Course Title: Microprocessors
Course Code: EEEG 314
Credit Hours: 3

Course Description:
This course acquaints the students with the operation, programming, interfacing and applications of Intel 8 bit and 16-bit microprocessors.

Course Contents:

Unit 1: Introduction
Basic Block diagram of a microcomputer, stored program computer (Von Neumann Architecture), Bus system architecture, History of microprocessor (focus on Intel Series); Microprocessors applications

Unit 2: 8 bit Microprocessor
Features of Intel 8085, internal functional diagram, Registers, Pin functions, instruction format, Addressing modes, Instruction types: data transfer, arithmetic, logical, branch and machine control, programming; Timing diagram

Unti 3: 16 Bit Microprocessor
Features of Intel 8086, internal functional diagram, Registers, Pin functions, Addressing modes, Instruction types, Timing diagram, programming,

Unit 4: Intel 8085/8086 Interrupt Processing
Interrupt types, Interrupt processing sequence for 8085 and 8086; Interrupt controller 8259

Unit 5: Support Chips for 8086
Intel 8288 bus controller, Intel 8284 clock generator, Latches 8282, Bus transceiver 8286

Unit 6: Input/Output Interfaces
Serial and Parallel communication, Asynchronous and synchronous communication, Serial Communication Interface-RS232C, Parallel Communication Interfaces-GPIB, Intel 8251A, Programmable communication interface : internal functional diagram, Intel 8255A programmable peripheral interface: Internal functional diagram, operating modes and programming

Unit 8: Programmable Timers and Event Counters
Intel's 8253/8254 Programmable interval timer: Internal functional diagram and operating modes and programming

Unit 9: DMA:
Operation, DMA controller 8237/8257(simple introduction)

Unit 10: Simple System Design Using Intel 8085/8086
Interfacing Memories – RAM, ROM, Interfacing I/O –LEDs, switches, 7 segment display, Interfacing ADC

Unit 11: Comparative Study of the Intel Microprocessors
Intel Processors 4004 to Pentium 4, dual core, quad core Microcontroller-Intel 8051(Simple Introduction)

References:

1. Gaonkar R., *Microprocessor Architecture, Programming, and application with 8085*, PHI
2. Liu Y. C. and Gibson G. A., *The 8086/8088 family architecture, programming and Design*, PHI
3. Hall, D. V., *Microprocessors and interfacing: programming and hardware*, TMH
4. Brey B. B., *The Intel Microprocessors 8086/8088, 80186, 80286, 80386 and 80486, Pentium, Pentium Pro-Pentium- (Architecture, Programming and Interfacing)*, Pearson Education