CPIT-455 Syllabus

Catalog Description

CPIT-455 Software Engineering (II)
Credit: 3 (Theory: 3, Lab: 0, Practical: 1)
Prerequisite: CPIT-251
Classification: Elective

The objective of this course is to explore software advanced engineering principles and techniques used in the specification, design, and testing of software systems Topics include software engineering confirmation and authentication, methods and ways of software testing building and managing software development teams, scientific and practical methods for calculating the costs of software development, quality management in software development, processes development in software production, and reconstruction management in software production.

Class Schedule

Lab/Tutorial 90 minutes 1 times/week

Meet 50 minutes 3 times/week or 80 minutes 2 times/week

Textbook

Ian Sommerville, , "Software Engineering", Addison-Wesley; 10 edition (2015-03-24)

ISBN-13 9780133943030   **ISBN-10** 0133943038

Grade Distribution

Week	Assessment	Grade %
6	Exam 1	15
12	Exam 2	15
14	Project (Individual)	10
15	Lab Exam	20
16	Comprehensive Final Exam	40

Last Articulated

December 18, 2017

Relationship to Student Outcomes

a	b	c	d	e	f	g	h	i	j	k	l	m	n
		x						x	x	x		x	x

Course Learning Outcomes (CLO)

By completion of the course the students should be able to

1. Implement code from test cases and vice versa (c)
2. **Evaluate appropriate testing methodologies for testing functional and non-functional requirements (c)**
3. **Defend decisions about maintaining, scrapping or upgrading software components (n)**
4. Examine how system dependability can be achieved by using redundant and diverse components, and how different architectural styles may be used to implement software redundancy and diversity. (m)
5. Decide functional and non functional dependability for security requirements. (j)
6. Apply metrics for reliability specification to specify measurable reliability requirements. (j)
7. **Apply good programming practice in dependable systems engineering. (k)**
8. Examine Verification and validation techniques used in the development of critical systems. (m)
9. Examine the elements involved in the re-use of code (m)
10. **Apply experience-based techniques and algorithmic cost modeling to estimate the cost of a given system (n)**
11. Understand software quality management and software measurement. (m)
12. **Examine configuration management processes and tools. (m)**
13. Apply process improvements stages of CCMI (m)
14. Develop a web based application using state-of-art tools (i)

Coordinator(s)

Dr. Georgios Tsaramirsis, Associate Professor

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Topics Coverage Durations

Topics	Weeks
Sociotechinical systems	1
Wordpress (Web Builder)	1
Software Testing	1
Software Evolution	1
Security and Dependability	1
Dependability and security specification (part A)	1
Dependability and security specification (part B)	1
Dependabilty engineering	1
Security engineering	1
Dependability and security assurance	1
Software Reuse	1
Project planning (Estimation techniques)	1
Quality Management	1
Configuration Management	1
Process Improvement	1