الجامعـــــــــة الهاشـــميـــــــة
كلية الاميـر الحسين بـــــن عبدالله الثاني لتكنولوجيا المعلـــومات

The Hashemite University
Prince Al-Hussein Bin Abdullah II Faculty for Information Technology
Department of Software Engineering

Course Syllabus
Spring 2018

Course Title: Software Testing
Course Number: 151003410
Prerequisite: 151003221 (Object-Oriented Software Development)
When and Where: (Sun, Tues, Thurs) 11-12, IT 210
(Mon, Wed): 12:30-2, IT 302

Instructor: Dr. Fadi Wedyan
Office No.: 329
Contact Info: fadi.wedyan@hu.edu.jo

Office Hours:
Sun, Tues, Thurs: 12-1 PM
Mon, Wed: 2 – 3 PM

Assessment and Course Grade:

- First Exam 20%
- Second Exam 20%
- Final Exam 40%
- Homework 20%,

Course Description

The course covers in details various aspects, theories, concepts, techniques and tools of software testing during development, maintenance and evolution. Topics include software testing at different levels (the unit, module, and system levels), testing management, inspections and walkthrough, model checking, designing and verifying test hypothesis, details of the verification and validation (V&V) techniques and concepts, bugs tracking, designing test cases and testing paths, generating of testing data. The course will be supported by practical exercises involving the development of appropriate tests and the application of a range of testing tools.

Textbooks

- Paul Jorgensen, Software Testing: A Craftsman's Approach, Fourth Edition, ISBN-10: 1466560681, 2013
- Paul Ammann and Jeff Offutt, Introduction to Software Testing, Cambridge University Press, Cambridge, UK, ISBN 0-52188-038-1, 2008.
- Pezze & Young, Software Testing and Analysis: Process, Principles and Techniques, Wiley, 2007, ISBN: 0471455938.
- Several Articles and class Notes

Additional Reading

- C Kaner, J. Bach, B. Pettichord, Lessons Learned in Software Testing, Wiley, 2001.

Course Objectives

Upon successful completion of this course students should be:

- Able to demonstrate knowledge of the fundamentals of software testing

- Provided with the skill to select and apply a testing strategy and testing techniques that are appropriate to a particular software system or component.
- Capable of using test tools (test generation, test measurements, test running)
- Able to assess the effectiveness of their testing activity; and be able provide evidence to justify their evaluation
- Apply a wide variety of testing techniques in an effective and efficient manner
- Compute test coverage and yield according to a variety of criteria
- Evaluate the limitations of a given testing process and provide a concise summary of those limitations

Course Plan (Tentative)

Week no.	Topic	Reading
1	Overview of software testing	Ch.1 (P & Y)
2	Theory	Ch.4 & 20 (P & Y)
3	Functional Testing	Ch. 10 (P & Y) Ch. 4 (A & O)
4,5	Tools for Unit Test — JUnit	Handouts
First Exam		
6	White-box testing (Structural Testing) Introduction, Coverage Criteria, Control-flow Coverage	2.1, 2.2, 2.3 (A & O)
7,8	Data-Flow Coverage	2.1, 2.2, 2.3 (A & O)
Second Exam		
9,10	Testing of OO Programs	Handouts
10	Testing Process- Planning and Monitoring	Ch. 20 (P & Y)
13	Testing Process- Integration and Component-based	Ch. 21 (P & Y)
14	Testing Process- System, Acceptance, and Regression Testing	Ch. 22 (P & Y)
Final Exam		

Grading and Exams

- Make-up exams are only given in extraordinary circumstances (e.g., illness, death of family member). Students must consult with the instructor as soon as possible, preferably before the start of the exam.

- Grading is based on the following scale:
  - 93% or above = A+, 85-92% = A, 80-84% = A-
  - 75-79% = B+, 70-74% = B, 65-69% = B-
  - 61-64% = C+, 57-60% = C, 54-56% = C-
  - 51-53% = D+, 49-51% = D, Below 49% = F