Subject	Microprocessors	Course Code	CT212	Theoretical	3 hrs / wk
Semester	3	Prerequisite	CT117	Practical	3 hrs / wk

Program Learning Components

Week 1-2	**1- Introduction to microprocessors (mps).**
	• Historical background.
	• Microprocessor tasks.
	• Power of microprocessor.
	• Microprocessor system concept.
	• Microprocessor structure (8086 mp architecture):
	   o Execution unit.
	   o Bus interface unit.
	• Memory segmentation.
	• Logical address and physical address calculation.

Week 3-6	**2- Introduction to assembly language:** • Assembly language vs high level languages. • Assembly language program structure. • Data movement instructions (MOV, XCHG, PUSH, POP). • Arithmetic instructions (ADD, SUB, MUL, DIV, INC, DEC, etc). • Logical instructions (AND, OR, XOR, NOT). • Shift and rotate instructions (SHL, SHR, ROL,ROR, etc). • Compare instructions (CMP, TEST) • Program counter and control instructions.
Week 7	**3- Addressing modes: (immediate, register, direct, register indirect, based relative, indexed relative, based index relative).**
Week 8-10	**4- 8086 Pins and signals:** • Minimum mode. • Maximum mode. • Generation of control signal for memory and I/O ports o (MEMR, MEMW, IOR, IOW). • Bus cycle and time states. • Bus timing for a Read operation. • Bus timing for a Write operation.
Week	**5- 8086 addressing and address decoding.**

11-12	• Memory interfacing to 8086 based system: ▪ (Interfacing ROM, RAM, EPROM to mp). • Read and Write (a byte & data word). • Address decoding methods.
Week 13-14	**6- Introduction to 8086 interrupt**
	• Role of interrupts. • Interrupts categories: software interrupts and hardware interrupts. • Interrupt service routine ISR. • Interrupt vector table IVT. • Processing interrupts.
Microprocessor I Lab:
In the Lab , students learn assembly language programming and gain the necessary information and skills to use the language tools such as : Editor, assembler, Linker, debugger Moreover students should write simple programs to try and use all the instruction given in the lectures.