Faculty of Computers and Information Technology

Computer Organization and Assembly Language

Information :

Course Code :	CS223	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours

Department : Faculty of Computers and Information Technology

Instructor Information :

Title	Name	Office hours
Associate Professor	Khaled Ahmed Mohamed Elshafey	8
Assistant Lecturer	Nada Mamdouh Abdelrahman Mohamed	
Teaching Assistant	Mayar Sayed Soliman Abdeldayem	
Teaching Assistant	Nada Emad Abdelsalam Hussien	1

Area Of Study :

Apply the basic concepts and theories of computer organization and design.
Analyze the requirements of evaluating hardwired versus microprogramming control organization.
Use modern techniques to learn computer instructions and addressing modes, timing and control, execution cycle of instructions.
Compare, evaluate and select methodologies from range of tools of assembly instructions and addressing.

Description :

Computer basic units organization and design: memory, control, arithmetic and logic unit, input/output. Computer instructions and addressing modes, timing and control, execution cycle of instructions. Input, output and interrupt. Arithmetic processor algorithms. Hardwired versus microprogramming control organization. Assembly instructions and addressing: data transfer instructions, arithmetic instructions, logical instructions, conditional and unconditional branch instructions, loop instructions, procedures and procedure calls, macro instructions.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Identify the methodologies, practices and tools used in computer organization.
2 -	Identify the fundamental concepts of computer basic unit's organization and design.
3 -	Discuss principles of low level programming languages (assembly language).
b.Intellectual Skills: :	
1 -	Analyze and design a solution for computer basic units.
2 -	Determine measurement criteria for computer instructions and addressing modes, timing and control, execution cycle of instructions.
3 -	Prepare proposals and presentations of algorithms, methods and techniques used in computer organization.
4 -	Test and evaluate the functionality of arithmetic processing.

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c.Professional and Practical Skills: :	
1 -	Install MASM software tool for low level programming languages.
2 -	Analyze, design, implement, test, maintain and manage computer basic units.
3 -	Evaluate low level programming languages on hardwired versus microprogramming control organization.
d.General and Transferable Skills: :	
1 -	Work in a team to develop the requirement documentation.
2 -	Apply communication skills in presentations and report writing using various methods and tools.

ABET Course outcomes :	
1 -	Demonstrate understanding of basic concepts and theories of computer organization and design.
2 -	Recognize and compare hardwired versus microprogramming control unit.
3 -	Demonstrate understanding instruction cycle and addressing modes.
4 -	Comprehend and use assembly language to manipulate different computer hardware components.
5 -	Use assembly language to develop solutions for real-world computing problems.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Evolution of the microprocessors, Introducing the architecture of the 8086 and 8088 microprocessors	4	2	2
Register Set, Memory organization and System busses	4	2	2
Data Addressing modes	4	2	2
Assembly Language Instructions: Data transfer Instructions	4	2	2
Input/output Instructions	4	2	2
Arithmetic Instructions	4	2	2
Bitwise and Logical Manipulations	4	2	2
String Instructions	4	2	2
Mid Term Exam	2		
Interrupts (reading a character)	4	2	2
Writing a character, and writing a string	4	2	2
Reading a string	4	2	2
Project discussion	4	2	2
Final Exam	2		

Teaching And Learning Methodologies :
Interactive Lectures including discussion
Practical Lab Sessions
Self-Study (Project / Reading Materials / Online Material / Presentations)
Case Studies

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Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments	5.00		
Final Exam	40.00	14	
Midterm Exam (s)	20.00	9	
Practical Exam	10.00	13	
Presentations	10.00		
Quizzes	5.00		
Team Work Projects	10.00	12	

Course Notes :

Course Notes are available with all the slides used in lectures in electronic form on Learning Management System (Moodle)

Web Sites :

Online Resources: http://kipirvine.com/asm

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