

**Name of Institute:ITE**  
**Name of Faculty:Shikha Singh**

**Course code:CE0517**  
**Course name: Microprocessor & Interfacing**  
Pre-requisites: Digital Logic Design  
Credit points: 3  
Offered Semester: V

**Course Coordinator (weeks 01 - 12)**

Full Name: Shikha Singh  
Department with sitting location: ECE, 3<sup>rd</sup> Floor, Faculty Wing, Bhanwar Building, ITE - IU  
Telephone:#3333  
Email: shikhasingh.ec@indusuni.ac.in  
Consultation times:09.00 AM – 10.00 AM (Working Saturdays)

**Course Lecturer (weeks xx - XX)**

Full Name: Shikha Singh  
Department with sitting location: ECE, 3<sup>rd</sup> Floor, Faculty Wing, Bhanwar Building, ITE - IU  
Telephone:#3333  
Email: shikhasingh.ec@indusuni.ac.in  
Consultation times:09.00 AM – 10.00 AM (Working Saturdays)

Students will be contacted throughout the Session via Mail with important information relating to this Course.

**Course Objectives**

By participating in and understanding all facets of this Course a student will:

- Understand architecture of 8085 microprocessor.
- Understand the instruction set of 8085 microprocessor.
- Understand the interfacing of Memory chip with 8085 microprocessor.
- Understand the interfacing of I/O devices with 8085 microprocessor.
- Understand the working of various peripheral IC

**Course Outcomes (CO)**

After learning the course the students should be able to

- Able to write assembly language programs of 8085 microprocessor.
- Able to use interrupt in programs.
- Able to interface memory with 8085 processor.
- Able to build system by interfacing various peripheral IC with 8085 microprocessor

## Course Outline

8085 Processor, Assembly Language Programming, 8085 Interrupts, Peripheral IC's.

## Method of delivery

Chalk and Board

PPTs

## Study time

Lecture	Lab	Attendance
2	2	

## CO-PO Mapping (PO: Program Outcomes)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>CO1</b>	3	1	1	-	-	-	-	-	-	-	-	1
<b>CO2</b>	3	2	3	1	3	-	-	-	-	-	-	-
<b>CO3</b>	3	2	2	2	3	-	-	-	-	-	-	-
<b>CO4</b>	2	2	1	-	-	-	-	-	-	-	-	1

## Blooms Taxonomy and Knowledge retention (For reference)

(Blooms taxonomy has been given for reference)

