Ministry of Higher Education and Scientific Research Scientific Supervision and Scientific Evaluation Apparatus Directorate of Quality Assurance and Academic Accreditation Accreditation Department



Academic Program and Course Description Guide

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

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Concepts and terminology:

<u>Academic Program Description</u>: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

<u>Course Description</u>: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

<u>Program Vision</u>: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

<u>Program Mission</u>: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

<u>Program Objectives</u>: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are

followed to reach the learning goals. They describe all classroom and extracurricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name:
Faculty/Institute:
Scientific Department:
Academic or Professional Program Name:
Final Certificate Name:
Academic System:
Description Preparation Date:
File Completion Date:

Signature:

Signature:

Head of Department Name:Aous .H.kurdi Date: 7/4/2024

Signature:

Scientific Associate Name: Said Salman Date: 7/4/2024

The file is checked by:

Department of Quality Assurance and University Performance Director of the Quality Assurance and University Performance Department: khawla sadon Date: 7/4/2024

Approval of the Dean

1. Program Vision

This academic program description provides a succinct summary of the most important features of the program and the learning outcomes expected of it

The student achieves it by proving whether he has made the most of the available opportunities. It is

accompanied by a description of each

Scheduled within the programme

2. Program Mission

It provides the work fields with distinguished engineers in the field of computer technology

3. Program Objectives

Excellence in the field of preparing engineers scientifically and practically in Iraq and the region..

4. Program Accreditation

It is the Authority's accreditation of the training program after achieving the program accreditation standards and harnessing all administrative, educational and clinical capabilities

In training centers for the purposes of training in postgraduate health professional programs (general specialty certificate, specific specialty).

Or professional health diploma) supervised by the Authority, which results in the provision of an educational environment

5. Other external influences

no

6. Program Structure											
Program Structure	Number of Courses	Credit hours	Percentage	Reviews*							
Institution											
Requirements											
College											
Requirements											

Department		
Requirements		
Summer Training		
Other		

* This can include notes whether the course is basic or optional.

1. Program Des	cription			
Year/Level	Course Code	Course Name		Credit Hours
			Theoretical	practical
	CET 2101	computer		_
		applications	1	2
	CET 2102	Mathematics (II)	3	-
	CET 2103	Microprocessor		_
		architecture	2	3
	CET 2104	Instrumentation		_
		and measurement	2	2
	CET 2105	Computer Programming (II)	2	2
	CET 2106	Foundations of communications	3	2
	CET 2107	Electronic	2	2
	CET 2108	summer training	-	-
	CET 2109	English	1	-
	CET 3101	Electronic systems simulators	1	2
	CET 3102	Engineering analysis	2	2
	CET 3103	Fundamentals of control engineering	2	2
	CET 3104	Electronic capacity	2	2
	CET 3105	Design of real time systems	2	2
	CET 3106	Digital signal processing	2	2
	CET 3107	Digital controllers	2	2
	CET 3108	Optional topic	2	2
	CET 3109	summer training	2	2
	CET 3110	English	2	2
	CET 4101	Intelligent systems modeling	2	2

CET 4102	Advanced computer technology	2	2
CET 4103	Design of computer adaptation circuits	2	2
CET 4104	Advanced digital electronics	2	2
CET 4105	project management	2	2
CET 4106	computer networks	2	2
CET 4107	Optional topic	2	2
CET 4108	graduation project	-	4
CET 4109	English	1	1
CET 41010	Professional ethics	2	2

2. Expected learning outcomes of the program

Knowledge

1-Enable students to obtain knowledge and understanding of computer basics

2. Enable students to obtain knowledge and understanding of computer applications

3. Enable students to obtain knowledge and understanding of computer programming

4. Enable students to obtain knowledge and understanding of computer networks

Skills

1-With scientific skills

2. Memorization and analysis skills

3. Skills to use and develop.

Ethics

1- Motivation and self-confidence: Increase the level of motivation and build self-confidence among students through achieving successes and experiences

Positive learning.

2- Achieving personal and professional goals: Helping students determine their personal and professional goals and directing them towards achieving them Through continuous learning and development.

3. Teaching and Learning Strategies

1 The ability to apply knowledge in the fields of mathematics and specialized engineering sciences in the field of computers.

-2 Acquiring the necessary sciences in the various specializations of computer engineering

3- Preparing the student to continue self-learning and acquire new technologies and skills in

the field of computer engineering.

4-Building skills by following the correct procedures.

4. Evaluation methods

Studying the theoretical and practical academic program for specialization lessons.

Data Show The theoretical program is linked using a whiteboard or display

On the personal computer, discuss ideas and facts with students.

The practical program for specialization lessons involves conducting laboratory or field experiments and collecting measurements from...

