Republic of Iraq
The Ministry of Higher Education
& Scientific Research

University: UOT

College: Department of Computer science e
Stage: Third
Lecturer name: Raheem AbulSahib Ogla
Status: Asst. Prof
Qualification: Ph.D

Computer Architecture
Course Weekly Plan
Second course
2023-2024

Course Instructor	**Raheem Abdul Sahib Ogla**
E_mail	**Raheem.a.Ogla@uotechnology.edu.iq**
Title	**Architecture computer**
Course Coordinator	Lectures: Dr. Mustafa T. and Dr. Nada H.
Course Objective	1. To impart basic concepts of computer architecture and organization, 2. To explain key skills of constructing cost-effective computer systems. 3. To familiarize the basic CPU organization. 4. To help students in understanding various memory devices. 5. To facilitate students in learning IO communication
Course Description	This course introduces the principles of computer organization and the basic architecture concepts. The course emphasizes performance and cost analysis, instruction set design, pipelining, memory technology, memory hierarchy, virtual memory management, and I/O systems. Basic technical writing skills are also taught in this class.
Textbook	M. Moris Mano (2006), Computer System Architecture, 3rd edition, Pearson/PHI, India
References	1. Carl Hamacher, Zvonks Vranesic, SafeaZaky (2002), Computer Organization, 5th edition, McGraw Hill, New Delhi, India. 2. William Stallings (2010), Computer Organization and Architecture- designing for performance, 8th edition, Prentice Hall, New Jersy. 3. Anrew S. Tanenbaum (2006), Structured Computer Organization, 5th edition, Pearson Education Inc, 4. John P. Hayes (1998), Computer Architecture and Organization, 3rd edition, Tata McGrawHill

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week	Date	Topics Covered (Theoretical)
1	14/2/2024	**INTRODUCTION TO COMPUTER ARCHITECTURE**
2	21/2/2024	**STRUCTURE OF COMPUTERS** Computer types, Functional units, Basic operational concepts, Architecture, Bus Structures, Software
3	28/2/2024	**STRUCTURE OF COMPUTERS** Performance, Multiprocessors and Multicomputer, Data representation, Fixed and Floating point, Error detection and correction codes
4	5/3/2024	BASIC COMPUTER ORGANIZATION AND DESIGN: Instruction codes, Computer Registers, Computer Instructions and Instruction cycle.
5	12/3/2024	**BASIC COMPUTER ORGANIZATION AND DESIGN:** Timing and Control, Memory-Reference Instructions, Input-Output and interrupt. Central processing unit:
6	19/3/2024	**BASIC COMPUTER ORGANIZATION AND DESIGN:** Stack organization, Instruction Formats, Addressing Modes, Data Transfer and Manipulation, Complex Instruction Set Computer (CISC) Reduced Instruction Set Computer (RISC), CISC vs RISC
7	26/3/2024	**REGISTER TRANSFER AND MICRO-OPERATIONS** Register Transfer Language, Register Transfer, Bus and Memory Transfers,
8	2/4/2024	**REGISTER TRANSFER AND MICRO-OPERATIONS** Arithmetic Micro-Operations, Logic Micro-Operations, Shift Micro-Operations, Arithmetic logic shift unit.
9	9/4/2024	**MICRO-PROGRAMMED CONTROL:** Control Memory, Address Sequencing
10	16/4/2024	**MICRO-PROGRAMMED CONTROL:** Micro-Program example, simple design of Control Unit.
11	23/4/2024	**MEMORY SYSTEM:** Memory Hierarchy, Semiconductor Memories, RAM(Random Access Memory),
12	30/4/2024	**MEMORY SYSTEM:** Read Only Memory (ROM), Types of ROM, Cache Memory, Performance considerations, Virtual memory, Paging, Secondary Storage, RAID.
13	6/5/2024	**INPUT OUTPUT:** I/O interface, Programmed IO, Memory Mapped IO, Interrupt Driven IO, DMA
14	13/5/2024	**MULTIPROCESSORS:** Characteristics of multiprocessors, Interconnection structures, Inter Processor Arbitration, Inter processor Communication and Synchronization, Cache Coherence.
15	20/5/2024	**Mid –Exam.**

Instructor Signature: **Dean Signature:**

Asst. Pro. Dr. Raheem Abdul Sahib Ogla