



C.U.SHAH UNIVERSITY – Wadhwan City

FACULTY OF: -Technology and Engineering (Diploma Engineering)

DEPARTMENT OF: -Computer Engineering

SEMESTER: - IV **CODE:** - 2TE04MPL1

NAME – Microprocessor and Assembly Language Programming.

Teaching & Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme				Evaluation Scheme							
		Th	Tu	Pr	Total	Theory				Practical (Marks)			Total
						Sessional Exam		University Exam		Internal		University	
						Marks	Hours	Marks	Hours	Pr/Viva	TW	Pr	
2TE04MPL1	Microprocessor and Assembly Language Programming	03	00	02	05	30	1.5	70	03	30	20	----	150

Objectives:

The microprocessor is challenging and very dynamic field. This course explores architecture of a microprocessor and its programming in assembly language. The student will be able to apply logics to various given problems and develop programs using assembly language construct that would help them to develop real time microprocessor based application programs.

Prerequisites:

- Basic Knowledge about software, hardware and Computer.

Course Outlines:-

Sr. No.	Course Contents	Hours
1.	Introduction of Microprocessor Evolution of microprocessor and it's types, Microprocessor Bus organization (Data Bus, Address Bus and Control Bus), Operations of microprocessor, Pin diagram and block diagram of 8085, Architecture of 8085, Internal registers organization of 8085, Limitations of 8085	08
2.	Instruction Cycle and Timing Diagram 8085 machine cycle and bus timings to fetch, decode and execute instruction from Memory, Memory read and write, Input./Output read and write cycle with timing diagram	06
3.	8085 Instruction set Machine language instruction format :(Single byte, two byte, three byte instructions), Various addressing modes, Data transfer operation and instruction, Arithmetic operation and instruction, Logical operation and instruction, Branch operation and instruction, Stack operation and instruction, Input./Output and machine control operation and instruction	08

4.	Programming Techniques of 8085 Looping, Counting and indexing, Counter and Timing delays, Stack and subroutine basic concepts, Procedure and macro.	08
5.	8085 Interrupts Interrupts and its need, classification of interrupts, 8085 interrupts: software, hard ware, and priorities of interrupts, 8085 vectored interrupts: TRAP, INTR, RST 7.5, RST 6.5, RST 5.5.	08
6.	Introduction to Advanced Microprocessor Block diagram - Architecture of 8086, Register organization of 8086(General Purpose Registers, Segment registers, Pointer and Index registers, Flag Registers),Memory organization , Signal description of 8086,Minimum and Maximum Mode with Diagram, Addressing Mode of 8086.	08

List of Experiments:-

- Demonstrate of kit/simulator of 8085.
- Implement program to perform arithmetic operations (Add, subtract, multiply and divide) on. signed and unsigned two 8 bit numbers.
- Implement a program to mask the lower four bits of content of the memory location.
- Implement a program to set higher four bits of content of the memory location to 1.
- Implement a program to perform Exclusive OR of two numbers.
- Implement a program to exchange the content of two memory locations.
- Implement program to add/subtract 16 bit numbers.
- Implement program to copy content of one memory location to another memory location.
- Implement a program to check whether given no is odd or even.
- Implement a program to compare two numbers.
- Implement a program to sum integers from 0 to 9.

Learning Outcomes:-

The course content should be taught and implemented with the aim to develop different types Of skills so that students are able to acquire following competency.

- Develop code, debug, test and execute various assembly language programs using 8085 instruction set.

Books Recommended:-

- 8086 Microprocessor Programming By Venu gopal (BPB Publication).
- Advanced Microprocessors And Peripherals By K.M Bhurchandi/A K Ray(Tata McGraw hill).
- Microprocessor Architecture Programming and Application with the 8085(Fifth Edition) Penram International Publishing Pvt Ltd.

E- Reference:-

- <http://microprocessor-8085.blogspot.in/2009/01/introduction-to-8085-microprocessor.html>
- <http://www.phy.davidson.edu/fachome/dmb/py310/8085.pdf>
- <http://microprocessorforyou.blogspot.in/2011/12/comparison-of-8085-and-8086.html>
- <http://www.youtube.com/watch?v=aDMIWSMULe8>