Before small groups of students, analyze, discuss and present the measurements

5. Faculty													
Faculty Members													
Academic Rank	Specia	lization	Spec Requiremen (if applic	ial nts/Skills cable)	Number of the teaching staff								
	General	Special			Staff	Lecturer							
Prof.	computer	computer	-	-	-	-							
Ass.prof.	computer	computer	-	-	-	-							
lecturer	computer	computer	_	-	5	5							
Ass.lecturer	computer	computer			2	_							

Professional Development
Mentoring new faculty members
Include various methods in the curricula, mentioning the
advantages of each method
Its good and bad
Include curricular vocabulary - relevant to the specialty - real
issues and problems and motivate students to excel
Their opinions and proposed solutions for the best way to
address problems and challenges.
Professional development for faculty members
1- The ability to work with others with discipline within a single
work team (teamwork).
2 – Full awareness of the moral and practical responsibility for
the work that the student will practice after graduation
(professional ethics).
-3 The ability to present, discuss, and defend ideas orally, in
writing, and electronically.
-4 The ability to comprehend and comprehend the English
language within the technical level related to the field of
specialization.

6. Acceptance Criterion

Students are accepted into the college according to their averages in the sixth year of middle school (baccalaureate). As for the criteria for distributing students:

The section is carried out according to:

• The student's desire.

• Total number of students in the sixth grade of middle school.

7. The most important sources of information about the

program

Methodical books.

Sources.

Specifications and descriptions.

8. Program Development Plan

			Prog	ram	Skill	s Oı	utline	•							
					R	equ	ired	prog	grai	n Le	arni	ng ou	tcon	nes	
Veer /Level	Course	Basic or		Know	ledg	е		Sł	kills			Eth	nics		
Year/Level	Code	Name	optional	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	CET 2101	computer applications	secondary	*	*	*	*	*	*	*	*	*	*	*	
	CET 2102	Mathematic s (II)	secondary	*	*	*	*	*	*	*	*	*	*	*	
	CET 2103	Microproces sor architecture	Specialized	*	*	*	*	*	*	*	*	*	*	*	
	CET 2104	Instrumenta tion and measureme nt	Specialized	*	*	*	*	*	*	*	*	*	*	*	
	CET 2105	Computer	Specialized	*	*	*	*	*	*	*	*	*	*	*	

	Programming (II)													
CET 2106	Foundations of communicatio ns	Specialized	*	*	*	*	*	*	*	*	*	*	*	
CET 2107	Electronic	Specialized	*	*	*	*	*	*	*	*	*	*	*	
CET 2108	summer training	Interpolation	*	*	*	*	*	*	*	*	*	*	*	
CET 2109	English	secondary	*	*	*	*	*	*	*	*	*	*	*	
CET 3101	Electronic systems simulators	secondary	*	*	*	*	*	*	*	*	*	*	*	
CET 3102	Engineering analysis	secondary	*	*	*	*	*	*	*	*	*	*	*	
CET 3103	Fundamentals of control engineering	Specialized	*	*	*	*	*	*	*	*	*	*	*	
CET 3104	Electronic capacity	Specialized	*	*	*	*	*	*	*	*	*	*	*	
CET 3105	Design of real time systems	Specialized	*	*	*	*	*	*	*	*	*	*	*	
CET 3106	Digital signal processing	Specialized	*	*	*	*	*	*	*	*	*	*	*	
CET 3107	Digital controllers	Specialized	*	*	*	*	*	*	*	*	*	*	*	

CET 3108	Optional topic	Specialized	*	*	*	*	*	*	*	*	*	*	*	
CET 3109	summer training	Interpolation	*	*	*	*	*	*	*	*	*	*	*	
CET 3110	English	secondary	*	*	*	*	*	*	*	*	*	*	*	
CET 4101	Intelligent systems modeling	secondary	*	*	*	*	*	*	*	*	*	*	*	
CET 4102	Advanced computer technology	Specialized	*	*	*	*	*	*	*	*	*	*	*	
CET 4103	Design of computer adaptation circuits	Specialized	*	*	*	*	*	*	*	*	*	*	*	
CET 4104	Advanced digital electronics	Specialized	*	*	*	*	*	*	*	*	*	*	*	
CET 4105	project management	secondary	*	*	*	*	*	*	*	*	*	*	*	
CET 4106	computer networks	secondary	*	*	*	*	*	*	*	*	*	*	*	
CET 4107	Optional topic	Specialized	*	*	*	*	*	*	*	*	*	*	*	
CET 4108	graduation project	Specialized	*	*	*	*	*	*	*	*	*	*	*	

CET 4109	English	Specialized	*	*	*	*	*	*	*	*	*	*	*	
CET 41010	Professional ethics	Specialized	*	*	*	*	*	*	*	*	*	*	*	

• Please tick the boxes corresponding to the individual program learning outcomes under evaluation.

Course Description Second stage 2024

Course Description

Computer Applications

Course Description Form

1. Course Name:

Computer Applications

2. Course Code:

CET 2101

3. Semester / Year

(1 semester , 2024 Year)

4. Description Preparation Date:

1 / 4 / 2024

5. Available Attendance Forms:

Weekly attendance

6. Number of Credit Hours (Total) / Number of Units (Total)

120-2 units

7. Course administrator's name (mention all, if more than one name)

Name: lecturer. Osama basil gazi Email: osama87@mauc.edu.iq

8. Course Objectives

Course Objectives

As illustrated below .

