

## Microprocessor & Interfacing(66662)

week	Content	Remarks
1 <sup>st</sup>	<p><b>1. Understand the concept of microprocessor and microcomputer.</b>                      1.1. Define the microprocessor and microcomputer.                      1.2. Distinguish between microprocessor and microcomputer.</p>	
2 <sup>nd</sup>	<p>1.4. Describe the block diagram of simple microcomputer.                      1.5. Evaluation of microprocessor (4, 8, 16, 32 &amp; 64 bit microprocessor)</p>	
3 <sup>rd</sup>	<p><b>Understand the architecture of 8086 microprocessor.</b>                      2.1. Mention the general features of 8086/8088 microprocessor.                      2.2. Describe the pin and signal diagram of 8086/8088 microprocessor.                      2.3. Distinguish between maximum and minimum mode of 8086/8088 microprocessor</p>	
4 <sup>th</sup>	Class Test-1	Class Test 1
5 <sup>th</sup>	2.4. Describe the architecture of 8086 microprocessor.	
6 <sup>th</sup>	<p>2.5. Describe the register structure of 8086 microprocessor.                      2.6. Mention the difference between 8086 and 8088 microprocessor.</p>	
7 <sup>th</sup>	<p><b>Understand the memory interface of the 8086 microprocessor.</b>                      3.1. Sketch the 8086 system memory interface.                      3.2. State the meaning of even &amp; odd address boundaries.                      3.3. Describe the hardware organization of the memory address space of 8086.                      3.4. Describe the memory read and write bus cycle of 8086 microprocessor.                      Explain the technique to de-multiplex the system bus.</p>	
8 <sup>th</sup>	MID TERM EXAM	
9 <sup>th</sup>	<p><b>Understand the 8086 addressing mode and programming concept.</b>                      4.1. Describe the addressing mode of 8086 microprocessor.</p>	
10 <sup>th</sup>	4.2. Describe the software model of the 8086 microprocessor.	Quiz Test

	<p>4.3. Describe the 8086 instruction set.</p> <p>4.4. Explain the instruction format of 8086 microprocessor.</p>	
11 <sup>th</sup>	<p><b>Understand the input / output interface and peripheral devices of the 8086 microprocessor.</b></p> <p>5.1. Describe the 8086 system I/O interface.</p> <p>5.2. Describe the I/O address space of the 8086 system.</p> <p>5.3. Describe the I/O read and I/O write bus cycle of 8086 microprocessor.</p> <p>5.4. Define programmable peripheral Interface.</p> <p>5.5. Mention the commonly used support chips and purpose of those.</p> <p>5.6. Describe the operation of PPI with block diagram.</p> <p>5.7. Configure the control word of the control register of PPI for simple I/O operations.</p>	
12 <sup>th</sup>	<p><b>Understand the interrupt interface of the 8086 microprocessor.</b></p> <p>6.1. Mention the types of interrupts.</p> <p>6.2. Describe the common features of different types of interrupts.</p> <p>6.3. Sketch the map of interrupt vector table.</p> <p>6.4. Describe the external hardware interrupt interface of the 8086 microprocessor</p>	
13 <sup>th</sup>	<p><b>Understand the assembly language programming of 8086 family.</b></p> <p>7.1. Define the assembler pseudo instructions.</p> <p>7.2. Describe the use of assembler directives (i. e. SEGMENT, ENDS, ASSUME, DUP, etc.)</p> <p>7.3. Describe the use of program development tools (i.e. editor, assembler, linker, locator debugger and emulator.)</p> <p>7.4. Explain the sequential, IF-THEN-ELSE, WHILE-DO and REPEAT-UNTILL structure in 8086 assembly language with pseudo code and flow chart.</p> <p>7.5. Write assembly language programs.</p>	Class Test 2
14 <sup>th</sup>	<p><b>Understand the features of advanced microprocessors.</b></p> <p>8.1. List the names of other x86 family processors including Pentium series and state the brief specification.</p> <p>8.2. Describe the real and protected mode memory addressing technique.</p> <p>8.3. State the function of BIST in Pentium processor.</p> <p>8.4. State multiprocessing and parallel processing.</p> <p>8.5. Define multi-core processors (i.e. Dual core, Quad core, core ix).</p> <p>8.6. Write down the advantages of multi-core processors.</p>	Class Test-4
15 <sup>th</sup>	<p><b>Understand the real world interfacing</b></p> <p>9.1. Describe the interfacing of LED Display with program to the microprocessor.</p> <p>9.2. Describe the interfacing of seven segment LED display with program to the microprocessor.</p> <p>9.3. Describe the interfacing of Multiple Digit Display with program to the microprocessor.</p>	

	9.4. Describe the method of interfacing of stepper motor to the microprocessor.	
16 <sup>th</sup>	Review chapter 6,7	

**(Theory)**

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Practical: Execute some assembly language program of 8086 microprocessor

Week	Content	Remarks
1 <sup>st</sup>	Perform the task to develop and execute an assembly language program for solving arithmetic problems using 8086/88 microprocessor trainer or MASM type tools or software simulator.	
2 <sup>nd</sup>	Perform the task to develop and execute an assembly language program for solving logical problems using 8086/88 microprocessor trainer or MASM type tools or software simulator.	
3 <sup>rd</sup>	Perform the task to develop and execute an assembly language program to compute 1's or 2's complement of binary number using 8086/88 microprocessor trainer or MASM type tools or software simulator.	
4 <sup>th</sup>	Perform the task to transmit data from a microprocessor to an I/O using Intel 8086/8088 based microprocessor trainer or MASM type tools or simulator software.	
5 <sup>th</sup>	Perform the task to display string in assembly language program.	
6 <sup>th</sup>	Perform the task to use single input and output in assembly language program.	
7 <sup>th</sup>	Perform the task to develop and execute assembly language programs that implement the branching and looping structures using 8086/88 microprocessor trainer or MASM type tools or software simulator.	
8 <sup>th</sup>	Mid Term Exam	
9 <sup>th</sup>	Build a simple computer prototype using 8086/8088 processor with memory, I/O interface and simple I/O devices	
10 <sup>th</sup>	Review	
11 <sup>th</sup>	Review	
12 <sup>th</sup>	Review	
13 <sup>th</sup>	Review	
14 <sup>th</sup>	Review	
15 <sup>th</sup>	Review	
16 <sup>th</sup>	Review	