



**HASAN KALYONCU UNIVERSITY**  
**Faculty of Engineering**  
**Course Description Form**

<b>COURSE:</b> Software Engineering					
<b>CODE:</b> CENG302		<b>SEMESTER:</b> SPRING			
<b>LANGUAGE:</b> ENGLISH		<b>TYPE:</b> COMPULSORY			
<b>PRE-REQUISITES:</b> -		<b>THEORY</b>	<b>PRACTICAL</b>	<b>CREDIT</b>	<b>ECTS</b>
<b>CO-REQUISITES:</b> -					
<b>WEEKLY HOURS:</b>		3	0	3	4

**CONTENT OF THE COURSE:**

Software development methodologies. Requirement analysis, design and implementation of software systems, Coding, Unit, Integration, and System Testing. Quality Assurance and Project Management. Tools and Standards.

**OBJECTIVE OF THE COURSE:**

This course aims to introduce the students to the world of software engineering. Methodologies and phases of software development will be discussed. Usage of tools and standards in writing software requirements, design, coding and testing will be investigated. Project and quality management in software development will be described.

**WEEKLY SCHEDULE AND PRE-STUDY PAGES**

<b>Week</b>	<b>Topics</b>
1	Introduction
2	Lifecycle Processes
3	Requirements Engineering
4	System Modeling
5	Processes (Agile)
6	Architectural Design
7	Overview
8	Construction
9	Testing
10	Dependability
11	Quality
12	Overview
13	Software Evaluation and Maintenance Process
14	Professional and Ethical Issues

**TEXTBOOK:** Ian Sommerville, Software Engineering, 7th Ed., Pearson – Addison Wesley, 2004.

**REFERENCE BOOKS:** Roger S. Pressman, Software Engineering – A Practitioner’s Approach, 6th Ed., McGraw Hill, International Edition, 2004.

<b>EVALUATION SYSTEM:</b>		
<b>IN-TERM STUDIES</b>	<b>QUANTITY</b>	<b>PERCENTAGE (%)</b>
Midterm Exam	1	30
Homework	5	15
Laboratory works		
Quiz	1	15
Final Exam	1	40
<b>TOTAL</b>	<b>8</b>	<b>100</b>
CONTRIBUTION OF INTERM STUDIES TO OVERALL GRADE	7	60
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE	1	40
<b>TOTAL</b>	<b>8</b>	<b>100</b>

<b>COURSE CATEGORY:</b>	<b>PERCENTAGE (%)</b>
Mathematics and Basic Sciences	5
Engineering	30
Engineering Design	65
Social Sciences	

<b>TABLE OF ECTS / WORKLOAD:</b>			
<b>Activities</b>	<b>QUANTITY</b>	<b>Duration (Hour)</b>	<b>Total Workload</b>
Course Duration	13	3	39
Hours for off-the-classroom study (Pre-study, practice)	14	1	14
Laboratory works	0	0	0
Mid-term	1	2	2
Final examination	1	2	2
Homework	5	4	20
Quiz	1	30	30
<b>Total Work Load</b>			<b>107</b>
<b>Total Work Load / 30</b>			<b>3.57</b>
<b>ECTS Credit of the Course</b>			<b>4</b>

	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>
<b>LO1</b>	3	0	0	0	0	0	0	0	0	2	0
<b>LO2</b>	3	2	1	2	0	0	0	0	0	1	0
<b>LO3</b>	2	3	3	3	2	0	0	0	0	1	0
<b>LO4</b>	2	3	3	3	3	0	0	0	0	0	0
<b>LO5</b>	2	3	3	3	3	0	0	0	0	0	0
<b>LO6</b>	2	3	3	3	3	0	0	0	0	1	0
<b>LO7</b>	2	3	3	3	3	0	0	0	0	0	0
<b>LO8</b>	2	3	3	3	3	0	0	0	0	0	0
<b>LO9</b>	3	3	3	3	3	3	3	0	0	1	0

<b>LO10</b>	2	3	3	3	3	0	3	0	0	1	0
<b>LO11</b>	2	3	3	3	3	0	3	0	0	1	0
<b>LO12</b>	3	2	2	2	2	0	0	0	0	1	0
<b>LO13</b>	3	2	2	2	2	0	0	0	0	1	0
<b>LO14</b>	2	2	2	2	2	0	0	0	0	3	0
<b>LO15</b>	2	0	0	0	0	0	0	0	3	2	0
			Values: 0: None   1: Low   2: Medium   3: High								
			PO: Program Outcome   LO: Learning Outcome								

<b>INSTRUCTOR(S):</b>	Prof. Dr. Veysi İŞLER
<b>FORM PREPARATION DATE:</b>	23.05.2019

<b>LEARNING OUTCOMES OF THE COURSE:</b>	<b>PROGRAM OUTCOMES:</b>
<p><b>LO1:</b> Understand the domain and the basic terminology of Software Engineering.</p> <p><b>LO2:</b> Analyze widely used software process models.</p> <p><b>LO3:</b> Compare plan-driven and agile approaches to software development.</p> <p><b>LO4:</b> Distinguish user requirements and system requirements.</p> <p><b>LO5:</b> Distinguish functional requirements and different kinds of non-functional requirements.</p> <p><b>LO6:</b> Elaborate system dependability requirements, including reliability, availability, safety and security.</p> <p><b>LO7:</b> Compose a software requirement specification that is verifiable, correct, consistent, complete and unambiguous.</p> <p><b>LO8:</b> Apply UML for modeling various aspects of computer-based systems using a state-of-art tool.</p> <p><b>LO9:</b> To take part in all processes within a software project and to present the phases and solution steps encountered in these phases.</p> <p><b>LO10:</b> Apply the relevant standard for software requirement specification, e.g. IEEE 830.</p> <p><b>LO11:</b> Apply the relevant standard for software design description, e.g. IEEE 1016.</p>	<p><b>PO1:</b> Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied knowledge in these areas in complex engineering problems.</p> <p><b>PO2:</b> Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.</p> <p><b>PO3:</b> Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.</p> <p><b>PO4:</b> Ability to devise, select, and use modern techniques and tools needed for analyzing and solving complex problems encountered in engineering practice; ability to employ information technologies effectively.</p> <p><b>PO5:</b> Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex engineering problems or discipline specific research questions.</p> <p><b>PO6:</b> Ability to work efficiently in intra-disciplinary and multi-disciplinary teams; ability to work individually.</p> <p><b>PO7:</b> Ability to communicate effectively in Turkish, both orally and in writing; knowledge of a minimum of one foreign language; ability to write effective reports and comprehend written reports, prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions.</p> <p><b>PO8:</b> Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.</p>

<p><b>LO12:</b> Select testing techniques appropriate for a given test objective.</p> <p><b>LO13:</b> Understand the fundamental concepts of quality as related to software, such as process quality and product quality, along with related standards.</p> <p><b>LO14:</b> Understand software metrics and their relation to product quality.</p> <p><b>LO15:</b> Identify ethical issues in a given situation, using the terminology of ACM/IEEE SECEPP.</p>	<p><b>PO9:</b> Consciousness to behave according to ethical principles and professional and ethical responsibility; knowledge on standards used in engineering practice.</p> <p><b>PO10:</b> Knowledge about business life practices such as project management, risk management, and change management; awareness in entrepreneurship, innovation; knowledge about sustainable development.</p> <p><b>PO11:</b> Knowledge about the global and social effects of engineering practices on health, environment, and safety, and contemporary issues of the century reflected into the field of engineering; awareness of the legal consequences of engineering solutions.</p>
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