COURSE SYLLABUS
COM339: Advance Software Testing

Course Description
Traditional software testing and debugging accounts for more than half the cost of software development, but often fails to find many critical bugs. As a result, developing effective software testing processes and techniques is a critical skillset in the industry. The student will build on the fundamental principles of software testing learned in the previous course, and explore advanced, automated testing techniques.

General Course Information

Number of Units/Weeks	4/10
#Hours Lecture/#Hours Laboratory/#Hours Homework	40/00/80
Prerequisite(s)	None
Co-requisites (s)	None
Course Developer(s)	Leticia Rabor, M.S.
Date Approved / Last Review	February 2017 / February 2017

Learning Outcomes
- Given system requirements, analyze the test needs in order to plan test activities and work products.
- Describe the circumstances under which automated testing should be considered.
- Discuss the development of automated tests using an industry standard framework in a high level programming language.
- Describe the use of the traceability matrix to check completeness and consistency of the defined test plan.
- Explain the factors that must be considered when specifying the level of detail in a test plan.
- Discuss the development of a test plan execution schedule considering factors such as completeness, and consistency with test objectives and strategies.
- Explain the importance of accurate and timely information collection during the test process to support reporting and evaluation exit criteria.

Instructional Methods Employed in this Course
- Use of Software Testing tools
- Lecture and reading assignments

- Practical Hands-on exercises
- Homework Review Questions
- PowerPoint Slides

Information Resources for this Course

Textbook

Elfriede Dustin, Jeff Rashka, John Paul. (1999). *Automated Software Testing.* Boston, MA: Addison-Wesley Professional. ISBN: 978-0201432879

Other Resources

Beizer, B. (2009). *Software testing techniques* (2nd ed.). London: International Thomson Computer Press.

Myers, G., & Sandler, C. (2012). *The art of software testing* (3rd ed.). Hoboken, N.J.: John Wiley & Sons.

Table/Topics & Assignments

Types of Assignments:

Lecture -
Considered Lecture Hours

Classroom Discussion -
Considered Lecture Hours

In Class (IC) Exercise -
Considered Lecture Hours

Reading -
Considered Homework (HW), work done outside of class

Project Assignments -
Considered HW, work done outside of class

Chapter Review Exercises -
Considered HW, work done outside of class

Midterm and Final -
Considered Lecture Hours

Week 1						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 1A	Introduction to Automated Testing	4	--	--	--	
HW 1A	Read Chapter 1 (26 pages). Evaluated by HW 1B	--	--	2.6	--	
HW 1B	Chapter 1 Review Exercises	--	--	2	--	Week 2
HW 1C	Project 1	--	--	4	50	Week 2

Total Week 1		4	--	8.6	50	
Week 2						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 2A	Decision to Automate Test	4	--	--	--	
HW 2A	Read Chapter 2 (24 pages). Evaluated by HW 2B	--	--	2.4	--	
HW 2B	Chapter 2 Review Exercises	--	--	2	--	Week 3
HW 2C	Project 2	--	--	6	50	Week 3
Total Week 2		4	--	10.4	50	
Week 3						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 3A	Automated Test Tool Evaluation and Selection	4	--	--	--	
HW 3A	Read Chapter 3 (36 pages) Evaluated by HW 3B	--	--	3.6	--	
HW 3B	Chapters 3 Review Exercises	--	--	2	--	Week 4
HW 3C	Project 3	--	--	4	50	Week 4
Total Week 3		4	--	9.6	50	
Week 4						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 4A	Automated Testing Introduction Process	4	--	--	--	
HW 4A	Read Chapters 5 (44 pages) Evaluated by ELP 4B	--	--	4.4	--	
HW 4B	Chapter 5 Review Exercises	--	--	2	--	Week 5
HW 4C	Project 4	--	--	3	50	Week 5
Total Week 4		4	--	9.4	50	
Week 5						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**

LEC 5A	Test Team Management	2	--	--	--	
EXAM 5B	Midterm Examination (Chapters 1-4)	2	--	--	150	In Class
HW 5A	Read Chapter 5 (28 pages) Evaluated by HW 5B	--	--	2.8	--	
HW 5B	Chapter 5 Review Exercises	--	--	2	--	Week 6
HW 5C	Project 5	--	--	5	100	Week 6
Total Week 5		4	--	9.8	250	
Week 6						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 6A	Test Planning: Smart Application of Testing	4	--	--	--	
HW 6A	Read Chapter 6 (30 pages) Evaluated by HW 6B	--	--	3	--	
HW 6B	Chapter 6 Review Exercises	--	--	2	--	Week 7
HW 6C	Project 6	--	--	3	100	Week 7
Total Week 6		4	--	8	100	
Week 7						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 7A	Test Analysis and Design	4	--	--	--	
HW 7A	Read Chapter 7 (35 pages) Evaluated by HW 7B	--	--	3.5	--	
HW 7B	Chapter 7 Review Exercises	--	--	2	--	Week 8
HW 7C	Project 7	--	--	3	100	Week 8
Total Week 7		4	-	8.5	100	
Week 8						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 8A	Test Development	4	--	--	--	
HW 8A	Read Chapter 8 (38 pages) Evaluated by HW 8B	--	--	3.8	--	

