Ministry of Higher Education and Scientific Research

Supervision and Scientific Evaluation Body

Quality Assurance and Academic Accreditation Office

Course Description Sample

Subject: Microprocessor Architecture

This course description provides a brief survey of the most important characteristics, expected learning output, showing whether students have made full use f 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 Technology Engineering
3. Course Title /Code	Microprocessor architecture
4. Type of Teaching	Lecture, laboratory
5. Academic Year /Term	Midterm
6. Total No. of Teaching Hours	150
7. Date f Preparing this Course Description	3/10/2022

8. **Course Objectives**

a. Knowledge of the basic parts of a computer and the types of microprocessors.
b. Knowing the major and minor types of memory in the computer.
c. Know the components of the CPU in the computer.
d. Knowledge and understanding of the microprocessor architecture.
e. Possess the ability to program microprocessors.

9. **Course Output, Methodology and Evaluation**

(A) **Cognitive Objectives**

a. Know the history and evolution of the stages of the computer.
b. Knowing the basic structure of the main and secondary memory.
c. Understand the CPU infrastructure.
d. Knowing how to transfer data through the types of paths inside the computer.
f. Knowing the types of microprocessors in general and the differences between microprocessors (8086 and 8085) in particular.

(B) **Skill Objectives Related to the Program**:

a. The ability to carry out the instructions of the 8085 processor.
b. The ability to carry out the instructions of the 8086 processor.

Methods of Teaching and Learning

a. Lectures: provide a solid foundation upon which to develop students' knowledge.
b. The practical laboratory provides all the experiences the student needs to help develop the practical skill side and consolidate the principles necessary to implement projects correctly.

Methods of Evaluation

a. Semester exams and periodic process.
b. Quizzes.
c. Other extra-curricular exams.

(C) **Sentimental and Value Objectives**

a. Enhancing thinking and increasing the student's sense of the importance of team and individual work.
b. Present ideas and solutions in a civilized manner through theory and evidence.

c. Urging students to participate in the completion of reports that increase the student's love for his specialization.
d. Develop students' ability to work collectively as effective teams that produce outstanding results.

Methods of Evaluation

a. Direct assessment: This assessment is carried out by the instructor in a direct manner and by observing the student's interaction during the lecture and fixing notes regarding that.
b. Practical projects: the student's ability to achieve, be creative, work in teams, and the results and solutions to various scientific problems are evaluated.

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

a. Analyzing programs in assembly language and deducing the outputs of these programs.
b. Gain the skill and ability to use machine language.

10. **Course Structure**

Week	No of Hours	Required Learning Output	Title of Subject	Teaching Method	Evaluation
1.2	2+ 1:30	General architecture of digital computer, review of 8085	General architecture of digital computer, review of 8085	Theoretical + practical lectures	Qualification test + class assignment
3,4	2+ 1:30	8085 memory Addressing	8085 memory Addressing	Theoretical + practical lectures	Qualification test + class assignment
5,6	2+ 1:30	8085 1/0 Addressing	8085 1/0 Addressing	Theoretical + practical lectures	Qualification test + class assignment
7	2+	8085 machine cycle & bus	8085 machine cycle & bus	Theoretical	Qualification

	1:30	timing	timing	+ practical lectures	test + class assignment
8,9	2+ 1:30	8085 Interrupt Types	8085 Interrupt Types	Theoretical + practical lectures	Qualification test + class assignment
10	2+ 1:30	Introduction to 8086	Introduction to 8086	Theoretical + practical lectures	Qualification test + class assignment
11,12	2+ 1:30	Software Architecture, BIU, EU, registers, pipeline	Software Architecture, BIU, EU, registers, pipeline	Theoretical + practical lectures	Qualification test + class assignment
13	2+ 1:30	Memory segmentation, generating memory address	Memory segmentation, generating memory address	Theoretical + practical lectures	Qualification test + class assignment
14	2+ 1:30	Hardware organization 8086 space, Data Organization (aligned and misaligned word, double word)	Hardware organization 8086 space, Data Organization (aligned and misaligned word, double word)	Theoretical + practical lectures	Qualification test + class assignment
15,16	2+ 1:30	Pin configuration, min &max mode,8288 bus controller, 8284 system clock	Pin configuration, min &max mode,8288 bus controller, 8284 system clock	Theoretical + practical lectures	Qualification test + class assignment
17,18	2+ 1:30	Addressing mode, machine language coding	Addressing mode, machine language coding	Theoretical + practical lectures	Qualification test + class assignment
19,23	2+	8086	8086	Theoretical	Qualification

	1:30	instructions set	instructions set	+ practical lectures	test + class assignment
24	2+ 1:30	Stack memory, POP & PUSH instructions	Stack memory, POP & PUSH instructions	Theoretical + practical lectures	Qualification test + class assignment
25	2+ 1:30	Memory read & write Bus Cycles, Idle & wait state	Memory read & write Bus Cycles, Idle & wait state	Theoretical + practical lectures	Qualification test + class assignment
26,27	2+ 1:30	Memory Interface Circuits, bus transceivers, Bank Write and Bank Read Control Logic, memory expansion.	Memory Interface Circuits, bus transceivers, Bank Write and Bank Read Control Logic, memory expansion.	Theoretical + practical lectures	Qualification test + class assignment
28,29	2+ 1:30	1/0 Interface Circuits (Isolated input/output & Memory input/output, 1/0 instructions,	1/0 Interface Circuits (Isolated input/output & Memory input/output, 1/0 instructions,	Theoretical + practical lectures	Qualification test + class assignment
30	2+ 1:30	8086 Interrupt Types	8086 Interrupt Types	Theoretical + practical lectures	Qualification test + class assignment

11.**Infrastructure**

a. Textbooks	1- Digital Fundamental by Floyed. 2- Ramesh S. Goankar, "Microprocessor Architecture, Programming and Applications with 8085", 5thEdition, Prentice Hall.

b. References	1- Digital Fundamental by Floyed. 2-Ramesh S. Goankar, "Microprocessor Architecture, Programming and Applications with 8085", 5thEdition, Prentice Hall.
c. Recommended books and periodicals (journals, reports, etc.)	1- Digital Fundamental by Floyed. 2-Ramesh S. Goankar, "Microprocessor Architecture, Programming and Applications with 8085", 5thEdition, Prentice Hall.
d. Electronic references, internet websites, etc	Jagdishprasad Jhabarmal, "An Introduction to Microprocessor 8085).

12. **The Plan of Improving the Course**

Motivating students to use modern means and the Internet for the purpose of developing their skills in the field of modern computer design to know the developments taking place.