

İSTANBUL TEKNİK ÜNİVERSİTESİ
Fen Edebiyat Fakültesi - Fizik Mühendisliği Bölümü
(<https://www2.fizik.itu.edu.tr/turhan/asm/>)

FIZ 434E Microprocessors CRN 21478

2021-2022 Spring

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Lecture : Monday 13:30 – 15:30 (Online)

Laboratory : Monday 15:30 – 17:30 (Online)

Office Hours :

Textbook:

Beginners Introduction to the Assembly Language of ATMEL-AVR-Microprocessors

Atmel AVR Microcontroller Primer: Programming and Interfacing, ISBN: 9781598295429

Atmel AVR (ATtiny2313) Programlama, Abdurrahman Taşbaşı ISBN 9789758834242

AVR An Introductory Course, John Morton, ISBN: 0 7506 56352

Mikroişlemciler, mikrobilgisayarlar, Eşref Adalı, Birsen Yayınevi



Course Outline

Week		Topic
1	21 February 2022	Microcontroller Basics and Programming Concepts
2	28 February 2022	Microcontroller Instruction Sets and Assembler
3	7 March 2022	Hardware and Software setup and Assembler Coding - Memory and Registers
4	14 March 2022	Assembler Coding (2) – Stack and Sub Functions, I/O Ports
5	21 March 2022	Assembler Coding (3) – Bit Manipulating, Loop Cycle Calculation
6	28 March 2022	Assembler Coding (4) – Timer Execution
7	4 April 2022	I/O and 1602 LCD
8	11 April 2022	Sequence control and Step Motor
9	18 April 2022	Timer and PWM (Pulse width Modulation) and Servo Motor
10	25 April 2022	Midterm
	2 May 2022	Semester Break
11	9 May 2022	Serial Communication (SPI, I2C, 1-wire)
12	16 May 2022	Serial Communication (SPI, I2C, 1-wire)
13	23 May 2022	Advanced coding – Mixing C and asm
14	30 May 2022	Introduction to PID Control

Quizzes/LAB : Minimum 3 Oral or written quiz.

Homework : Minimum 3 homework to compensate the laboratory before or after the laboratory session.

Laboratory : Consist of 10 projects that may be varied or extended during the laboratory session.

Date

Midterm: April 25, 2022 (face to face)

Final Exam : (face to face)

Grading:

Midterm : 30%

HW : 15%

LAB (Quizzes) : 15%

Final Exam : 40%

Final Exam requirement: Minimum a 30% out of 60% (MT, HW, Quiz) is required to attend the Final Exam. Students that are not able get the minimum requirement will receive 'VF'.

Academic Integrity

Students who cheat during an exam or on laboratory session will receive a grade of FF in the course.