FUTURE UNIVERSITY IN EGYPT
جامعة المستقبل

Faculty of Computers & Information Technology

Computer Organization & Assembly Language

Information :

Course Code :	CSC 223	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours
Department :	Department of Computer Science				

Instructor Information :

Title	Name	Office hours
Professor	Ahmed Fahmy Amin Mahros	3
Teaching Assistant	Abdultwab Mohamed Abdultwab Alhussin	3

Area Of Study :

The characteristics of a microprocessor, and its applications.
The relationship between hardware and software and how they work together to accomplish a task.
Identify the major component of a PC-based system, describe the steps involving in assembling, linking, and executing a program.
Write programs in assembly language to perform given tasks and run them

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 -	Discuss issues about the microprocessor performanc
2 -	List the main syntax of assembly language
3 -	Outline fundamentals in computing, including hardware and operating systems
4 -	Discuss issues of reliability
5 -	Discuss some aspects of the subject, such as hardware systems design
6 -	Identify and demonstrate usage of tools, practices and methodologies used in the specification, design, implementation and critical evaluation of computer software systems
7 -	Outline current and underlying technologies that support computer processing and inter-computer communication
b.Intellectual Skills: :	
1 -	Identify attributes and components
2 -	Identify a range of solutions and critically evaluate and justify proposed design solutions

3 -	Generate an innovative design to solve a problem containing a range of commercial and industrial constraints
4 -	Create and/or justify designs to satisfy given requirements (synthesis, evaluation, application)
c.Professional and Practical Skills: :	
1 -	Write programs using the assembly language
2 -	Program a microprocessor to perform given tasks
3 -	Use the assembly language to control the different computer units
4 -	Use the assembly language to write drivers for different computer accessories.
5 -	Specify, design, and implement computer-based systems
6 -	Identify any risks or safety aspects that may be involved in the operation of computing equipment within a given context
7 -	Specify, investigate, analyze, design and develop computer-based systems using appropriate tools and techniques
8 -	Operate computing equipment efficiently, taking into account its logical and physical properties
d.General and Transferable Skills: :	
1 -	Work in stressful environment and within constraints
2 -	Demonstrate efficient IT capabilities
3 -	Manage tasks and resources
4 -	Acquire entrepreneurial skills
5 -	Communicate effectively
6 -	Manage one's own learning and development, including time management and organizational skills

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Basic Concepts	3	2	2
IA-32 Processor Architecture (Part 1)	3	2	2
IA-32 Processor Architecture (Part 2)	3	2	2
Assembly Language Fundamentals	3	2	2
Data Transfers, Addressing, and Arithmetic (Part 1)	3	2	2
Mid Term Exam 1	2	1	2
Data Transfers, Addressing, and Arithmetic (Part 2)	3	2	2
Procedures	3	2	2
Conditional Processing	3	2	2
Integer Arithmetic (Part 1)	3	2	2
Integer Arithmetic (Part 2)	3	2	2
Mid Term Exam 2	2	1	2
High-Level Language Interface (Part 1)	3	2	2
High-Level Language Interface (Part 2)	3	2	2

Teaching And Learning Methodologies :
Lectures
Practical training
Exercises
Open Discussion
E. Learning
Self Studies
Presentation
Projects
Web-Site searches

Books :

Book	Author	Publisher
Assembly Language for x86 Processors	Kip R. Irvine	Pearson