	FACULTY OF ENGINEERING COURSE SYLLABUS FORM	Doküman Kodu	MF.FR.003
		Yayın Tarihi	06.09.2024
		Revizyon No	0
		Revizyon Tarihi	0
		Gizlilik Sınıfı	Hizmet içi

OSTİM TEKNİK ÜNİVERSİTESİ
A N K A R A

CENG 207 – DIGITAL DESIGN I

Course Code	Course Name		Semester
CENG 207	DIGITAL DESIGN I		Fall ☐ Spring ☒ Summer ☐

Hours			Credit	ECTS
Theory	**Practice**	**Lab**	4	5
3	2	0		

Course Details	
Department	Computer Eng.
Course Language	English
Course Level	Undergraduate ☒ Graduate ☐
Mode of Delivery	Face to Face ☒ Online ☐ Hybrid ☐
Course Type	Compulsory ☒ Elective ☐
Course Objectives	Acquisition of knowledge and skills to make basic designs for logic circuits.
Course Content	Numerical systems, two, eight, and sixteen base number systems, number system conversions, boolean algebra, logic gates, simplification of boolean functions, map method, tabulation method, combinatory circuits, binary arithmetic elements, encoders and decoders, multiplexers and data selectors, data distribution, comparison circuits, ROM, programmable logic circuits, latches and flip-flops.
Course Method/ Techniques	Lecture ☒ Question & Answer ☒ Presentation ☐ Discussion ☐
Prerequisites/ Corequisites	-
Work Placement(s)	-

Textbook/References/Materials

- Digital Design, Morris Mano

Course Category

Mathematics and Basic Sciences	☐		Education	☐
Engineering	☒		Science	☐
Engineering Design	☐		Health	☐
Social Sciences	☐		Profession	☐

Weekly Schedule

No	Topics	Materials/Notes
1	Fundamental Concepts, Number Systems, Circuit Modeling Software, Descriptive Techniques	Digital design, Morris Mano
2	Binary numbers, Number base substitution, Complements Signed binary numbers	Digital design, Morris Mano
3	Boolean definitions,Basic theorems,Boolean functions	Digital design, Morris Mano
4	Canonical and Standard Forums, Other Logic Operations, Digital Logic Gates	Digital design, Morris Mano
5	Simplification of Boolean functions, Karnaugh Mapping method, Maps of two, three, four and five variables, Ignored cases	Digital design, Morris Mano
6	Applications of sums to product simplification, NAND and NOR	Digital design, Morris Mano
7	Analysis procedure, Multi-level NAND ports, Multi-level NOR Gates,EXOR Functions	Digital design, Morris Mano
8	Midterm Exam	Digital design, Morris Mano

9	Hand-held Wave Relay Collectors, Hand-Guessing Collectors, Transcribers	Digital design, Morris Mano
10	Binary addition and subtraction, Decimal adder, Amplitude comparator	Digital design, Morris Mano
11	Coders, Decoders, Multiplexers	Digital design, Morris Mano
12	Memory Elements,ROM, RAM, Programmable Logic Arrays,Programmable Array Circuits,Field Programmable Gate Arrays	Digital design, Morris Mano
13	Introduction to Sequential Circuit design, Flip-Flops	Digital design, Morris Mano
14	Introduction to Sequential Circuit design, Flip-Flops	Digital design, Morris Mano
15	Final	
16	Final Exam	

Assessment Methods and Criteria

In-term studies	Quantity	Percentage
Attendance		
Lab	1	%10
Practice		
Fieldwork		
Course-specific internship		
Quiz/Studio/Criticize	2	%10
Homework		
Presentation / Seminar		
Project		
Report		
Seminar		
Midterm Exam	1	%20
Final Exam	1	%60
Total		**100%**
Contribution of Midterm Studies to Success Grade		%40
Contribution of End of Semester Studies to Success Grade		%60
Total		**100%**

ECTS Allocated Based on Student Workload

Activities	Quantity	Duration (Hrs)	Total Workload
Course Hours	15	3	45
Lab	15	2	30
Practice			
Fieldwork			
Course-specific Work Placement			
Out-of-class study time			
Quiz/Studio/Criticize	2	15	15
Homework			
Presentation / Seminar			
Project			
Report			
Midterm Exam and Preparation for Midterm	1	15	15
Final Exam and Preparation for Final Exam	1	20	20
Total Workload			**125**
Total Workload / 25			**5**
ECTS Credit			**5**

Course Learning Outcomes

No	Outcome
L1	Analyzes the input and output values of logic circuits
L2	Solves a logic design problem.
L3	It detects and fixes errors that may occur in logic circuits.
L4	The student draws a circuit given a Boolean expression.
L5	Counter design

Contribution of Course Learning Outcomes to Program Competencies/Outcomes

Contribution Level: 1: Very Slight, 2: Slight, 3: Moderate, 4: Significant, 5: Very Significant

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	Total
L1	5	5	4	4	4											22
L2	5	5	4	4	4											22
L3	5	5	4	4	4											22
L4	5	5	4	4	4											22
L5																
															Total	88