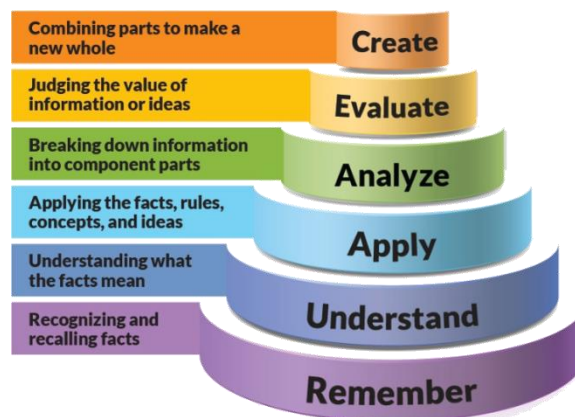


Figure 1: Blooms Taxonomy

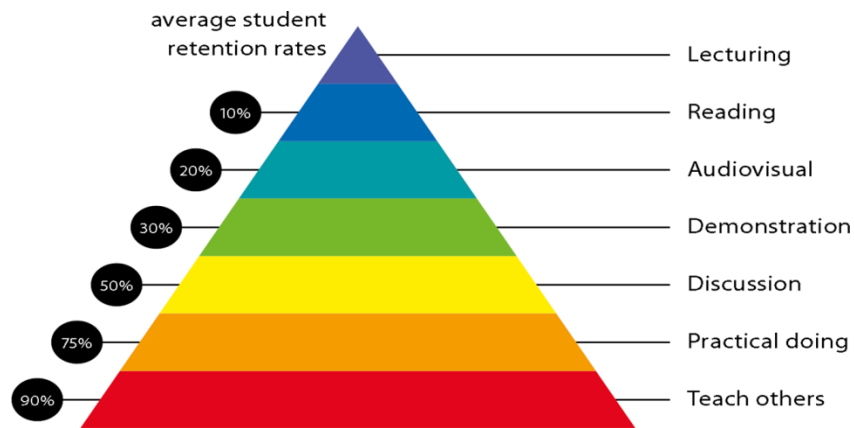


Figure 2: Knowledge retention

**Graduate Qualities and Capabilities covered**  
 (Qualities graduates harness crediting this Course)

General Graduate Qualities	Specific Department of _____ Graduate Capabilities
<p><b>Informed</b>            Have a sound knowledge of an area of study or profession and understand its current issues, locally and internationally. Know how to apply this knowledge. Understand how an area of study has developed and how it relates to other areas.</p>	<p><b>1 Professional knowledge, grounding &amp; awareness</b></p>
<p><b>Independent learners</b>            Engage with new ideas and ways of thinking and critically analyze issues. Seek to extend knowledge through ongoing research, enquiry and reflection. Find and evaluate information, using a variety of sources and technologies. Acknowledge the work and ideas of others.</p>	<p><b>2 Information literacy, gathering &amp; processing</b></p>
<p><b>Problem solvers</b>            Take on challenges and opportunities. Apply creative, logical and critical thinking skills to respond effectively. Make and implement decisions. Be flexible, thorough, innovative and aim for high standards.</p>	<p><b>4 Problem solving skills</b></p>
<p><b>Effective communicators</b>            Articulate ideas and convey them effectively using a range of media. Work collaboratively and engage with people in different settings. Recognize how culture</p>	<p><b>5 Written communication</b></p>
	<p><b>6 Oral communication</b></p>
	<p><b>7 Teamwork</b></p>

can shape communication.	
<b>Responsible</b> Understand how decisions can affect others and make ethically informed choices. Appreciate and respect diversity. Act with integrity as part of local, national, global and professional communities.	<b>10 Sustainability, societal &amp; environmental impact</b>

### Practical work:

Introduction to 8085 microprocessor kit
Programming based on Data transfer operations
Programming based on Arithmetic and logical operations
Programming based on Branch operations
Programming based on Delay and counter techniques
Programming based on Stack and Subroutines
To interface 8255 with 8085microprocessor.
To interface 8253 with 8085microprocessor

### Lecture/tutorial times

(Give lecture times in the format below)

<b>Example:</b>			
Lecture	Tuesday	8.30 – 10.30 am	Room LH 30
Lecture/Tutorial	Wednesday	8.30 – 10.30 am	Room LH 30
Practicals	Friday		

### Attendance Requirements

The University norms states that it is the responsibility of students to attend all lectures, tutorials, seminars and practical work as stipulated in the Course outline. Minimum attendance requirement as per university norms is compulsory for being eligible for mid and end semester examinations.

## Details of referencing system to be used in written work

### Text books

- 1) Microprocessor Architecture, Programming, and Applications with the 8085 - Ramesh S. Gaonkar  
Pub: Penram International, ISBN 13: 9780139012570
- 2) 8085 Microprocessor: Programming And Interfacing by N.K Shrinath , Phi Learning Pvt. Ltd,ISBN 13: 9788120327856
- 3) Computer System Architecture, Pearson, by M. Mano, ISBN 13: 9780131663633

### Additional Materials

#### Reference Books

- 1) Microcomputers and Microprocessors: The 8080,8085 and Z-80 Programming, Interfacing and Troubleshooting by John E. Uffenbeck, ISBN 13: 9780133803785
- 2) Computer Architecture – A Quantitative Approach, John Hennessy and David A Patterson, ISBN 13: 9780124077270

