



National Computing Education Accreditation Council NCEAC



NCEAC.DOC.001-E

COURSE DESCRIPTION

NAME OF INSTITUTION	Lahore Garrison University
PROGRAM (S) TO BE EVALUATED	Computer Science , Fall 2022

Course Description : Modern computer technology requires professionals of every computing specialty to understand both hardware (HW) and software (SW). The interaction between HW and SW also offers a framework for understanding the fundamentals of computing. In this course students will study topics such as Instruction Set Architecture, Basic Assembly Instructions, Addressing Modes, Computer Performance evaluation, Floating Point Data, Data Path Design for Single Cycle and Multiple Cycle Computers, Pipelined Data Path Basics, Hazards in Pipelining, Memory hierarchy design, storage and I/O. The Lab will have focus on GUI based Turbo Assembly Level Programming and some HW experiments

Course Code	CSC346						
Course Title	Comp Organization & Assembly Lang						
Credit Hours	3+1						
Prerequisites by Course(s) and Topics	1. No Pre-requisites. As students first will be taught the preliminary course contents of CSC332 Digital Logic Design in order to help them understand the basics of hardware and software integration.						
Assessment Instruments with Weights (homework, quizzes, midterms, final, programming assignments, lab work, etc.)	SESSIONAL (Quizzes, Assignments, Presentations) =25 % Midterm Exam =25 % Final Exam = 50%						
Course Coordinator	Muhammad Daniyal Baig						
URL (if any)							
Current Catalog Description							
Textbook (or Laboratory Manual for Laboratory Courses)	*Assembly Language Programming and Organization of IBM PC, Ytha Yu, Charles Marut (International Edition), 1992						
Reference Material	*Mazidi M.A. - 80×86 IBM PC and Compatible Computers (Volumes I and II). Assembly Language, Design, and Interfacing - 1995						
Course Goals	To learn: Acquire the basic knowledge of computer organization, □ computer architecture □ assembly language □ Understand the concepts of □ basic computer organization □ architecture, and assembly language techniques □ Solve the problems related to computer organization and assembly language						
Course Learning Outcomes (CLOs):	<table><tr><td>At the end of the course the students will be able to:</td><td>Domain</td><td>BT Level*</td></tr><tr><td>* BT= Bloom's Taxonomy, C=Cognitive domain, P=Psychomotor domain, A= Affective domain</td><td></td><td></td></tr></table>	At the end of the course the students will be able to:	Domain	BT Level*	* BT= Bloom's Taxonomy, C=Cognitive domain, P=Psychomotor domain, A= Affective domain		
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Topics Covered in the Course, with Number of Lectures on Each Topic (assume 15-week instruction and one-hour lectures)	Week	Lecture	Topics Covered
	Week 1	1	Introduction to Assembly Language Programming Tutorial
		2	Introduction to Registers in assembly language programming tutorial
	Week 2	3	Types of registers in Assembly language programming tutorial
		4	Addressing modes mov instruction interrupt and ASCII in Assembly language
	Week 3	5	Program structure, syntax and program to print single character in assembly language
		6	Install EMU MASM LINK & Run Assembly Program in dosbox to print character/ EMU 8086
	Week 4	7	Program to print name with characters in assembly language programming
		8	program to take input a character from user in assembly language programming
	Week 5	9	Program to add two numbers in Assembly language Programming tutorial
		10	Program to subtract two numbers in assembly language programming tutorial
	Week 6	11	Program to input two numbers and add them in assembly language tutorial
		12	Program to convert Capital letter to small in assembly, uppercase to lowercase
	Week 7	13	Variables, data types, offset and lea in assembly language
		14	Assembly program to print two strings on two different lines, Linefeed, Carriage return
	Week 8	1 hours	Mid Term
	Week 9	15	Loop, Label, Inc and Program to print 0 to 9 in assembly language
		16	Program to print capital letters from A to Z using loop in assembly language
	Week 10	17	Mid Term Exam Material for assembly language programs, theory, papers, book and presentations
		18	Flag Register Carry parity Auxiliary zero sign trap interrupt direction and overflow flag
	Week 11	19	Jump, unconditional jump, conditional jump and compare cmp, jmp in assembly
		20	Program to print the input number is equal or not in assembly language
	Week 12	21	Array, dup and source index register in assembly language programming
		22	Program to print an array using loop in assembly language programming
	Week 13	23	String, Program to input a string in assembly language programming
		24	Stack, push, pop and example program of push and pop in assembly language
	Week 14	25	Program to swap two numbers in assembly language
		26	Program to reverse a string in assembly language tutorial
	Week 15	27	Nested loop, program to print pyramid in assembly language
		28	Procedure, example program of procedure in assembly language
	Week 16	29	Macro, example program for macro, macro vs procedure in assembly language
		30	Signed and unsigned numbers, convert unsigned to signed numbers in assembly
	Week 17	2 hours	Final Term
Laboratory Projects/Experiments Done in the Course	Assembly language project for each group		
Programming Assignments Done in the Course	Two programming assignments related to assembly language		

Instructor Name	Muhammad Daniyal Baig
Instructor Signature	
Date	