Alanya Alaaddin Keykubat University | Rafet Kayış Faculty of Engineering
Electrical-Electronics Engineering Department
2023-2024 Spring Semester

Syllabus

Code/Name	EEE / Digital Electronics Laboratory
Type	Required
Credit/ECTS	3/3
Hour per Week	4(0+0+L)
Level/Year	Undergraduate/3
Semester	Spring
Classroom	WWF | Electrical Engineering Lab.
Content	Binary systems and Boolean algebra. Boolean function simplification. Combinational logic. Sequential synchronous logic. Registers and counters.
Prerequisites	EEE 306
Textbooks	***Primary*** Class Notes MM Mano, Digital Design, Prentice Hall, 5th Ed., 2008. ***Supplementary*** B Holdsworth, C Woods, Digital Logic Design, Newnes Elsevier, 4th Ed., 2021.
Objectives	• To teach students the basics of combinational and sequential logic design • To prepare the students for advanced courses in microprocessors • computer architecture and VLSI
Course Outcomes	In this course you will be able to: CO1 describe the truth tables of different Combinational & Sequential circuits. CO2 construct Boolean functions using logic gates. CO3 analyze different Combinational & Sequential circuits CO4 design different Combinational & Sequential circuits.

Weekly Schedule of Topics

W	Topic
1	Verification of Truth Tables of Logic gates
2	Implementation of Basic gates using Universal Gates
3	Implementation of the given Boolean functions using logic gates
4	Simplification of the given Boolean functions using K-map and implementation using logic gates
5	Realization and verification of Full adder and Full Subtractor using logic gates
6	Implementation of 2x4 Decoder and 4x1 Multiplexer using Logic Gates
7	Implementation of the given function using decoder and logic gates
8	Implementation of the given function using Multiplexer
9	Verification of State Tables of SR, D, JK and T-Flip-Flops
10	Design and Verify the operation of 3-bit Ripple Counters using JK flip-flops
11	Design and Verify the operation of 3-bit Synchronous Counter using T flip-flops
12	Design and Verify the operation of a 4-bit Shift Register
13	Mini Project
14	Design of Ripple Coınters

Contribution to Program Outcomes*

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	5	5	2	5	1	5	1	3	2	3	2
CO2	4	5	1	4	1	5	4	3	4	3	2
CO3	5	3	3	3	2	5	1	3	1	3	1
CO4	5	4	2	5	0	5	2	2	1	4	1
CO5	4	4	1	4	1	5	4	3	4	1	2

* Contribution Level | 0: None | 1: Very Low | 2: Low | 3: Medium | 4: High | 5: Very High

Course Policy

- Be in the class on time.
- English should always be used to communicate with one another.
- At least 70% attendance is required, otherwise a grade of **DZ** will be assigned.
- You must be present in class for the exercises and make the experiments.

Cheating & Plagiarism

- Copying or letting someone copy your work on exams, assignments, or reports is cheating.
- Cutting and pasting text, figures and tables from web sources or any other electronic source is plagiarism.
- The consequence of academic dishonesty is to receive a grade of **FF** for the course.

Evaluation

Experiments	10%
Midterm	30%
Final Exam	60%
Total	100%

Instructor

Name/Surname	Emrah Irmak	Email	emrah.irmak@alanya.edu.tr
Room	228	Office Hours	Tu 10.30-11.30 | F 15.30-17.30

Prepared by Emrah Irmak on June 7th, 2024.