IT 372 Software Maintenance and Evolution

Green River College, Fall 2016

Course Information

Meeting Times: T 6:30 – 8:50 pm and online
Meeting Location: Kent Campus (KC) 314
Item Number: 5955
Section: DE (Hybrid)
Credit Hours: 5
Prerequisites: IT 301 and IT 305; or instructor's permission

Instructor Information

Name: Kendrick (Ken) Hang
Email: khang@greenriver.edu
Office Location: TC 217 (enter through TC 212)
Office Phone: 253 833-9111, ext. 4310
Office Hours: MW 2:00 – 3:00 pm in TC 217, TTh 10:00 – 11:00 am in TC 217, T 5:30 – 6:30 pm in KC 319 (Kent Campus), or by appointment

Course Description

Defect analysis and resolution is a process where software defects are identified, replicated, evaluated, and classified before repair, testing, and release. Tools used include bug/defect tracking software, source code control systems, and regression testing suites. Exposure to defect management practices such as triage and risk assessment. Students learn to upgrade an existing system without changing existing functionality.

Course Web Site

All assignments, supplementary materials, the course schedule, due dates, and updates to this syllabus will be posted to the course web site in Canvas at https://egator.greenriver.edu/

Check the course web site and your @mail.greenriver.edu email account daily for important announcements.

Level of Student Commitment

This is an advanced course where students are expected to take initiative in learning much of the material, as is expected of a professional software developer in the technology sector. Please plan for 10 to 15 hours a week outside of class on reading, research, programming, writing, working with peers, and consulting with the instructor.

Textbook and Software

Required Textbook Frank Tsui, Orlando Karam, and Barbara Bernal, *Essentials of Software Engineering*, Third Edition. Additional required readings will be provided online in Canvas.

Optional Textbook Steve McConnell, *Code Complete: A Practical Handbook of Software Construction, Second Edition*.

Required Software Dependent on project. Likely a desktop, web, and/or mobile development environment.

Instructional Methods

This course covers both conceptual ideas in software maintenance as well as practical application. Software maintenance concepts are explored using the Socratic method, a form of inquiry and discussion, based on asking questions to stimulate critical thinking and to illuminate ideas. Everyone in the class is expected to both bring knowledge in to share as well as learn from others who have done the same.

Tests will be used to assess how well students have internalized the concepts that are presented in the class.

Technical Summaries are assignments where students research or investigate a topic that is beyond what is presented in the readings or in class and present a written summary on their findings. Technical summaries may involve some programming, prototyping, or experimentation by the student to fully understand the concept or application before summarizing in writing.

Programming Projects are assignments where students will practice applying some of the concepts covered in the class in a software maintenance project to obtain a deeper understanding of tools and techniques in an applied context.

Course Learning Outcomes

At the end of this course the student will be able to:

- Deploy and use a bug/defect tracking system.
- Interpret a bug/defect report and identify the source of the problem.
- Use debugging tools and techniques to help identify the source of a problem.
- Assess the risk and impact of a bug/defect to create a prioritized list of defects to resolve.
- Resolve a bug/defect without impacting other dependencies in the software or existing functionality.
- Add a new feature to existing or legacy software without impacting existing functionality.
- Develop a regression testing strategy using regression testing tools where appropriate.
- Track changes and software evolution using a source code control system.
- Identify techniques for monitoring, auditing, and incident management during software operations and maintenance.

Campus-Wide Learning Outcomes

Green River College has identified ability areas that we believe encompass knowledge and are the most important skills, behaviors, attitudes, and values that students will need in order to be successful in and after leaving the college. This course will address one of the four campus-wide ability areas: *critical thinking*.

Critical Thinking finds expression in all disciplines and everyday life. It is characterized by an ability to reflect upon thinking patterns, including the role of emotions on thoughts, and to rigorously assess the quality of thought through its work products. Critical thinkers routinely evaluate thinking processes and alter them, as necessary, to facilitate an improvement in their thinking and potentially foster certain dispositions or intellectual traits over time.

Course Policies

Tests

Make-up tests will not be given except in case of a serious emergency. If you must miss an test, even if you are sick or injured, you must contact the instructor before the test (or arrange for someone to do so).

Lateness

Each student receives five "late days" for use on written assignments. A late day allows you to submit an assignment up to one calendar day late without penalty. Once a student has used up all the late days, any further late work will be accepted only for partial credit with a maximum score of 50% on the assignment. Regardless of how many late days you have, you may not submit an assignment after the last day of class.

Absence from Class

If you miss class, you are still responsible for the material covered in class that day. Check with a peer if you miss class. It is a responsible practice to notify the instructor and your peers if you will be absent from class.

Academic Integrity and Collaboration

Plagiarism occurs when you knowingly submit someone else's work (ideas, words, code) as your own. Plagiarism is an act of intentional deception that is not only dishonest, it robs you of the most important product of education – the actual learning. Should I suspect that you have plagiarized, I will talk with you one-on-one and ask you to prove the work in question is your own.

These are the consequences of plagiarism in this course:

- If your work is copied, you will receive a failing grade of zero on the assignment or test.
- If you share your work inappropriately, you will receive a failing grade of zero on the assignment or test.
- If you continue to plagiarize work during the quarter, you will receive a failing grade for the course.

ADA Statement

If you believe you qualify for course adaptations or special accommodations under the Americans with Disabilities Act (ADA), it is your responsibility to contact the Disability Support Services Coordinator in the SA building and provide the appropriate documentation. If you have already documented a disability or other condition through the Green River College Disability Support Services Office, which would qualify you for special accommodations, or if you have emergency medical information or special needs I should know about, please notify me during the first week of class.

You can reach me by phone at 253-833-9111, extension 4310. Or, you can schedule an office appointment to meet me in the Technology Center Building, office number 217 during my posted office hours or at another mutually determined time. If this location is not convenient for you, we will schedule an alternative place for the meeting. If you use an alternative medium for communicating, let me know well in advance of the meeting (at least one week) so that appropriate accommodations can be arranged.

Grading

The grading in this course is weighted between tests, written assignments, and software projects. The grading scale for this course is listed below.

- 30% tests
- 35% assignments
- 35% software projects

Letter Grade	Grade Points	Percent Range
A	4.0	95-100
A-	3.9	94
A-	3.8	93
A-	3.7	92
A-	3.6	91
B+	3.5	90
B+	3.4	89
B+	3.3	88
B	3.2	87
B	3.1	86

Letter Grade	Grade Points	Percent Range
B	3.0	85
B-	2.9	84
B-	2.8	83
B-	2.7	82
C+	2.6	81
C+	2.5	80
C+	2.4	79
C+	2.3	78
C	2.2	77
C	2.1	76

Letter Grade	Grade Points	Percent Range
C	2.0	75
C-	1.9	74
C-	1.8	73
C-	1.7	72
D+	1.6	71
D+	1.5	70
D+	1.4	69
D+	1.3	68
D	1.2	67
D	1.1	66
D	1.0	60-65
F	0.0	0-59