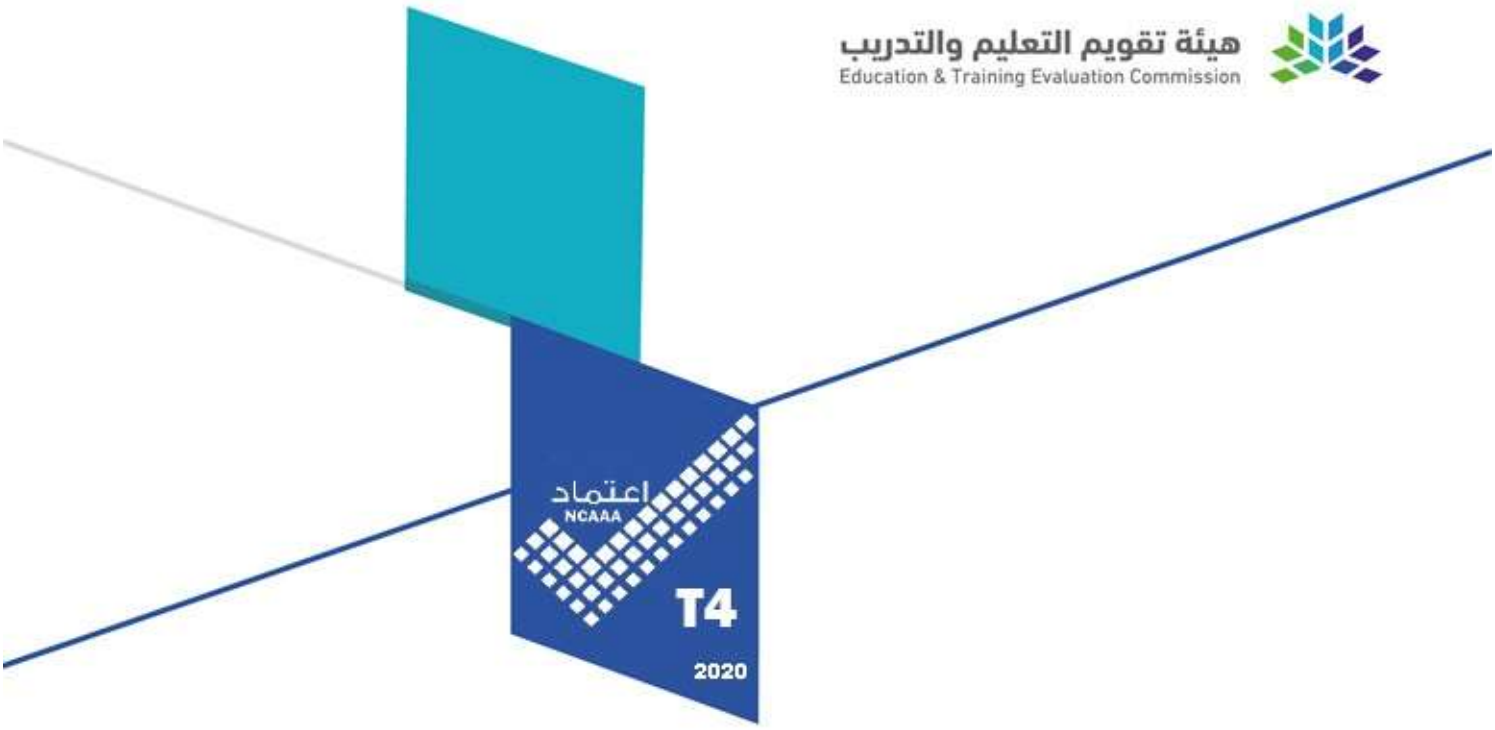
هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	Computer Architecture
Course Code:	**CEN2332**
Program:	**Computer and Network Engineering**
Department:	**Computer Engineering Department**
College:	**College of computers and information systems**
Institution:	**Umm Al-Qura University**

Table of Contents

A. Course Identification

1. Credit hours: 3
2. Course type **a.** University [ ] College [ ] Department [√] Others [ ] **b.** Required [√] Elective [ ]
3. Level/year at which this course is offered: **Level 6 / Year 2**
4. Pre-requisites for this course (if any)**:** Computer organization
5. Co-requisites for this course (if any)**:**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	30	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	30
2	**Laboratory/Studio**	
3	**Tutorial**	
4	**Others** (specify)	
	Total	

B. Course Objectives and Learning Outcomes

1. Course Description

This course aims to provide a strong foundation for students to understand modern computer system architecture and to apply these insights and principles to future computer designs. The course is structured around the three primary building blocks of general-purpose computing systems: processors, memories, and networks.

2. Course Main Objective

- An ability to understand the architecture of multiprocessors.
- An ability to describe the mechanisms related to the design of modern processors, memories, and networks and explain how these concepts and mechanisms interact.
- An ability to evaluate various design alternatives and make a compelling quantitative and/or qualitative argument for why one design is superior to the other approaches.

- A working knowledge of modern computer architecture concepts and components via projects to increase the overall understanding of modern computer architectures.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Student will know how to use concepts of computer organization in real-life settings using various PC performance improvements.	K2
1.1	Students will be introduced to more recent applications of computer architecture in advanced digital systems	K3
2	**Skills :**	
2.1	Student will use their knowledge to design a semester project.	S2
2.2	Students will be able to read more advance texts as well as journal articles on the field.	S3
3	**Values:**	
3.1	The ability to work in groups to design the term project.	V2
3.2	The ability to avoid plagiarism.	V1

C. Course Content

No	List of Topics	Contact Hours
1	Fundamental Processors	6
2	Fundamental Memories	6
3	Advanced Processors	12
4	Advanced Memories	6
Total		30

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Student will know how to use concepts of computer organization in real-life settings using various PC performance improvements.	Lectures	Examinations
1.2	Students will be introduced to more recent applications of computer architecture in advanced digital systems		
2.0	**Skills**		
2.1	Student will use their knowledge to design a semester project.	Self-study	Semester project

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.2	Students will be able to read more advance texts as well as journal articles on the field		
3.0	**Values**		
3.1	The ability to work in groups to design the term project.	Self-study	Semester project
3.2	The ability to avoid plagiarism		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes	4,8	10
2	Midterms	5,10	20
3	Project	11	20
4	Final exam	12	50

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

Faculty is available 10 hours per week for student help and consulting.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	D. Patterson and J. Hennessy, Computer Organization and Design, The Hardware/Software Interface, 5th Edition, Morgan Kaufmann (MK), 2013
Essential References Materials	D. Harris and S. Harris, Digital Design and Computer Architecture, Morgan Kaufmann (MK), 2nd Edition, 2012
Electronic Materials	
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms.
Technology Resources (AV, data show, Smart Board, software, etc.)	projector and electronic board.

Item	Resources
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	Students	Survey at the end of course
Evaluation of Teaching	Instructor	Monthly Meeting discussing

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	