

East West University
Department of EEE



EEE 302: Microprocessors and Interfacing
Semester: Fall 2022
Course Outline
Section-1

COURSE CODE: EEE302
COURSE TITLE: MICROPROCESSORS AND INTERFACING
CREDITS: 3+ 1 (4)
PRE-REQUISITE: EEE205

Course Instructor: Mr. Fakir Mashuque Alamgir,
Assistant Professor, Department of EEE, East West University
Office: Floor 5, Room No- 540
(Email: fma@ewubd.edu) Phone: 09666 77 55 77 ext. 169

Class Hour: ST 01:30-03:00

Room: 221

Lab Hour: R 4:50-6:50

Room: 634/546

Course outcomes:

| CO | PO | TAXONOMY DOMAIN/LEVEL | Assessment tools |
|---|-----------|----------------------------------|--|
| Explain the architecture, instruction set, memory and input/output interface for 8086/8088 microprocessor. | PO1 | Cognitive/Understand | Midterm exams, Final exam |
| Relate microprocessor working principle, instruction set execution and external peripheral connection for specific application. | PO1 | Cognitive/Apply | Midterm exams, Final exam |
| Program in assembly language for executing microprocessor instruction set. | PO5 | Psychomotor/Precision | Lab performance, Lab test, |
| Investigate microprocessor based systems by designing and conducting experiments. | PO4 | Cognitive/Evaluate | Lab performance, Lab report and/or viva. |
| Design a microprocessor based system that meets specified requirements. | PO3 | Cognitive/Create | Project and/or assignment. |

Course Rationale:

To make the students understand Microprocessor in order to equip them with the necessary tools for the analysis of Electronic equipment in the field of Microprocessor & Embedded systems to be used in industries, research field and in commercial field applications.

Course Objectives

The course presents real-time interfacing of microcontrollers, microprocessors, and microcomputers to the external world, including interfacing of I/O devices data acquisition with microprocessors, data communications, transmission and logging with embedded computers.

Course Contents:

Topics to be covered throughout the semester:

| Topics | Contents | Lectures | Topic reference |
|--------|--|----------|--|
| 1. | Evolution of microprocessors, Review of computer number systems, codes | 1 | Chapter 1 of Textbook |
| 2. | Introduction to microprocessor based systems. Intel 8086 basics (architecture, components) | 3 | Chapter 2 of textbook, Chapter 1 Ref. Book - 1(1.3.1-1.3.4.f) |
| 3. | Instruction set and machine codes of Intel 8086 | 2 | Chapter 3, 4 of textbook |
| 4. | Addressing modes of Intel 8086 | 2 | Chapter 3 (3.3) of Rafiquzzaman and Chapter 2, 3,4 of textbook |

MIDTERM I ON NOVEMBER 6, 2022

(Answer Scripts will be returned by November 12, 2022 so that a student can decide if she or he wants to drop with minimum financial penalty)

| | | | |
|----|---|---|--------------------------------|
| 5. | Microcomputer System Software and Detailed Programming concepts | 1 | Chapter 4, 5 and 6 of textbook |
| 6. | Intel 8086 Bus timing and memory concepts | 1 | Chapter 7 of textbook |
| 7. | Intel 8086 System design concepts | 2 | Chapter 7 of textbook |
| 8. | Introduction to Intel 8086 interrupts | 1 | Chapter 8 of textbook |

MIDTERM II ON DECEMBER 4, 2024

(Answer Scripts will be returned by December 12, 2022 so that a student can decide if she or he wants to withdraw)

| | | | |
|-----|--|---|------------------------|
| 9. | Intel 8086 interrupts and its applications | 1 | Chapter 8 of textbook |
| 10. | Programmable Interrupt Controller: Intel 8259 | 2 | Chapter 8 of textbook |
| 11. | Digital Interfacing using Intel 8255 | 2 | Chapter 9 of textbook |
| 12. | Serial Data Communication with Intel 8279 Controller | 1 | Chapter 14 of textbook |

FINAL ON JANUARY 8, 2022.

Text Book:

📖 The Intel Microprocessors 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, and Pentium Pro Processor Architecture, Programming, and Inter- facing by Barry B. Brey (8th Edition).

Reference Book:

📖 Microprocessors and Interfacing by A.P. Godse, D.A. Godse. (1st Edition)

Total Marks Distribution:

| | | |
|----------------------------------|---|-----------------------|
| Attendance | : | 5% |
| Class Tests | : | 10% (Best 2 out of 3) |
| Lab Performance | : | 10% |
| Open Ended lab | : | 5% |
| Lab Test | : | 5% |
| Midterm-I | : | 15% |
| Midterm-II | : | 20% |
| Final | : | 20% |
| Project (Report + Demonstration) | : | 10% |

Special Instructions:

- No make-up exams of the class tests, midterm exams will be allowed. Midterm makeup will be allowed in case of any medical/unavoidable reason of self and/or family.
- Home works and assignments are to be submitted within the announced deadline. No late submission will be granted. **Please check on office hours to be able to submit assignments and reports within deadline.**
- **Attendance Policy:** Do not miss a class. You are responsible for all material covered and all announcements made in class. Attendance will be taken during each class meeting. 20% of absence is only allowed. Absence from classes shall not exceed 20%. Students who exceed the 20% limit without a medical or emergency excuse acceptable to and approved by the Chairperson; shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Chairperson, the student shall be considered to have withdrawn from the course.
- **Academic Honesty:** Plagiarism will not be tolerated. The penalty for any act of academic dishonesty (cheating on an exam, turning in something not entirely your own) is a lower final grade for the course, up to and possibly including an F.
- **Projects:** A project is required from students using the programming language to submit a microcontroller based project during the last week of the semester. The project must have a social impact in our country.
- **Presentations:** Students are required to make presentations for their projects one week before the end of semester with the submission of report.