

## CSC-: 250 Assembly Language Programming Course Specification & Outline of LAB

### General Information

<b>Course Number</b>	CSC-250
<b>Credit Hours</b>	3(2+1) (Theory Credit Hour = 3, Lab Credit Hours = 1)
<b>Prerequisite</b>	Computer Architecture
<b>Course Coordinator</b>	Not Specified

### Course Objectives

Assembly language is the most basic programming language available for any processor, a programmer works only with operations implemented directly on the physical CPU and their components. Assembly language lacks high-level conveniences such as variables and functions, and it is not portable with various families of processor. Assembly language is the most powerful programming language available, and it gives programmers the insight required to write effective code in high-level languages. Learning assembly language is well worth the time and effort of every serious programmer.

This course discusses the basic 8-bit and 16-bit microcontroller architectures and their instruction sets, instruction format. Understand the functions of Registers in different dimension of computer organization in Students should be able to learn assembly language programming structure & techniques using variables, statements, mnemonics, control structures using jumps and branches, arrays and data structures, together with the basic structured programming techniques of sequence, choice and iteration and how they can be realized in assembly language. Students should examine the logic bits operations

### Catalog Description

CSC - 250

### Course Content

Session No.	Week No.	Topics	Suggested Readings (Chapters)
01-03	1	Introduction to Microcomputer components and Machine cycle and EU.	1
04-06	2	An ability to understand Number systems including 1's and 2's complements and Program structure	2
07-09	3	Introduction to Microprocessor Registers and interrupts	3
10-12	4	Assembly Language Syntax, Compiling, Linking and Assembler Introduction to the Program structure	4
13-15	5	Assembly language instructions(Mnemonics) MOV, XCHG, ADD,SUB,INC,DEC and NEG	5
<b>First Mid Exam</b>			
16-18	7	Conditional Control-flow Instructions(Branching and Looping)	6
19-21	8	Introduction JUMPS (Conditional, Unconditional and single Flag)	7
22-24	9	Logic Instructions(AND, OR, NOT,SHL, SHR,SAL,SAR, ROL, RCR and ROR) with their logical diagrams	8
25-27	10	Introduction of Stack and its Applications with (procedure call and ret))	9
28-30	11	Multiplication and Division using (MUL and IMUL, DIV and IDIV)	10
<b>Second Mid Exam</b>			

31-33	13	Introduction to Arrays and Strings with DUP operator specification	11
34-36		An ability to understand Simple Macro and passing parameters	11
37-39	14	Introduction to BIOS and DOS routines	12
40-42	15	File Processing and management	13
Onwards	16	<b>Presentations/projects</b>	
<b>Final Exams</b>			

### Text Book

Kip R Irvine, “Assembly Language for Intel-based Computers”

### Reference Material

Ytha YU and Charles Marut, “Assembly Language Programming and Organization of the IBM PC”

### Course Learning Outcomes

	Course Learning Outcomes (CLO)
1	To understand the programming concepts of Low level Language and core operations of microprocessor for optimization and control of different ports and components of Systems.
2	To Apply low-level programming logic employed for problem solving with respect to organization of computer system.
3	To Analyze the problem and mapping in the different nature of instruction set models.

### CLO-SO Map

	SO IDs											
CLO ID	GA1	GA2	GA3	GA4	GA5	GA6	GA7	GA8	GA9	GA10	GA11	GA12
CLO 1	1	0	0	0	0	0	0	0	0	0	0	0
CLO 2	0	0	0	0	0	0	1	0	0	0	0	0
CLO 3	0	0	0	0	0	0	1	0	0	0	0	0

### Approvals

Prepared By	
Approved By	
Last Update	01/02/2022