#### Web Resources

Microprocessor Web Course – NPTEL  
<https://nptel.ac.in/courses/108107029/>

## ASSESSMENT GUIDELINES

Your final course mark will be calculated from the following:

<b>Internal Evaluation</b>	<b>20 Marks</b>	Objective (1-4)
<b>Mid semester</b>	<b>40 Marks</b>	Objectives (2-5)
<b>Final exam (<i>closed book</i>)</b>	<b>40 Marks</b>	Objectives (1-5)

## SUPPLEMENTARY ASSESSMENT

Students who receive an overall mark less than 40% in mid semester or end semester will be considered for supplementary assessment in the respective components (i.e mid semester or end semester) of semester concerned. Students must make themselves available during the supplementary examination period to take up the respective components (mid semester or end semester) and need to obtain the required minimum 40% marks to clear the concerned components.

### Practical Work Report/Laboratory Report:

A report on the practical work is due the subsequent week after completion of the class by each group.

### Late Work

Late assignments will not be accepted without supporting documentation. Late submission of the reports will result in a deduction of -% of the maximum mark per calendar day

### Format

All assignments must be presented in a neat, legible format with all information sources correctly referenced. **Assignment material handed in throughout the session that is not neat and legible will not be marked and will be returned to the student.**

### Retention of Written Work

Written assessment work will be retained by the Course coordinator/lecturer for two weeks after marking to be collected by the students.

### University and Faculty Policies

Students should make themselves aware of the University and/or Faculty Policies regarding plagiarism, special consideration, supplementary examinations and other educational issues and student matters.

**Plagiarism** - Plagiarism is not acceptable and may result in the imposition of severe penalties. Plagiarism is the use of another person's work, or idea, as if it is his or her own - if you have any doubts at all on what constitutes plagiarism, please consult your Course coordinator or lecturer. Plagiarism will be penalized severely.

***Do not copy the work of other students.***

***Do not share your work with other students (except where required for a group activity or assessment)***

## Course schedule (subject to change)

(Mention quiz, assignment submission, breaks etc as well in the table under the Teaching Learning Activity Column)

Week #	Topic & contents	CO Addressed	Teaching Learning Activity (TLA)
Week 1	<b>Introduction to Microprocessor</b> Microprocessor System, Bus Organization, Microprocessor Architecture, Microprocessor Operation	1	Chalk& Board, PPT
Week 2	8085 Architecture, Address, Data and Control Bus, Pin Functions, Demultiplexing of bus , Generation of Control Signals,	1	Chalk& Board, PPT
Week 3	Instruction Cycle , Machine Cycle, Addressing Modes, Data Transfer Instructions,	2	Chalk& Board, PPT
Week 4	Arithmetic Instructions, Logical Instructions	2	Chalk& Board, PPT
Week 5	Branching Instructions, Stack and Subroutine	2,3	Chalk& Board, PPT
Week 6	Writing Assembly Language Programs, Memory interfacing, Decoding Methods,	2,3	Chalk& Board, PPT
Week 7	Basic Interfacing Concepts, Interfacing Output Devices Interfacing Input Devices	4	Chalk& Board, PPT
Week 8	Memory Mapped I/O and Peripheral Mapped I/O , Counter and Time delay, Different Methods of generating Time delay Programs	4	Chalk& Board, PPT
Week 9	8085 Interrupts, 8085 Vectored and Non-Vectored Interrupts, Restart as Software Instructions	5	Chalk& Board, PPT
Week 10	Basic Concepts in Serial I/O, 8085 Serial I/O lines SID & SOD	5	Chalk& Board, PPT
Week 11	The 8255 Programmable Peripheral Interface, The 8279 Keyboard / Display Interface	5	Chalk& Board, PPT
Week 12	The 8253 Programmable Interval Timer, A/D and D/A converters, 8259 Programmable interrupt controller, 8237 Programmable DMA controller.	5	Chalk& Board, PPT