General goal //

- 1. Understanding the fundamental concepts of MATLAB programming language environment.
- 2. The students will understand and learn how to use MATLAB as an effective programming language.
- 3. The students will be able to solve different mathematical and engineering problems as well as using plotting functions and design projects using codes or GUI.
- 4. Students will acquire the knowledge of basic MATLAB syntax such as: variables, input, output, vectors, matrices, functions, plotting, and GUI,
- 5. The students will gain the necessary skills to design and implements appropriate algorithms that solve problems dealing with different mathematical and engineering applications.

Special (Behavioral) goals //

Behavioral goals //

- 1. Understand the MATLAB environments and windows (Command Window, Workspace Window, Command History window, Help Window, Editor Window).
- 2. The students learn how to write first program and learn Expressions, Constants, Entering Matrices, Useful Matrix Generators, Subscripting, End as a subscript, Colon Operator, Transpose Deleting Rows or Columns.
- 3. Explain how to use variables and assignment statement, logical operator.
- 4. Practice on using Arrays, Built in functions, Basic Matrix Functions(sum, max, min, mean, magic, diag, length, size, median, prod, sort).
- 5. Learn how to perform basic Plotting (Multiple Data Sets in One Graph, Specifying Line Styles and Colors, Multiple Plots in One Figure, Setting Axis Limits).

9. Teaching and Learning Strategies

Strategy The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students. Moreover, motivate the creative side by posing various problems to students and urging them to find appropriate solutions.

Also forming work teams to assess the results of their work and change their structure periodically to develop the spirit of cooperation and development and motivate students to make intensive efforts to work different roles.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2theoretical - 2practical	Understand ing and assimilation	Introduction, MATLAB Environment, MATLAB Windows(Command Window, Workspace Window, Command History window, Help Window, Editor Window).	Combining different strategies	Oral and written Examination
2	2theoretical - 2practical	Understand ing and assimilation	A First Program, Expressions, Constants, Entering Matrices, Useful Matrix	Combining different strategies	Oral and written Examination

1

			Generators, Subscripting, End as a subscript, Colon Operator, Transpose Deleting Rows or Columns.		
3	2theoretical - 2practical	Understand ing and assimilation	Variables and assignment statement, logical operator.	Combining different strategies	Oral and written Examination
4	2theoretical - 2practical	Understand ing and assimilation	Arrays, Built in functions, Basic Matrix Functions (sum, max, min, mean, magic, diag, length, size, median, prod, sort).	Combining different strategies	Oral and written Examination
5	2theoretical - 2practical	Understand ing and assimilation	Basic Plotting (Multiple Data Sets in One Graph, Specifying Line Styles and Colors, Multiple Plots in One Figure, Setting Axis Limits).	Combining different strategies	Oral and written Examination
6	2theoretical - 2practical	Understand ing and assimilation	Arguments and return values, M-file, input- output statement,+ + Control Statements (Conditional statements: If, Else, Elseif, switch case)	Combining different strategies	Oral and written Examination
7	2theoretical - 2practical	Understand ing and assimilation	Mid-Exam	Combining different strategies	Oral and written Examination
8	2theoretical - 2practical	Understand ing and assimilation	Repetition statements: (While statement, For statement)	Combining different strategies	Oral and written Examination
9	2theoretical - 2practical	Understand ing and assimilation	Combination of conditional and repetition statements I	Combining different strategies	Oral and written Examination
10	2theoretical - 2practical	Understand ing and assimilation	Combination of conditional and repetition statements II	Combining different strategies	Oral and written Examination
11	2theoretical - 2practical	Understand ing and	Procedures and Functions (a custom- made MATLAB	Combining different strategies	Oral and written Examination

		assimilation	function, define the name of the function, the input and the output variables, Calling Functions)		
12	2theoretical – 2practical	Understand ing and assimilation	Handle graphics and user interface. 1.pre- defined dialogs 2. Handle graphics a) Graphics	Combining different strategies	Oral and written Examination
13	2theoretical - 2practical	Understand ing and assimilation	GUI Interface (Attaching buttons to actions, Getting Input, Setting Output) I	Combining different strategies	Oral and written Examination
14	2theoretical - 2practical	Understand ing and assimilation	GUI Interface (Attaching buttons to actions, Getting Input, Setting Output) II	Combining different strategies	Oral and written Examination
15	2theoretical - 2practical	Understand ing and assimilation	Introduction, MATLAB Environment, MATLAB Windows (Command Window, Workspace Window, Command History window, Help Window, Editor Window).	Combining different strategies	Oral and written Examination
16	2theoretical - 2practical	Understand ing and assimilation	A First Program, Expressions, Constants, Entering Matrices, Useful Matrix Generators, Subscripting, End as a subscript, Colon Operator, Transpose Deleting Rows or Columns.	Combining different strategies	Oral and written Examination
17	2theoretical - 2practical	Understand ing and assimilation	Variables and assignment statement, logical operator.	Combining different strategies	Oral and written Examination
18	2theoretical - 2practical	Understand ing and assimilation	Arrays, Built in functions, Basic Matrix Functions (sum, max, min, mean, magic, diag, length, size, median, prod, sort).	Combining different strategies	Oral and written Examination
19	2theoretical - 2practical	Understand ing and	Basic Plotting (Multiple Data Sets in One Graph, Specifying Line	Combining different strategies	Oral and written Examination

