

Ministry of Higher Education and Scientific Research

Supervision and Scientific Evaluation Body

Quality Assurance and Academic Accreditation Office

Course Description Sample

Subject: Computer Architecture

This course description provides a brief survey of the most important characteristics, expected learning output, showing whether students have made full use of the learning opportunities. These characteristics have to be matched with the description of the program.

1. Educational Institution	Shatt Al-Arab University College
2. Department / Center	Computer Science Department
3. Course Title /Code	Computer Architecture
4. Lecturer Name	Dr. Oday Jasim Mohammed Al-Furaiji
5. Type of Teaching	Attendance
6. Academic Year /Term	2022-2023
7. Total No. of Teaching Hours	60 hours
8. Date of Preparing this Course Description	15.09.2022

9. Course Objectives

a. Providing students with the most important principles and basics of Computer Architecture
b. Teaching students how to apply computer architecture
c. Providing graduates with the necessary knowledge on computer architecture job in organizations.
d. Improving the administrative skills in the field of computer architecture in general.

e. Providing graduates with the skills of education and creative learning.

10. Course Output, Methodology and Evaluation

(A) Cognitive Objectives

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| a. Enabling students to acquire knowledge and the art of computer architecture |
| b. Acquainting students with how to promote their personal knowledge. |
| c. Helping students to acquire knowledge in the field of computer architecture. |
| d. Enabling students to sharpen their skills in the dynamic work environment. |
| e. Enabling students to invest their scientific abilities in their working place in the scope of computer architecture. |
| f. Helping students to get the necessary knowledge to solve problems related to computer architecture. |

(B) Skill Objectives Related to the Program:

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| a. Acquisition of skills in knowledge and management of computer architecture problems |
| b. Acquisition of skills in understanding and knowledge of different computer architectures and methods of evaluating them |
| c. Acquiring skills of using and implementing the basic computer architectures |

Methods of Teaching and Learning

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|------------------------------------------------------------------------------------|
| a. Using already- prepared lectures. |
| b. Using up-to-date data shows using video contents, PowerPoint and pdf documents. |
| c. Homework |
| d. Adopting group discussions. |

Methods of Evaluation

a. Oral tests
b. Monthly tests
c. Daily quizzes
d. Students' Regular Attendance

(C) Sentimental and Value Objectives

a. Realizing ethical objectives.
b. Commitment to university traditions.
c. Compliance with the University Instructions and the Ministry Regulations.
d. Promoting students' personal abilities in educational scopes and how to behave well with others.

Methods of Teaching and Learning

a. Lectures on university instructions.
b. Educational guidance lectures.
c. Continuous directing.
d. Visiting State and private institutions.
e. Showing practical cases.

Methods of Evaluation

a. Daily quizzes.
b. Classroom discussions and commitment to ethics and sublime values.
c. Special marks for class activities.
d. Monthly and quarterly evaluation.

D) General and Qualitative Skills (other skills related to the ability of employment and personal development)

a. Enabling students to acquire skills to dealing with computer architecture.
b. Enabling students to apply creative thinking in computer architecture manufacturing.
c. Enabling students to use modern methods of analysis and conclusions.
d. Enabling students to develop and design new computer architectures-.

11. Course Structure

Week	No of Hours	Required Learning Output	Title of Subject	Teaching Method	Evaluation
1	2	understanding the material	CPU organization	- lectures - case study -discussions	- oral tests -questions
2	2	understanding the material	Types of Registers	- lectures - case study -discussions	- oral tests -questions
3	2	understanding the material	Instruction Set Design	- lectures - case study -discussions	- oral tests -questions
4	2	understanding the material	Addressing Modes	- lectures - case study -discussions	- oral tests -questions
5	2	understanding the material	Instruction Types	- lectures - case study -discussions	- oral tests -questions
6	2	understanding the material	Microprogramming	- lectures - case study -discussions	- oral tests -questions
7	2	understanding the material	Design of CPU Control Unit	- lectures - case study -discussions	- oral tests -questions
8	2	understanding	Control of CPU (Functional	- lectures	- oral tests

		the material	Requirements)	- case study -discussions	-questions
9	2	understanding the material	CU Design Methods	- lectures - case study -discussions	- oral tests -questions
10	2	understanding the material	Hardwired Implementation	- lectures - case study -discussions	- oral tests -questions
11	2	understanding the material	Microprogrammed Implementation	- lectures - case study -discussions	- oral tests -questions
12	2	understanding the material	Advantages and Disadvantages of both implementations	- lectures - case study -discussions	- oral tests -questions
13	2	understanding the material	Memory Management	- lectures - case study -discussions	- oral tests -questions
14	2	understanding the material	Characteristics of Memory System	- lectures - case study -discussions	- oral tests -questions
15	2	understanding the material	The Memory Hierarchy	- lectures - case study -discussions	- oral tests -questions
16	2	understanding the material	Memory Interleaving	- lectures - case study -discussions	- oral tests -questions
17	2	understanding the material	Cache Memory	- lectures - case study -discussions	- oral tests -questions
18	2	understanding the material	Mapping Process	- lectures - case study -discussions	- oral tests -questions
19	2	understanding the material	Microcomputer Memory	- lectures - case study -discussions	- oral tests -questions
20	2	understanding the material	Memory Connection to Microprocessor	- lectures - case study	- oral tests -questions

				-discussions	
21	2	understanding the material	Pipeline and Vector processing	- lectures - case study -discussions	- oral tests -questions
22	2	understanding the material	Single-Cycle versus Pipelined Performance	- lectures - case study -discussions	- oral tests -questions
23	2	understanding the material	Practice Examples	- lectures - case study -discussions	- oral tests -questions
24	2	understanding the material	Instruction Pipeline Design	- lectures - case study -discussions	- oral tests -questions
25	2	understanding the material	Instruction Execution Phases	- lectures - case study -discussions	- oral tests -questions
26	2	understanding the material	Practice Examples	- lectures - case study -discussions	- oral tests -questions
27	2	understanding the material	Multiprocessors	- lectures - case study -discussions	- oral tests -questions
28	2	understanding the material	Cache Coherence and Synchronization Mechanisms	- lectures - case study -discussions	- oral tests -questions
29	2	understanding the material	Dataflow Architectures	- lectures - case study -discussions	- oral tests -questions
30	2	understanding the material	Partitioning Strategies	- lectures - case study -discussions	- oral tests -questions

12. Infrastructure

a. Textbooks	<ol style="list-style-type: none"> 1. "Fundamentals of computer organization and architecture", 2. M. M. Mano, "computer system architecture" third edition,
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	prentice Hall, 1993. 3. Walter A. Triebel, "The 80386, 80486, and Pentium® Processors Hardware, Software, and Interfacing", 1998.
b. References	4. David A. Patterson and John L. Hennessy, "Computer Organization and Design",1998.
c. Recommended books and periodicals (journals, reports, etc.)	5. Computer Architecture Introduction
d. Electronic references, internet websites, etc	http://www.freebookcentre.net/CompuScience/Free-Computer-Architecture-Books-Download.html

13. The Plan of Improving the Course

a. Studying labor market needs.
b. Be informed of the experiences of other countries in the field of computer architecture.
c. Be informed of research work published in national and international journals in the field of computer architecture.