MICROPROCES	SSORS AND M	<b>IICROCONTROLLERS</b>	
fare her enoice Ba	ised Credit Sve	tem (CDCC) 1	
(Effective from	the academic	year 2017 -2018)	
Subject Code	SEMESTER	-IV	
	17CS44	IA Marks	40
Number of Lecture Hours/Week Total Number of Lecture Hours	04	Exam Marks	60
Total Number of Lecture Hours	50	Exam Hours	03
Module 1	CREDITS -	- 04	1 03
Module 1			Toochi
The v86 microprosess District			Teachin Hours
The x86 microprocessor: Brief hist Introduction to assembly programming	ory of the x8	36 family, Inside the 80	088/86, 10 Hour
Introduction to assembly programming, Flag register, x86 Addressing Modes. A	Introduction to	Program Segments, The	Stack.
Flag register, x86 Addressing Modes. A a Sample Program, Assemble, Link & R	ssembly langua	age programming: Direct	ives &
a Sample Program, Assemble, Link & F Transfer Instructions, Data Types and	Run a program,	More Sample programs, (	Control
Transfer Instructions, Data Types and Flowcharts and Pseudo code.	d Data Defini	tion, Full Segment Defi	nition .
Text hook 1. Ch 1. 1 1. 4. 1			
Text book 1: Ch 1: 1.1 to 1.7, Ch 2: 2.1  Module 2	to 2.7		
x86: Instructions sets description, Arith Unsigned Addition and Subtraction I	metic and log	ic instructions and prog	rams: 10 Hours
Unsigned Addition and Subtraction, Unstructions, BCD and ASCII conversion	Jnsigned Multi	plication and Division,	Logic
Programming: Bios INT 10H Programming x86 PC and Interrupt Assignment.	ming, DOS Into	errupt 21H. 8088/86 Inter	rupts.
			• • •
Text book 1: Ch 3: 3.1 to 3.5, Ch 4: 4.1, Module 3	4.2 Chapter 14	4: 14.1 and 14.2	
Signed Numbers and Strings: Signed nu Memory and Memory interfection Memory	mber Arithmetic	c Operations, String operat	tions. 10 Hours
Januari Victory Internacing: Viet	nory address de		
and ROM, 16-bit memory interfacing. 82: x86 PC's, programming and interfacing the	33 I/U nrogram	nming: I/O addresses MA	P of
Text book 1: Ch 6: 61 62 Ch 10: 102	8255.		
Text book 1: Ch 6: 6.1, 6.2. Ch 10: 10.2, 10.2, 10.2	10.4, 10.5. Ch 1	1: 11.1 to 11.4	
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Microprocessors versus Microcontrollers, Abilosophy The APM Design Philosophy	ADM E. I II	ad Court mi	
mosophy, The Alder Design Philosoph	ARIVI Embedd	ed Systems: The RISC de	sign   10 Hours
	V Embedded	Custom II- 1	
Joiem Boltware, Artivi Processor Funda	ly, Embedded : mentals · Regi	System Hardware, Ember	
egister, Pipeline, Exceptions, Interrupts, a	y, Embedded in the mentals: Reginal the Vector T	System Hardware, Ember	
egister, Pipeline, Exceptions, Interrupts, a ext book 2:Ch 1:1.1 to 1.4, Ch 2:2.1 to 2.	y, Embedded in the mentals: Reginal the Vector T	System Hardware, Ember	
Legister, Pipeline, Exceptions, Interrupts, a lext book 2:Ch 1:1.1 to 1.4, Ch 2:2.1 to 2.1 double 5	mentals: Regi	System Hardware, Embersters, Current Program Serable, Core Extensions	dded tatus
Legister, Pipeline, Exceptions, Interrupts, a lext book 2:Ch 1:1.1 to 1.4, Ch 2:2.1 to 2.4 and 1.5 and	mentals: Regi and the Vector T	System Hardware, Embersters, Current Program Stable, Core Extensions	dded tatus
Legister, Pipeline, Exceptions, Interrupts, a lext book 2:Ch 1:1.1 to 1.4, Ch 2:2.1 to 2.4 Introduction to the ARM Instruction Structions, Software Interrupt Instruction	mentals: Regi and the Vector T .5	System Hardware, Embersters, Current Program Strable, Core Extensions  cessing Instructions, Brasing Register, Program Strates	dded tatus
degister, Pipeline, Exceptions, Interrupts, a dext book 2:Ch 1:1.1 to 1.4, Ch 2:2.1 to 2.4 Induction to the ARM Instruction Structions, Software Interrupt Instruction opprocessor Instructions, Loading Constants	mentals: Regi and the Vector T .5 Set: Data Procons, Program	System Hardware, Embersters, Current Program Strable, Core Extensions  cessing Instructions, Brasing Register, Program Strates	dded tatus
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The question paper will have ten questions.

There will be 2 questions from each module.

Each question will have questions covering all the topics under a module.

The students will have to answer 5 full questions, selecting one full question from each module.

## Text Books:

- Muhammad Ali Mazidi, Janice Gillispie Mazidi, Danny Causey, The x86 PC Assembly Language Design and Interfacing, 5<sup>th</sup> Edition, Pearson, 2013.
- ARM system developers guide, Andrew N Sloss, Dominic Symes and Chris Wright, Elsevier, Morgan Kaufman publishers, 2008.

## Reference Books:

- 1. Douglas V. Hall: Microprocessors and Interfacing, Revised 2<sup>nd</sup> Edition, TMH, 2006.
- 2. K. Udaya Kumar & B.S. Umashankar : Advanced Microprocessors & IBM-PC Assembly Language Programming, TMH 2003.
- Ayala: The 8086 Microprocessor: programming and interfacing 1st edition, Cengage Learning
- 4. The Definitive Guide to the ARM Cortex-M3, by Joseph Yiu, 2nd Edition, Newnes, 2009
- 5. The Insider's Guide to the ARM7 based microcontrollers, Hitex Ltd.,1st edition, 2005
- 6. ARM System-on-Chip Architecture, Steve Furber, Second Edition, Pearson, 2015
- Architecture, Programming and Interfacing of Low power Processors- ARM7, Cortex-M and MSP430, Lyla B Das Cengage Learning, 1st Edition

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