

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

FIZ 434E Microprocessors CRN 21015

2020-2021 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	1 March 2021	Microcontroller Basics and Programming Concepts
2	8 March 2021	Microcontroller Instruction Sets and Assembler
3	15 March 2021	Hardware and Software setup and Assembler Coding - Memory and Registers
4	22 March 2021	Assembler Coding (2) – Stack and Sub Functions, I/O Ports
5	29 March 2021	Assembler Coding (3) – Bit Manipulating, Loop Cycle Calculation
6	5 April 2021	Assembler Coding (4) – Timer Execution
7	12 April 2021	I/O and 1602 LCD
8	19 April 2021	Sequence control and Step Motor
9	26 April 2021	Timer and PWM (Pulse width Modulation) and Servo Motor
10	3 May 2021	Midterm
	10 May 2021	Semester Break
11	17 May 2021	Serial Communication (SPI, I2C, 1-wire)
12	24 May 2021	Serial Communication (SPI, I2C, 1-wire)
13	31 May 2021	Advanced coding – Mixing C and asm
14	7 June 2021	Introduction to PID Control

Quizzes: 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 : May 3, 2021

Final Exam : June 18, 2021 Thursday 18:00-20:30

Grading:

Midterm : 30%

HW : 15%

Quizzes : 15%

Final Exam : 40%

Final Exam requirement: Minimum a 25% 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.