



University of Tehran
School of Electrical and Computer Engineering

Course:	8101461 – Software Engineering									
Course type:	EE*						CE*			Credit: 3
	Com	E	P	B	Con	D	SW	HW	IT	
	Required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Elective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Level:	Undergraduate <input checked="" type="checkbox"/> Graduate <input type="checkbox"/>									
Co-requisite(s):	None.									
Prerequisite(s):	Systems Analysis and Design (8101149)									
Prerequisite by topic:	Fundamentals of System Analysis and Design - Software Modeling - Object-Oriented Programming									
Textbook(s):	[1] Roger S. Pressman and Bruce R. Maxim, <i>Software Engineering: A Practitioner's Approach</i> . 8 th ed., McGrawHill, 2014.									
Coordinator:	Khosravi, Professor, School of ECE									
Goals:	<p>The purpose of this course is to study the techniques needed to produce valuable, high-quality with high-productivity software. In this lesson, first, the differences between a product that is produced by the engineering method and a product which is produced by the artistic methods is expressed. Then the expectations that an engineering product has to meet is described. Afterwards, we will have an overview of scientific achievements in this field at all stages of software production with an emphasis on engineering methods of production, including modeling, measurability and evaluability, validation and verification. Given the fact that in previous courses students have been less familiar with the formal descriptions of requirements, measurements, estimates, and tests, this course focuses more on these subjects. At the end, support activities such as project management, scheduling, risk management, configuration management, and quality assurance, with emphasis on their impact on software production, are reviewed.</p>									
Outcome:	<p>Students who successfully pass this lesson will have a good insight into the following:</p> <ol style="list-style-type: none"> 1. Applying engineering methods to create a quality product 2. Follow the well-known processes of software engineering 3. Application of Software Architectural Design Methods 4. Software Testing at Different Levels 									
Topics:	<ol style="list-style-type: none"> 1) An Introduction to Software Engineering 2) Software Development Processes and Models - Iterative Development 3) An overview of software analysis 									

	4) Software design: design principles, patterns, refactoring 5) Software Architecture: Design, Documentation and Evaluation 6) Software testing 7) Software Quality Management 8) Cost and time estimation 9) Project Management - Human Resources Management - Risk Management 10) Life Cycle Management - Change Management - Configuration Management 11) Agile methods
Computer usage:	A UML modeling tool - A Project Management Tool
Assignments:	5 homework assignments
Projects:	
Grading:	Assignments: 20% Quizzes: 10% Midterm exams: 30% Final exam: 40%
Further readings:	[1] I. Sommerville, <i>Software Engineering</i> . 8 th ed., Pearson, 2010.
Prepared by:	
Date:	

*EE: Electrical Engineering		CE: Computer Engineering	
Com	Communications	SW	Software
E	Electronics	HW	Hardware
P	Power	IT	Information Technology
B	Bioelectronics		
Con	Control		
D	Digital System		