		assimilation	Styles and Colors, Multiple Plots in One Figure, Setting Axis Limits).		
20	2theoretical - 2practical	Understand ing and assimilation	Arguments and return values, M-file, input- output statement	Combining different strategies	Oral and written Examination
21	2theoretical - 2practical	Understand ing and assimilation	Control Statements (Conditional statements: If, Else, Elseif, switch case)	Combining different strategies	Oral and written Examination
22	2theoretical - 2practical	Understand ing and assimilation	Repetition statements: (While statement, For statement)	Combining different strategies	Oral and written Examination
23	2theoretical - 2practical	Understand ing and assimilation	Combination of conditional and repetition statements I	Combining different strategies	Oral and written Examination
24	2theoretical - 2practical	Understand ing and assimilation	Combination of conditional and repetition statements II	Combining different strategies	Oral and written Examination
25	2theoretical - 2practical	Understand ing and assimilation	Procedures and Functions(a custom- made Matlab function, define the name of the function, the input and the output variables, Calling Functions)	Combining different strategies	Oral and written Examination
26	2theoretical - 2practical	Understand ing and assimilation	Handle graphics and user interface. 1.Pre- defined dialogs 2. Handle graphics a) Graphics objects b) Properties of objects c) Modifying properties of graphics objects	Combining different strategies	Oral and written Examination
27	2theoretical - 2practical	Understand ing and assimilation	GUI Interface (Attaching buttons to actions, Getting Input, Setting Output) I	Combining different strategies	Oral and written Examination
28	2theoretical - 2practical	Understand ing and assimilation	GUI Interface (Attaching buttons to actions, Getting Input, Setting Output) 2	Combining different strategies	Oral and written Examination

		Under	stand	GU	I Interfa	ce (Combining	different	
29	2theoretica	l ing a	ing and Attacl		Attaching buttons to		strateg	gies	Oral and written	
l	 2practica 		actions, Getting		s, Getting	g Inpu	ıt,			Examination
		assimi	ation	Setting Outpu		ut) 3		<u> </u>	11.00	
20	Otheoretica	Under	stand	stand				Combining	different	Oral and written
30		ing a	and	Preparat	tory week	befor	e	States	,105	
	- 2practica	assimi	lation	the mai	exam					Examination
11. (Course E	Evaluat	ion					L		
	<u></u>		(100			11		1	
Distric	outing the	score o	ut oi	100 ac	corain	g to	tne	tasks assi	gnea to	
the st	udent su	ch as d	laily	prepa	ration,	dai	ly (oral, mont	thly, or	
writte	written exams, reports etc.									
Daily P Ora	reparation I Exam	practical Exam	F	Report	Monthly E	xam	Final theoretical + Total practical exam		Total	
									100	
12.	Learning	and T	each	ning Re	esouro	ces				
Matlab	primer]	Nothing		
Introducti	on to MATLA	B for Engi	neers W	/illiam J. P	alm III					
INTROD	UCTION TO	MATLA	B FOI	R ENGIN	EERING	Rel	evan	t graduation	projects	
STUDEN	TS ,David Ho	ucque				for	com	puter Engine	ering	
						tech	nniqu	ues students,	scientific	
					jour	rnals	and periodic	als		
						rela	ted t	to the subject	,	
						Eng	Engineering Design reports.			
Electronic References, Websites				Browse the Google network						
·					using the desired subject key.					

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Course Description Guide Computer Programming (II)

Course Description Form

13. **Course Name: Computer Programming(II)** 14. **Course Code: CET 2105** 15. Semester / Year (First and second semester, second Year) 16. **Description Preparation Date:** / 4 / 2024 1 **Available Attendance Forms:** 17. Weekly attendance Number of Credit Hours (Total) / Number of 18. **Units (Total)** 120-2 units Course administrator's name (mention all, if 19. more than one name) Name: lecturer. Dr. ghada salim mohammed Email: aalkhalg23@gmail.com **Course Objectives** 20. As illustrated below . **Course Objectives** General goal // At the end of the course, the student will be able to use the C++ programming language to design and implement programs related to his specialty Special (Behavioral) goals // Behavioral goals // 1- At the end of the course, the student will be able to

