

**Faculty of Computers and 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
Associate Professor	Nourhan Mohamed Hassan Zayed	
Assistant Lecturer	Nada Mamdouh Abdelrahman Mohamed	

**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)
<b>c. Professional and Practical Skills: :</b>	
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
<b>d. General and Transferable Skills: :</b>	
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

<b>Course Topic And Contents :</b>			
<b>Topic</b>	<b>No. of hours</b>	<b>Lecture</b>	<b>Tutorial / Practical</b>
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