MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

COURSE PLAN

Department	:	INFORMATION & COMMUNICATION TECHNOLOGY
Course Name & code	:	Computer Organisation & Microprocessor Systems & ICT 2256
Semester & branch	:	IV sme & B.Tech (IT)
Name of the faculty	:	Dr. Santhosha Rao, Mr. Raviraja Holla M
No of contact hours/week:	:	L: 3, T: 0, P: 0, C: 3

Course Outcomes (COs)

	At the end of this course, the student should be able to:	No. of Contact Hours	Marks
CO1:	Recall 8086 architecture	4	12
CO2:	Write assembly language programs using development tools	14	38
CO3:	Understand the interfacing of programmable devices to 8086 microprocessor	3	08
CO4:	Understand the organization of various parts in computer system	8	22
CO5:	Design building blocks of computer system	7	20
	Total	36	100

Assessment Plan

Components	Assignments	Sessional Tests	End Semester/ Make-up Examination
Duration	20 to 30 minutes	60 minutes	180 minutes
Weightage	20 % (4 X 5 marks)	30 % (2 X 15 Marks)	50 % (1 X 50 Marks)
Typology of Questions	Understanding/ Comprehension; Application; Analysis; Synthesis; Evaluation	Knowledge/ Recall; Understanding/ Comprehension; Application	Understanding/ Comprehension; Application; Analysis; Synthesis; Evaluation
Pattern	Answer one randomly selected question from the problem sheet (Students can refer their class notes)	MCQ: 10 questions (0.5 marks) Short Answers: 5 questions (2 marks)	Answer all 5 full questions of 10 marks each. Each question may have 2 to 3 parts of 3/4/5/6/7 marks
Schedule	4, 7, 10, and 13th week of academic calendar	Calendared activity	Calendared activity
Topics Covered	Quiz 1 (L 1-9 & T_{y1-y2}) **(CO1,CO2)**	Test 1 (L 1-15 & T_{b1-b2}) **(CO1,CO2)**	Comprehensive examination covering full syllabus. Students are expected to answer all questions **(CO1-5)**
	Quiz 2 (L **10-18** & T_{y3-y4}) **(CO2)**		
	Quiz 3 (L 19-26 & T_{y5-y6}) **(CO3,CO4,CO5)**	Test 2 (L 16-27 & T_{b3-b4}) **(CO2,CO3,CO4,CO5)**	
	Quiz 4 (L 27-34 & T_{y7-y8}) **(CO4,CO5)**		

Lesson Plan

L. No./ T. No.	Topics	Course Outcome Addressed
L0	Objectives of the course, relevance, course plan, evaluation, references , Introduction to microprocessor	CO1
L1	8086 internal architecture-Bus Interface Unit, Execution Unit	CO1
L2	Functional pin diagram	CO1
L3	Segmentation & memory addressing	CO1
L4	Modes operation	CO1
L5	Addressing modes	CO2
L6	Assembler Directives	CO2
L7	Data movement instructions	CO2
L8	Arithmetic and logical instructions	CO2
L9	Process control instructions	CO2

L10	String instructions	CO2
L11	Branch instructions	CO2
L12	Assembly language programs	CO2
L13	Assembly language development tools, stacks and subroutine	CO2
L14	Macro and procedure	CO2
L15	Programs using macro and procedure	CO2
L16	BIOS and DOS interrupts	CO2
L17	Programs using interrupts	CO2
L18	Programs using interrupts contd.	CO2
L19	8255 Programmable Peripheral Interface	CO3
L20	8254 Programmable Interval Timer	CO3
L21	8259 Programmable Interrupt Controller	CO3
L22	Evolution of computers, Von- Neumann architecture	CO4
L23	Computer structures: General register machine, Accumulator based machine, stack machines.	CO4
L24	Combinational shifter design	CO5
L25	Adders. Arithmetic and Logic Unit Design	CO5
L26	Multiplication algorithms	CO5
L27	Division algorithms	CO5
L28	Control unit basic concepts	CO4
L29	Control Unit design using Hardwired approach	CO5
L30	Control Unit design using Microprogramming approach	CO5
L31	Control Unit design using Microprogramming approach contd.	CO5
L32	Types of memory and characteristics, memory hierarchy	CO4
L33	Main memory design, Cache memory	CO4
L34	Cache mapping techniques, Virtual Memory	CO4
L35	Programmed I/O, Interrupt I/O	CO4
L36	Direct memory access, I/O bus standards	CO4

References:

1.	Douglas V. Hall, Microprocessors and Interfacing: Programming and Hardware, revised 2nd Edi-tion ,Tata McGraw Hill, 2006
2.	Barry B. Brey, The Intel Microprocessors: 8086 to Pentium Pro - Architecture, Programming and Interfacing (8e), Prentice Hall of India, 2012
3.	K. Udaykumar and B. S Umashankar, Advanced microprocessors and IBM –PC assembly language programming, McGraw Hill Education, 2017.
4.	Mohamed Rafiquzzaman and Rajan Chandra, Modern computer Architecture, Galgotia Publications Pvt. Ltd, 2012.
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Submitted by: Dr. Santhosha Rao & Mr. Raviraja Holla M

(Signature of the faculty)

Date: 07-02-2022

Approved by: Dr. Smitha N Pai

(Signature of HOD)

Date: 07-02-2022

FACULTY MEMBERS TEACHING THE COURSE (IF MULTIPLE SECTIONS EXIST):

FACULTY	SECTION	FACULTY	SECTION
Dr. Santhosha Rao	A	Mr. Raviraja Holla M	B