	recognize th	ne most in	nnortant principles an	d basic nillars of]				
	object-orien	ted program	nportant principioe an						
	$\frac{\partial f}{\partial t} = \frac{\partial f}{\partial t} + \frac{\partial f}{\partial t}$	and of the	nining.	t will be able to					
	2- At the	end of the	e course, the studen	it will be able to					
distinguish between the tools used in object-oriented									
programming									
3- At the end of the course, the student will be able to									
	determine th	ne type of	problem and what to	ols are needed to					
:	solve the pro	oblem							
	4- At the e	nd of the c	ourse, the student will	be able to design					
	and impleme	ent program	is to solve the identified	d problems					
	5- At the er	nd of the co	ourse the student will	he able to analyze					
	the results o	t the progra	ams that are implement	led	-				
21.	21. Teaching and Learning Strategies								
 Strategy Brainstorming strategy Modeling learning strategy Group work or cooperative learning strategy Discussion strategy Project strategy A strategy for problem solving or problem-based learning 									
22.	Course S	Structure							
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method				
31	2theoretical - 2practical - 2similation		C++ Review (Program structure, namespace, identifiers, variables, constants, enum, operators).	Combining different strategies	Oral and written Examination				
32	32 2theoretical - 2practical assimilation		C++ Review (type castings, control structures and functions).	Combining different strategies	Oral and written Examination				
33	33 2theoretical - 2practical - 2practical assimilatio understan ing and assimilatio		Introduction to Object-Oriented Programming in C++.	Combining different strategies	Oral and written Examination				

		· · · · · · · · · · · · · · · · · · ·		1	I
	Otheoretical	Understand	Objects and Classes (Basics of	Combining different	Oral and written
34		ing and	objects and classes in C++	suatgits	
	- <i>zpractical</i>	assimilation			Examination
		Understand		Combining different	
35	2theoretical	ing and	private and public members,	strategies	Oral and written
	 2practical 	assimilation			Examination
		Understand		Combining different	
36	2theoretical	ing and	static data and function members,	strategies	Oral and written
	 2practical 	assimilation			Examination
		Understand		Combining different	
37	2theoretical	ing and	constructors and their types,	strategies	Oral and written
	 2practical 	assimilation			Examination
		Understand		Combining different	
38	2theoretical	ing and	destructors and operator	strategies	Oral and written
	- 2practical	assimilation	overloading		Examination
		Understand		Combining different	
39	2theoretical	ing and	Inheritance (Concepts of	strategies	Oral and written
	 2practical 	assimilation	Inheritance)		Examination
		Understand	types of inheritance: single.	Combining different	
40	2theoretical - 2practical	ing and	multiple, multilevel, hierarchical, hybrid, protected	strategies	Oral and written
		assimilation	members, overriding, virtual base class)		Examination
		Understand	6, ,	Combining different	
41	2theoretical	ing and	types of inheritance: single, multiple	strategies	Oral and written
	 2practical 	assimilation			Examination
		Understand		Combining different	
42	2theoretical	ing and	types of inheritance multilevel,	strategies	Oral and written
	- 2practical	assimilation			Examination
		Understand		Combining different	
43	2theoretical	ing and	types of inheritance hierarchical, hybrid	strategies	Oral and written
	- 2practical				Examination
		doorntard		Combining different	
44	2theoretical		types of inheritance:	strategies	Oral and written
	- 2practical	ing and	protected members, overriding, virtual base class).		Examination
		assimilation		Combining different	
45	2theoretical	Understand		strategies	Oral and written
	- 2practical	ing and	Polymorphism	_	Examination
		assimilation			

		1			T
10	2theoretical	Understand		Combining different	Oral and written
46		ing and	Pointers in C++, Pointes and Objects	suaceros	Examination
	- ∠practical	assimilation	· ·		
		Understand		Combining different	
47	2theoretical	ing and	this pointer	strategies	Oral and written
	- 2practical	assimilation			Examination
		Understand		Combining different	
48	2theoretical	ing and	virtual and pure virtual functions	strategies	Oral and written
	 2practical 	assimilation			Examination
		Understand		Combining different	
49	2theoretical	ing and	Implementing polymorphism	strategies	Oral and written
	 2practical 	assimilation			Examination
		Understand	I/O and File management	Combining different	
50	2theoretical - 2practical	ing and	(Concepts of streams, cin and cout objects C++ stream classes	strategies	Oral and written
- 2		assimilation).		Examination
		Understand	U.S	Combining different	
51	2theoretical	ing and	manipulators,	strategies	Oral and written
	 2practical 	assimilation			Examination
		Understand	E'l	Combining different	
52	2theoretical - 2practical	ing and	C++ File stream classes,	strategies	Oral and written
		assimilation			Examination
		Understand		Combining different	
53	2theoretical	ing and	File management functions,	strategies	Oral and written
	 2practical 	assimilation	File modes		Examination
		Understand		Combining different	
54	2theoretical	ing and	Binary and random files	strategies	Oral and written
	- 2practical	assimilation	-		Examination
		Understand		Combining different	
55	2theoretical	ing and	Templates	strategies	Oral and written
	 2practical 	assimilation	-		Examination
		Understand		Combining different	
56	2theoretical	ing and	, Exceptions and STL (What is	strategies	Oral and written
	- 2practical	assimilation	template?		Examination
		Understand		Combining different	
57	2theoretical	ing and	function templates and class	strategies	Oral and written
	- 2practical	assimilation	templates		Examination
		assimilation			

