

**Department Of Computer Science and Engineering**  
**Kathmandu University**  
**Dhulikhel, Kavre**



**Subject: Microprocessor and Assembly Language Course: COMP 231**

**Level: B.E./B.Sc 2<sup>nd</sup> Year 2<sup>nd</sup> Semester**

**Credit Hours: 3**

***Objectives***

- To provide an introduction to different types of microprocessors and their applications.
- To provide an introduction to different hardware/software that is supported by these microprocessors.
- To introduce the assembly language programming and their applications

***Contents:***

1. Introduction: Basic block diagram of a microcomputer, Stored program computer (Von Neumann Architecture) and related terminologies, Bus system architecture, History of Microprocessor (focus on Intel Series), Microprocessors application.
2. 8-Bit Microprocessor: Introduction of 8085 microprocessors, 8085 programming model, Internal functional diagram & pin functions, Architectural features, microprocessor communication & bus timing, 8085 Instruction set, Addressing modes & programming, 8085 Interrupts.
3. 16-Bit Microprocessor: 8086/8088 CPU architecture & operation, Programming model, Pins & signals, Memory segmentation, Processor bus cycle (Timing diagram), Operating modes. Support chips for 8086/8088: 8288 bus controller, 8284 clock generator, latches 8282, Bus transceiver 8286 of Connections, Instruction set & programming, Addressing modes, Interrupt types, Interrupt processing sequence, Interrupt controller 8259.
4. I/O Interfaces: Serial Communication Interface, Parallel Communication Interfaces, 8254 programmable interval timer, DMA operation, DMA controller.

***Text book:***

- John Uffenbeck, The 80x86 Family design, programming and Interfacing
- Microprocessor Architecture, Programming, and Application with the 8085 Ramesh Gaonkar.
- Microprocessor Systems: The 8086/8088 Family architecture, Programming, and Design - Yucheng Liu, Glenn A. Gibson