DEPARTMENT OF COMPUTER SCIENCE				*CLASS: I B.Sc. Computer Science*				
Semester	**Course Type**	**Course Code**	**Course Title**	**Credits**	**Contact Hours/week**	**CIA**	**Ext**	**Total**
II	Allied theory - 2	20U2DAC2	Microprocessors 8086 / 88	3	4	25	75	100

COURSE OBJECTIVES:

To provide a theoretical & practical introduction to microcomputer and microprocessors, assembly language programming techniques, design of hardware interfacing circuit.

Units	**Microprocessors 8086 / 88 --Course Contents**	**Total Hours: 60**
Unit -I	Internal architecture – Software model- data types – segment registers- data registers- pointers and index Registers- status registers – generating a memory address – addressing mode.	12 hrs
Unit-2	The instruction set – data transfer instructions- arithmetic instructions – logic Instructions- shift instructions- rotate instructions- compare instructions- jump Instructions – the loop and loop handling instructions – string and string handling Instructions.	12 hrs
Unit-3	Minimum –mode and maximum-mode systems minimum system mode interface- system Clock – bus cycle – control signals – read and write bus cycles – memory interface Circuits.	12 hrs
Unit-4	Minimum-mode interface- maximum-mode interface- I/O data transfers- I/O instructions- Eight byte wide output ports with isolated I/O – eight byte wide input port using isolated I/o.	12 hrs
Unit-5	Types of interrupts – interrupt instructions- enabling/disabling of interrupt – external Hardware interrupt interface – block diagram of the 8249a (interrupt controller) – Software interrupts.	12 hrs

Text Book:

1. Walter A. Triebel, Avtar Sing - "The 8088 and 8086 microprocessors (programming, interfacing, software, hardware and Applications) " – Prentice Hall Of India, Edition - 1995.

Reference Books:

1. Douglas v.hall – "Microprocessor and interfacing"– McGraw-Hill.
2. Bary Brey – "Introduction to Microprocessor and Microcomputer"- PHI.

Lesson Plan:

Unit	Topics	Hrs	Mode
Unit I	Internal architecture – Software model	3	Chalk and talk, Quiz and assignment
	Data types – Segment registers	2	
	Data registers- Pointers and index Registers	2	
	Status registers – Generating a memory address	3	
	Addressing mode	2	
Unit II	The instruction set – Data transfer instructions	2	Chalk and talk, Group discussion
	Arithmetic instructions – Logic Instructions-	3	
	Shift instructions- Rotate instructions	3	
	Compare instructions- Jump Instructions –	2	
	The loops and loop handling instructions – Strings and string handling Instructions	2	
Unit III	Minimum-mode and Maximum-mode systems	2	Chalk and talk, Quiz and assignment
	Minimum system mode interface signals	2	
	System Clock – Bus cycle	3	
	Control signals	2	
	Read and write bus cycles – Memory interface Circuits	3	
Unit IV	Minimum-mode interface	2	PPT, Chalk and talk, Quiz and assignment
	Maximum-mode interface	2	
	I/O data transfers- I/O instructions	2	
	Eight byte wide output ports with isolated I/O	3	
	eight byte wide input port using isolated I/O	3	
Unit V	Types of interrupts	2	PPT, Chalk and talk, Quiz and assignment
	Interrupt instructions- enabling/disabling of interrupt	3	
	External Hardware interrupt interface	3	
	Block diagram of the 82C49A (interrupt controller)	2	
	Software interrupts	2	

COURSE LEARNING OUTCOMES:

On the completion of the course the students will be able to

	COURSE LEARNING OUTCOME	Knowledge Level (basis of Bloom's Taxonomy)
CLO-1	Illustrate the basic idea about internal architecture of the microprocessor.	K3
CLO-2	Identify the instruction sets and operations of arithmetic , relational and conditional statements.	K1, K4
CLO-3	Discuss about the interface cycles with read ,write and fetch cycles.	K2
CLO-4	Identify the instructions about data transfer between I / O blocks.	K4
CLO-5	Discuss about an interrupt , its types, hardware and software interrupts.	K2

MAPPING OF CLOs WITH PSOs:

Course Learning Outcomes	PSO 1 (Knowledge Base)	PSO 2 (Problem Analysis & Investigation)	PSO 3 (Communication Skills & Design)	PSO 4 (Individual and Team Work)	PSO 5 (Professionalism Ethics and equity)	PSO 6 (Life Long Learning)
CLO-1	3	1	1	2	1	1
CLO-2	2	3	2	1	1	1
CLO-3	2	3	1	1	1	2
CLO-4	3	2	2	1	2	1
CLO-5	2	2	2	3	2	1

3- Advanced Application 2- Intermediate 1- Introductory