58	2theoretica - 2practica	al Understand ing and al assimilation	Understand Introduction to exception ing and try-catch-throw, multiple ca assimilation exceptions,			tion, e catch, defined	Combining strateg	different ;ies	Oral and written Examination
59	2theoretica - 2practica	al Understand ing and assimilation	Understand ing and assimilation		tion, e catch, defined	Combining different strategies		Oral and written Examination	
60	2theoretica - 2practica	al Understand ing and assimilation	Overview and use of Standard Template Library).			l use of .ibrary).	Combining different strategies		Oral and written Examination
23. (Course I	Evaluation							
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc.									
Daily Pi Oral	reparation Exam	practical Exar	m Report Monthly Exa		lonthly Exam	Final theoretica I + practical exam	Total		
	5	20		5		20	50	100	
24. 1	Learning	and Teach	ning	Resou	iro	ces		I	•
Require	ed textboo	oks (curricular	bool	ks, if an	у)	N	othing		
Main re	eferences	(sources)				"Object-O in C++", Lafore, Sa	riented Pro 4 th Edition, ms Publishing	gramming Robert	
Recommended books and references (scientific journals, reports)			Relevant graduation projects for computer Engineering techniques students, scientific journals and periodicals related to the subject, Engineering Design reports.						
Electro	nic Refere	ences, Websit	es			Browse the using the	he Google n desired sub	etwork ject key.	

Course Description

Computer Interface Circuits Design

Course Description Form

1. Course Name:

Computer Interface Circuits Design

2. Course Code:

CET 2103

3. Semester / Year

 $(2, 2^{nd} \text{Year})$

4. Description Preparation Date:

1/4/2024

5. Available Attendance Forms:

Weekly attendance

6. Number of Credit Hours (Total) / Number of Units (Total)

150 (60 theoretical+90 Practical) - 7 units

7. Course administrator's name (mention all, if more than one name)

Name: lecturer. Dr. khudhaier. j. kazim Email: khudhair.j.kazim@Gmail.com

8. Course Objectives

Course Objectives

General goal // At the end of the course, the student will be able to employ knowledge of the major components and know the basic parts of the electronic calculator, the CPU and components in the electronic parts, and the main types of memory used in the computer to possession of a scientific and practical skill of being able to diagnose faults and perform maintenance and repairs to the system calculator

Special (Behavioral) goals //

Behavioral goals //

1- At the end of the course, the student will be able to recognize the different stages of the development of electronic computer, how data is represented inside the computers and knowledge of the processor of the type 8086.

2- At the end of the course, the student will be able to distinguish the different types of electronic computers and their major parts.

3- At the end of the course, the student will be able to determine the structural core CPU and the structural core of the memory and the various classifications of memory from the main memory and secondary memory.

4- At the end of the course, the student will be able to diagnose faults in the electronic computers.

5- At the end of the course, the student will be able to to program processor 8086.

9. Teaching and Learning Strategies

Strategy • Brainstorming strategy

- Modeling learning strategy
- Group work or cooperative learning strategy
- Discussion strategy
- Project strategy
- A strategy for problem solving or problem-based learning
- Combining different strategies

10. Course Structure							
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method		
1,2	2theoretical - 3practical	Identify the main parts of the computer	General architecture of digital computer, review of 8085 p	Combining different strategies	Oral and written Examination		
3,4	2theoretical - 3practical	Knowledge of the main principles of Von neuman	8085 memory addressing	Combining different strategies	Oral and written Examination		
5,6	2theoretical - 3practical	Understanding methods of data representation within the electronic computer	8085 1/0addressing	Combining different strategies	Oral and written Examination		
7,8	2theoretical - 3practical	Knowledge of different types of input, output in the computer	8085 machine cycle & bus timing	Combining different strategies	Oral and written Examination		
9	2theoretical - 3practical	Identify the various memory types in the computer	8085 Interrupt Types	Combining different strategies	Oral and written Examination		
10	2theoretical - 3practical	Understanding the main components of 8086 MP	Introduction to 8086 p	Combining different strategies	Oral and written Examination		
11,12	2theoretical - 3practical	Understanding the main components of 8086 MP	Software Architecture, BIU, EU, registers, pipeline	Combining different strategies	Oral and written Examination		

