Course Description Form	
Course Code and Name	5031329 Advanced Digital Design
Course Semester	Fall-Spring
Catalog Content	General Introduction, Programmable logic devices (FPGA, CPLD), Digital design with hardware description languages (Verilog, VHDL) Synthesis, Simulation, Validation, Programmable device implementation, Embedded processor design
Textbook	1. Verilog HDL : a guide to digital design, Samir Palnitkar, 1996 2. VHDL: analysis and modeling of digital systems, Zainalabedin Navabi, McGraw- Hill, 1998.
Supplementary Textbooks	-
Credit	8
Prerequisites of the Course	There is no prerequisite or co-requisite for this course.
Type of the Course	Elective
Instruction Language	Turkish
Course Objectives	Understanding fundamentals of advanced digital design, ability to develop digital hardware applications
Course Learning Outcomes	1-It will be able to produce both theoretical and practical solutions to problems that may be encountered in hardware design issues. 2- It learns how to improve hardware design effectively and easily through hardware description languages similar to programming language.
Instruction Methods	Lecture, Question & Answer, Practice
Weekly Schedule	1. Week General Introduction 2. Week Programmable logic devices (FPGA, CPLD) 3. Week Programmable logic devices (FPGA, CPLD) 4. Week Digital design with hardware description languages (Verilog, VHDL) 5. Week Digital design with hardware description languages (Verilog, VHDL) 6. Week Synthesis 7. Week Simulation 8. Week Simulation 9. Week Validation 10. Week Validation 11. Week Programmable device implementation 12. Week Programmable device implementation 13. Week Embedded processor design 14. Week Embedded processor design
Teaching and Learning Methods *(These are examples. Please fill which activities you use in the course)*	Weekly theoretical course hours Weekly tutorial hours Reading Activities Internet browsing, library work Designing and implementing materials Report preparing Preparing a Presentation Presentations Preparation of Midterm and Midterm Exam Final Exam and Preparation for Final Exam

Assessment Criteria		Numbers	Total Weighting (%)	
	Midterm Exams	1	30	
	Assignment	3	30	
	Application			
	Projects			
	Practice			
	Quiz			
	Percent of In-term Studies (%)	4	60	
	Percentage of Final Exam to Total Score (%)	1	40	
	Attendance		-	

	Activity	Total Number of Weeks	Duration (weekly hour)		Total Period Work Load	
Workload	Weekly Theoretical Course Hours	14		3		42
	Weekly Tutorial Hours	3		3		9
	Reading Tasks	14		3		42
	Studies	14		3		42
	Material Design and Implementation	5		5		25
	Report Preparing	1		7		7
	Preparing a Presentation	1		5		5
	Presentations	1		3		3
	Midterm Exam and Preperation for Midterm Exam	1		10		10
	Final Exam and Preperation for Final Exam	1		15		15
	Other (should be emphasized)					
	Total Workload					200
	Total Workload / 25					8
	Course Credit (ECTS)					8

	No	Program Outcomes	1	2	3	4	5
Contribution Level Between Course Learning Outcomes and Program Outcomes	1	Defines and applies basic sciences, mathematics, computing, engineering and computer science at a high level.					X
	2	Has extensive and in-depth knowledge including the latest developments in the field.				X	
	3	Contributes to the solution of social, scientific and ethical problems encountered in the field and supports the development of these values.			X		
	4	Reaches the latest information in a field and has the ability to comprehend these methods and skills to conduct research at a high level.			X		
	5	Conducts a comprehensive study that brings innovation to science or technology, develops a new scientific method or technological product/process, or applies a known method to a new field.			X		
	6	Defines, designs, implements, concludes and manages an original research process independently.			X		
	7	Contributes to the literature of science and technology by publishing the results of academic studies in prestigious academic settings.			X		
	8	Evaluates scientific and technological developments and transfers them to the society with scientific objectivity and ethical responsibility.			X		

9	Makes a critical analysis, synthesis and evaluation of ideas and developments in the field of expertise.				X	
10	Communicates in written and oral effectively with the experts and wider scientific and social communities. Use decision making processes.			X		
11	Takes part in scientific research groups that require interdisciplinary problems to be solved.			X		
12	Establishes and discusses in advanced written, oral and visual communication by using a foreign language at least at the level of C1 of European Language Portfolio.			X		

The Course's Lecturer(s) and Contact Informations	Name Surname: Asst. Prof. Dr. Uraz YAVANOĞLU E-mail address: uraz@gazi.edu.tr