



MARMARA UNIVERSITY - FACULTY OF ENGINEERING

2017-2018 Fall

CSE3015 Digital Logic Design

COURSE DESCRIPTION FORM

Offering Department		Department of Computer Engineering		Undergraduate must course (5th semester)					
Course Code		CSE3015							
Course Name		Digital Logic Design							
Language of Instruction		English							
ECTS		7							
Contact Hours		Theoretical (T): 3		Practice (U): 2		Laboratory (L): -			
Pre-requisites		-							
Instructor		Name		Assist. Prof. Betül BOZ					
		E-mail		betul.demiroz@marmara.edu.tr					
Course Materials		Mandatory		Frank Vahid, Digital Design, Wiley, 2011.					
		Recommended		Verilog for Digital Design, Wiley, 2011.					
Course Objectives		The objective of this course is to introduce the principles of logic circuit design. The primary aim is to enable students who pass the course to analyze and design combinational and sequential circuits efficiently.							
Course Content		Digital systems, Boolean algebra, Combinational logic design and optimization, Sequential logic design, FSM and HLSM, Datapath components and design, Register-transfer level design.							
Learning Outcomes		LO1		Perform operations on logic expressions by using the theorems and principles of boolean algebra and simplify these expressions.					
		LO2		Design and solve combinational circuits.					
		LO3		Implement logic functions by using Karnaugh maps; also perform these operations on functions with don't care inputs.					
		LO4		Design and solve sequential circuits.					
		LO5		Design RTL level digital logic circuit using hardware description language verilog.					
		LO6		Design datapath components using verilog and logism under certain constraints.					
Program Outcomes				LO1	LO2	LO3	LO4	LO5	LO6
PO3		Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way so as to meet the desired result (a); ability to apply modern design methods for this purpose (b).						a, b	a, b
PO5		Ability to design (a) and conduct experiments, gather data (b), analyze and interpret results for investigating engineering problems (c).							a, b, c
PO13		Knowledge of mathematics, basic sciences (a), computer science (b) and engineering sciences (c) required for the design and analysis of complex electrical and electronic devices, software and systems including hardware and software.		a	a, c	c	a, c	b	b
Subjects (Knowledge, Skills and Behaviours), Contributions of Subjects to Learning Outcomes, Assessment Methods	No	Week	Subjects	LO1	LO2	LO3	LO4	LO5	LO6
	S1	1	Introduction: Properties of Digital Systems						
	S2	2	Basics of Boolean Algebra	MF,Q					
	S3	3-4	Combinational Logic Design		MF, Q				
	S4	5	Combinational Logic Design – Optimizations and Tradeoffs			MF, Q			
	S5	6-8	Sequential Logic Design				MF, Q		
	S6	9	FSM Design				MF, Q		
	S7	10-11	Datapath Components						MF, Q, P
	S8	12	A Simple Datapath Design						MF, Q, P
	S9	13-14	Register-Transfer Level Design					MF	
Assessment Methods and Weights	No	Type	Weight	Implementation Rule			Make-up Rule		
	MF	Midterm, Final	60%	Students are allowed to use one A4 cheat sheet prepared with their own handwriting. Calculation and communication tools are not allowed during the exams.			Marmara University regulations will be followed for make-up exams.		
	Q	Quiz	15%	In the PS session, the topics covered in the lectures are repeated and a quiz is given. Total of 8 quizzes are applied.			-		

	P	Project	25%	Project has 3 different stages. Deadline of the project is at the end of the semester. farklı aşamadan oluşan bir proje verilir. Projenin son halinin teslim tarihi dönem sonudur. Each stage of the project has a delivery time of 10-14 days.	-																																																							
	TOTAL		100%																																																									
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Academic Honesty	Violations of scholastic honesty include, but are not limited to cheating, plagiarizing, fabricating information or citations, facilitating acts of dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students.																																																											
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