		Γ	Γ		
	2theoretical	Understanding the	Memory segmentation,	Combining different strategies	Oral and
13	 3practical 	and output devices	generating memory	different sualegies	written
		inside the computer	address		Examination
	2theoretical		Hardware	Combining	
	 3practical 		organization 8086	different strategies	Oral and
14		Identify the Buses that	organization (written
		used in computer	aligned and		Examination
			Misaligned word,		
			Pin configuration	Combining	Oral and
15 16	2theoretical	Understanding the main	min & max mode, 8288	different strategies	written
15,10	 3practical 	MP	bus controller, 8284		Examination
			system clock	Combining	
17 18	2theoretical	Understanding and	Addressing mode,	different strategies	written
- 3practical		Addressing mode	coding		Examination
		-		Combining	
19,20,	2theoretical	Knowledge of types of	8086 instructions set	different strategies	
21,22,	 3practical 	8086 MP	(Data transfer LOOP instructions)		Examination
23				Combining	
24	2theoretical	Knowledge of types of	Stack memory, POP &	different strategies	
24	 3practical 	8086 MP	PUSH instructions		Framination
				Combining	Examination
25	2theoretical	Understanding and	Memory read & write	different strategies	
25	 3practical 	assimilation	Bus Cycles, Idle & wait state		written
			Momory Interface	Combining	
		Understanding and	Circuits, bus	different strategies	Oral and
26,27	2theoretical	assimilation	transceivers, Bank Write	_	written
	 – 3practical 	Memory	Logic, memory		Examination
		-	expansion	<u> </u>	
		Understanding and	1/0 Interface Circuits (isolated input/output &	Combining different strategies	Oral and
28.29	2theoretical	assimilation	Memory input/output,		written
20,27	 3practical 	Interface Circuits	1/0 instructions, Input/Output Bus		Examination
		1.0	Cycles)		
	2theoretical	Understanding of		Combining	Oral and
30		different programs for	8086 Interrupt Types	unierent strategies	written
	- spractical	8086 MP			Examination

11. Course Evaluation							
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc.							
Daily Preparation practical Oral Exam Exam Monthly Exam Final theoretical + practical exam							

5	20	5	20	50	100		
12. Learning	12. Learning and Teaching Resources						
Required textbo	oks (curr	icular books	Not	hing			
any)							
Main references	(sources	;)	Digital Fundamental by Floyed				
Recommended	bool	ks and	Ramesh S.	Goankar, "Mie	croprocessor		
references (s	scientific	journals,	Architecture, Programming and Applications				
reports)			with 8085'	", 5thEdition, P	rentice Hall		
Electronic Refere	ences, W	ebsites					

Course Description

Instrumentation & Measurements

Course Description Form

25. Course Name: Instru	25. Course Name: Instrumentation & Measurements				
26 Course Codo: CET	2104				
20. Course code: CET	2104				
27. Semester / Year					
(semester , - Yearly Program Year)					
28. Description Preparation Date:					
1 / 4 / 2024					
29. Available Attendance Forms:					
Weekly attendance					
30. Number of Credit Hours (Total) / Number of Units (Total)					
120-2 units					
31. Course administrator's name (mention all, if					
Name: lecturer. REYAM MUTHANA					
Email:					
reyam.m.sabree@mauc.edu.iq					
32. Course Objectives					
Course Objectives	As illustrated below .				
General goal // At the end of the course, the student will be					
able to recognize knowledge and measurement units for electrical engineering physical quantit					
Special (Behavioral) goals //					
Behavioral goals //					
1- At the end of the course, the student will be able to					

					_
re	ecognize kn	owledge and me	asurement units for electrical en	gineering physical quantit	
2	2– At the	end of the	e course, the studen	it will be able to	
d	listinguish k	nowledge of mea	asurement devices for basic elec	trical transactions	
3	- At the	end of the	e course, the studen	t will be able to	
d	letermine . k	nowledge of the	special electronic measurement	devices	
4	- At the e	nd of the co	ourse, the student will	be and understanding of	
ho	ow to work osci	lloscope and sen	sors of various physical quantiti	es able to	
5	5- At the er	nd of the co	urse, the student will b	e able to analyze .	
kı	now and underst	tand how the diff	ferent devices generate electrica	l signal	
33.	Teac	hing and L	earning Strategies		
34. C Week	• Mot • Gro • Dis • Pro • A st learn • Cor Course S	vup work or cussion stra ject strateg trategy for j ing nbining diff tructure Required Learning Outcomes	Cooperative learning ategy gy problem solving or pr ferent strategies Unit or subject name	strategy oblem-based	Evaluation method
61	2theoretical - 2practical	Understand ing and assimilation	Introduction To Measurements Quantities And Instruments.	Combining different strategies	Oral and written Examination
62	2theoretical - 2practical	Understand ing and assimilation	Introduction To Measurements Quantities And Instruments.	Combining different strategies	Oral and written Examination
63	2theoretical - 2practical	Understand ing and	Introduction To Measurements Quantities And	Combining different strategies	Oral and written Examination
		assimilation	Instruments.		
		1 1			T
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65	2theoretical	Understand	Electromechanic al	Combining different	Oral and writton
65		ing and	Indicating Instruments	suuceros	Examination
		assimilation			
		Understand	Electromechanic al	Combining different	
66	2theoretical	ing and	Indicating Instruments	strategies	Oral and written
	- 2practical	assimilation			Examination
		Understand	Electromechanic al	Combining different	
67	2theoretical	ing and	Indicating Instruments	strategies	Oral and written
	- 2practical	assimilation			Examination
		Understand	Electromechanic al	Combining different	
68	2theoretical	ing and	Indicating Instruments	strategies	Oral and written
	- 2practical	assimilation			Examination
	Othermethy	Understand		Combining different	
69	2theoretical	ing and	Bridges And Their	strategies	Oral and written
	- 2practical	assimilation	Applications		Examination
	Othe exetical	Understand		Combining different	
70	2theoretical	ing and	Bridges And Their	strategies	Oral and written
	- 2practical	assimilation	Applications		Examination
	Otheoretical	Understand		Combining different	
71		ing and	Bridges And Their	strategies	Oral and written
	- <i>2</i> practical	assimilation	Applications		Examination
	Otheoretical	Understand		Combining different	
72		ing and	Bridges And Their	strategies	Oral and written
	- 2practical	assimilation	Applications		Examination
	Othernetical	Understand		Combining different	
73	Zmeoretical	ing and	Oscilloscopes	strategies	Oral and written
	- 2practical	assimilation			Examination
	Otheoretics	Understand		Combining different	
74		ing and	Oscilloscopes	strategies	Oral and written
	- 2practical	assimilation	-		
	Otheoretical	Understand		Combining different	
75		ing and	Oscilloscopes	strategies	Oral and written
	- 2practical	assimilation			Examination
	Otheoretical	Understand		Combining different	
76	2theoretical	ing and	Oscilloscopes	strategies	Oral and written
	- 2practical	assimilation	-		
L	1	1			1