HW 8B	Chapter 8 Review Exercises	--	--	2	--	Week 9
HW 8C	Project 8	--	--	3	100	Week 9
Total Week 8		4	-	8.8	100	
Week 9						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 9A	Test Execution	4	--	--	--	
HW 9A	Read Chapter 9 (26 pages) Evaluated by HW 9B	--	--	2.6	--	
HW 9B	Chapter 9 Review Exercises	--	--	2	--	Week 10
HW 9C	Project 9	--	--	5	100	Week 10
Total Week 9		4	--	9.6	100	
Week 10						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 10A	Test Program Review and Assessment	2				
EXAM 10A	Final Examination (Chapters 5-10)	2	--	--	150	In Class
Total Week 10		4	--	--	150	

Course Hours Summary

Week	Topic	LEC Hours	LAB Hours	HW Hours
1	Course Introduction to Software Testing, Introduction to Software Testing Life Cycle	4	--	8.6
2	Introduction to Test Planning	4	--	10.4
3	Test Design	4	--	9.6
4	Test Techniques, Dynamic & Static Black Box Testing	4	--	9.4
5	Levels & Types of Testing, Static White Box Testing	4	--	9.8
6	Test Execution, Dynamic White Box Testing	4	--	8.0
7	Writing a Test Plan, Defect Management	4	--	8.5
8	Reporting & Team Collaboration	4	--	8.8
9	Metrics & Measurement	4	--	9.6
10	Testing Tools & FAQs, Finals	4	--	--
Total		40	--	82.7

Table/Point Breakdown

Week	Assignment	Possible Points	Percent of Grade
1	Project 1	50	5%
2	Project 2	50	5%
3	Project 3	50	5%
4	Project 4	50	5%
5	Project 5	100	10%
5	Midterm	150	15%
6	Project 6	100	10%
7	Project 7	100	10%
8	Project 8	100	10%
9	Project 9	100	10%
10	Finals	150	15%
Total		1000	100%

Your grades for this course

Your final grade for this course will be based on an assessment by the Instructor of your performance on a number of course activities, which may include objective tests, classroom exercises, laboratory demonstrations, project papers, or other types of activities. The chart below indicates in what activities you will engage, how many possible points can be earned for each activity, and the percentage of your final grade that will be accounted for by each activity.

Students in this course should be graded following Coleman University assessment practices and policies. A point system is used in the University to indicate student performance on various required activities or projects. For this course, it is recommended that points be distributed as follows:

Coleman University Grade Assignment Policy:

Percent	Letter Grade	Grade Points
94-100	A	4
90-93	A-	3.67
87-89	B+	3.33
84-86	B	3
80-83	B-	2.67
77-79	C+	2.33
74-76	C	2
70-73	C-	1.67
67-69	D+	1.33
64-66	D	1
60-63	D-	0.67

N/A	INC	0
N/A	W	0
60 or above	CR	0
59 or below	NC	0
N/A	I	0
N/A	W	0
N/A	AU	0
N/A	TR	0
N/A	WV	0

Legend	
CR = Credit	NC = No Credit
I = Incomplete	W = Course Withdrawal
AU = Audit	TR = Transfer Credit
WV = Waiver	

Academic Accommodation / Adjustment Policy:

In accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA), Coleman University offers accommodations to students with documented physical, psychological, and/or cognitive disabilities. Coleman University will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to offer equal educational opportunities to qualified disabled individuals.

To qualify for an academic accommodation under ADA, the student must provide adequate documentation of a disability. Students seeking academic accommodations should contact the campus ADA Coordinator at 858-966-3953 or via email at ada@coleman.edu. The ADA Coordinator will review the documentation provided and verify ADA coverage. Students covered under ADA must meet with the ADA Coordinator at the beginning of every term to determine the appropriate academic accommodations. Failing to meet with the ADA Coordinator at the beginning of every term may impact the availability of accommodations.

After the academic accommodations have been determined, the students' instructors will be notified by the ADA Coordinator. If any problems or concerns regarding the provision of accommodations occur, the student must inform the ADA Coordinator. If the student feels accommodation is not being made appropriately, the student may follow the published Student Grievance Procedures.