should be aware of the current deadlines and penalties for dropping classes.

Information about the latest changes and news is available at the *Advising Hub* at *http://www.sjsu.edu/advising/*.

Collaborative Work
Some of the work in the class is done in groups. The names of all contributors on any project component that is submitted and that is the result of collaborative efforts must identify precisely *who* contributed *what*.

University Policies

Academic integrity

Your own commitment to learning, as evidenced by your enrollment at San José State University, and the University's Academic Integrity Policy requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the Office of Student Conduct and Ethical Development. The policy on academic integrity can be found at http://www.sjsu.edu/studentconduct/.

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include your assignment or any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Policy S07-2 requires approval of instructors.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the newly announced Accessible Education Center (the AEC was formerly called the DRC) at http://www.drc.sjsu.edu/. The AEC features distinct yet

interconnected programs, services, and accommodations aimed at the strategic removal of barriers that inhibit students with disabilities' full physical and curricular access, co-curricular engagement and learning, and effective communication. The new name reflects the University's continued commitment to increasing accessibility and inclusivity on campus.

Student Technology Resources

Computer labs for student use are available in the Academic Success Center located on the 1st floor of Clark Hall and on the 2nd floor of the Student Union. Additional computer labs may be available in your department/college. Computers are also available in the Martin Luther King Library.

A wide variety of audio-visual equipment is available for student checkout from Media Services located in IRC 112. These items include digital and VHS camcorders, VHS and Beta video players, 16 mm, slide, overhead, DVD, CD, and audiotape players, sound systems, wireless microphones, projection screens and monitors.

Peer Connections

The Learning Assistance Resource Center (LARC) and the Peer Mentor Program have merged to become Peer Connections. They are located in Room 600 in the Student Services Center (The 10th Street Garage located on the corner of 10th and San Fernando). It is designed to assist students in the development of their full academic potential and to motivate them to become self-directed learners. The center provides support services, such as skills assessment, individual or group tutorials, subject advising, learning assistance, summer academic preparation and basic skills development. The Peer Connections website is located at http://peerconnections.sjsu.edu/ .

SJSU Writing Center

The SJSU Writing Center is located in Room 126 in Clark Hall. Professional instructors and upper-division or graduate-level writing specialists from each of the seven SJSU colleges staff it. Our writing specialists have met a rigorous GPA requirement, and they are well trained to assist all students at all levels within all disciplines to become better writers. http://www.sjsu.edu/writingcenter/about/staff/.

CS 187 Software Quality Engineering

Fall 2015 Course Schedule

(Refer to Canvas for latest version)

Week	Date	Discussions and Assignments
1	8/25	Introduction
2	9/1	Software Quality Assurance Concepts
3	9/8	Control Flow Testing
4	9/15	Data Flow Testing
5	9/22	Domain Testing
6	9/29	System Integration Testing System Test Categories
7	10/6	Agile Testing
8	10/13	Functional Testing, Midterm Review
9	10/20	Midterm Exam
10	10/27	Finite State Machine Models Security Testing
11	11/3	System Test Design System Test Plan and Automation System Test Execution
12	11/10	Acceptance Testing Software Reliability
13	11/17	Test Team Organization Software Quality Maturity Models
14	11/24	Ethics and Society
16	12/1	Team Presentations
17	12/8	Course Review
18	12/15 Tuesday	5:15 PM - 7:30 PM (Fall 2015 Final Exam Schedule)