Code	Subject Title	Cr. Hrs	Semester
IT-203	Computer Organization and Assembly Language	3	III

Year	Discipline
2	Information Technology

Objectives

The main objective of this course is to introduce the organization of computer systems and usage of assembly language for optimization and control. Emphasis should be given to expose the low-level logic employed for problem solving while using assembly language as a tool. The students will be capable to acquire knowledge that is specific to Intel 80x 86 processor families, as well as knowledge that is universal. They will learn the programming methodologies showing how to use Assembly Language for Application Software's, System Programming and Terminate and Stay Resident. They will develop programs based on the interaction between Assembly Language and Operating System, Security Software's, encryption and decryption programs, programs for Reverse Engineering, programs for small scale Embedded Systems and Games specially Networking Games using serial and parallel ports. Following topics will be covered in this course: Processor Architecture and Organization, Memory Architecture, Intel 8086 Registers, Addressing Modes, Memory Addressing, MOV The Basic Instruction, Debugger, Mathematical and Bit wise Logical instruction, Stack Instructions, Interrupts, Memory Models, Practice of Program Writing and Debugging, Control Transfer and Conditional Action Instructions, Procedures, Macros, Shift and Rotate Instructions, Procedures to Input and Display Binary, Decimal, Hexadecimal Numbers, Reading DOS Command Tail, Data Communication, File Handling, Recursion, High–Level Logic Structures, Interfacing of Assembly and C++ , Languages, Storage of Real Numbers, Math co-processor, String instructions, Introduction to Machine Code, Protected Mode, Terminate and Stay Resident Programs, Micro Controller Programming (8051)

Prerequisites

Digital Logic Design

Text Book

Barry B. Brrey, *The Intel Microprocessors 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium and Pentium Pro Processor,* ISBN-10: 0139954082

Kip R. Irvine, *Assembly Language for Intel Based Computers,* Third Edition, 1999, Prentice-Hall Publishing, 1999, ISBN-10: 0132383101

Reference Material

- Assembly Language Reference by Que. Corporation.
- I Scott Mackenzie, *8051 Micro-controller Programming*, 3rd Edition, ISBN-10: 0137800088