

10B17CI407: Microprocessors and Controllers Lab

Course Credit: 1

Semester: IV

Objective:

At the conclusion of the course, following learning objectives are expected to be achieved: The lab work and homework portions of the course are intended to help you apply your understanding,

1. to develop, implement, and debug 8086 assembly language programs that meet stated specifications.
2. to understand and be able to explain bus transactions, memory organization and address decoding, basic I/O interfaces and port addressing.
3. to understand how to control components of a computer system through the use of hardware and software interrupts.
4. to lay a foundation for pursuing some additional career options.

Learning Outcomes:

1. You will increase your proficiency with using assembler language, MASM.
2. You will know how to access service-functions provided in BIOS firmware.
3. You will gain practical experience in programming peripheral I/O devices.
4. You will acquire the background for understanding next-generation CPUs.
5. You will learn a microprocessor programming model at a level that enables you to write assembly language programs for the processor meeting given specifications.
6. You will learn concepts associated with interfacing a microprocessor to memory and to I/O devices.
7. You will learn how to control components of a microprocessor based system though the use of interrupts.

List of Experiments

S NO	Topics
1	Using Debug
2	Assembly Progrm structure for 8086 using MASM611
3	Data movment Instructions
4	Program Memory Addressing
5	Stack Memory programming
6	String I/O
7.	Arithmetic Operations
8.	File Operations
9.	I/O Interface Programming
10	Coprocessor programming

References

1. The Intel Microprocessor 80x86, Pentium, Pentium Pro processor, Pentium II Pentium III, Pentium IV Architecture, Programming, and Interfacing by Berry B.Brey, Eighth Edition, Prentice Hall, 2009. ISBN 978-81-317-2622-8.will be used as the main text book, however the inputs will be supplemented with information from elsewhere wherever the same is required.
2. “The 8051 microcontroller” by Kenneth Ayala is recommended for 8051 only.
3. Yu-cheng Liu,Glenn A. Gibson , “The 8086/8088 Family Architecture, Programming & design”, Second Edition, PHI.
4. Douglas Hall, “Microprocessors & Interfacing, Programming & Hardware”,2nd Edn. Tata McGraw Hill.
5. Kenneth Ayala “The 8086 microprocessor programming and Interfacing the PC”.
6. Tom Shanley, [Protected Mode Software Architecture](#), Addison-Wesley (1996), ISBN 0-201-55447-X .

Evaluation Scheme:

1. Mid Term Exam (Viva and Written Exam)	20
2. End term Exam (Viva and Written Exam)	30
3. Lab Records	5
4. Regular Assessment (Quality and quantity of experiment performed, Learning laboratory skills, Attendance etc.)	30
5. Project	15

Total	100
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