Faculty of Computers and Information Technology

Computers Architecture

Information :

Course Code :	ITC 312	Level	:	Undergraduate	Course Hours :	3.00- Hours

Department :	Department of Computer Science

Instructor Information :

Title	Name	Office hours
Associate Professor	Khaled Ahmed Mohamed Elshafey	5
Assistant Lecturer	Salma Radwan Hassan Abdelhamid	10

Area Of Study :

Students will acquire sound knowledge in the key principles and
Practices used in the design and analysis of a digital computer system.
Students will have a thorough knowledge in of the main functional units (bus system, memory unit, central processing unit, and input/output).

Description :

This course exposes the student to computer design & organization. It aims for the student to understand the software/hardware interface, instructions, processor, modules & performance issues.

Course outcomes :

a.Knowledge and Understanding: :

1 -	A critical awareness of current problems and research issues in selected areas of Computer Science.
2 -	A deep and systematic understanding of the academic discipline of Computer Science.
3 -	Describe modern computer architectures such as multi-cores and GPUs
4 -	Identify the fundamentals of scientific research and its ethics.
5 -	Interpret scientific development in information systems.
6 -	Explain theories and fundamentals in information systems and related domains.

b.Intellectual Skills: :

1 -	Recognize the need for, and show ability for, dealing with constantly changing technology and continuing professional development.
2 -	. Establish techniques of research and enquiry are used to extend, create and interpret knowledge in Computer Science.
3 -	Carry out a research study and write a thesis around a research problem in information systems.
4 -	Link different knowledge to solve professional problems.
5 -	Solve specialized problems without enough inputs.

c.Professional and Practical Skills: :

1 -	Generate and apply appropriate solutions to solve problems based on reasoned rationale.

2 -	An ability to consistently apply knowledge concerning current research issues in computer science in an original manner and produce work that is at the forefront of the developments in the domain of the program of study.	
3 -	Deal with complex issues at the forefront of the academic discipline of Computer Science in a manner, based on sound judgments, that is both systematic and creative; and be able to communicate conclusions clearly to both specialists and non-specialists.	
4 -	Practice programming on modern architectures to face programming and compiler challenges thrown by the modern architectures.	
5 -	Evaluate current methods and tools in information systems.	
6 -	Master basic and modern professional skills in information systems.	

d.General and Transferable Skills: :

1 -	. Effectively present ideas, designs and solutions in a logical framework in a variety of forms with proper language structure and mechanics, and to produce appropriate written documentation.
2 -	Long-life self-learning.
3 -	Use different recourses to obtain information and knowledge.
4 -	Use the information technology to serve the professional practice.
5 -	Communicate efficiently by different means.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Flipflops	3	2	2
Registers, Counters	3	2	2
Register Transfer Language, Bus and memory transfer	3	2	2
Arithmetic microoperations, Logic microoperations, Shift microoperations	3	2	2
Instruction codes, computer registers	3	2	2
Mid- Term1	2	1	2
Computer instructions, timing cycle	3	2	2
Instruction Cycle, memory reference instructions	3	2	2
Input-output and interrupt	3	2	2
Design of basic computer, design of accumulator logic	3	2	2
Control memory, address sequencing	3	2	2
Mid-Term 2	2	1	2
Microprogram, control unit	3	2	2
Parallel processing, memory Hierarchy	3	2	2
Final Exam	3	2	2

Teaching And Learning Methodologies :

Lectures
Exercises
Practical training
Projects

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Attendance	10.00	2	
Final Exam	40.00	15	
Lab	20.00	2	
MidTerm Exam I	15.00	6	
MidTerm Exam II	15.00	12	

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