					1
	Otheoretical	Understand		Combining different	Oral and written
11		ing and	Signal Generation	strategies	
	- 2practical	assimilation			Examination
		Understand		Combining different	
78	2theoretical	ing and	Signal Generation	strategies	Oral and written
	 2practical 	assimilation	C		Examination
		Understand		Combining different	
79	2theoretical	ing and	Signal Generation	strategies	Oral and written
	- 2practical	assimilation	C		Examination
		Understand		Combining different	
80	2theoretical	ing and	Signal Generation	strategies	Oral and written
	 2practical 	assimilation	C		Examination
		Understand		Combining different	
81	2theoretical	ing and	Primary Sensing	strategies	Oral and written
	- 2practical	assimilation	Element		Examination
		Understand		Combining different	
82	2theoretical	ing and	Primary Sensing	strategies	Oral and written
	- 2practical	assimilation	Element		Examination
		Understand		Combining different	
83	2theoretical	ing and	Primary Sensing	strategies	Oral and written
	- 2practical	assimilation	Element		Examination
		Understand	Analogue And Digital	Combining different	
84	2theoretical	ing and	Data Acquisition	strategies	Oral and written
	- 2practical	assimilation	System.		Examination
		Understand	Analogue And Digital	Combining different	
85	2theoretical	ing and	Data Acquisition	strategies	Oral and written
	- 2practical	assimilation	System.		Examination
		Understand	Analogue And Digital	Combining different	
86	2theoretical	ing and	Data Acquisition	strategies	Oral and written
	- 2practical	assimilation	System.		Examination
		Understand	Analogue And Digital	Combining different	
87	2theoretical	ing and	Data Acquisition	strategies	Oral and written
	- 2practical	assimilation	System.		Examination
		Understand	Analogue And Digital	Combining different	
88	2theoretical	ing and	Data Acquisition	strategies	Oral and written
	- 2practical	assimilation	System.		Examination

89	2theoretica - 2practica	Understand ing and assimilation	Compu Te	ter – Cor est Syster ter – Cor	ntrolled m.	Combining strates Combining	different gies different	Oral and written Examination
90	2theoretica - 2practica	l ing and l assimilation	Te	est Syster	m.	strates	gies	Oral and written Examination
35. (Course E	Evaluation						
Distrib	outing the	score out o	of 100 ac	cordin	g to the	e tasks assi	gned to	
the st	udent su	ch as daily	y prepa	ration,	daily	oral, mon	thly, or	
Daily P	reparation	practical	.L.	Manthly Fr	F	inal theoretical +	Total	
Ora	I Exam	Exam	10		kam	practical exam	100	
26		and Teac	hing P		205	50	100	
30.1	Leanning	and redu		5001(.53			
Requir			ar dooks,	n any)	"T Helfrid	Modern ele instrume and mea techn Cooper D ck	ctronic ntation asuring iques", 0 & A D	
Main re	eferences	(sources)			1. "E Ins S. 1	lectronic strumentat Kalsi	ion", H.	
					2. "E Ins an	lectronic strumentat d"Electron	ion lic	
					Ins S. 1 "Elect	strumentat Kalsi t ronic	ion", H.	
					Instru	imentation	and	
Recom	mended	books ar	nd refe	rences	for con	nputer Engine	ering	
(scienti	ific journals	s, reports)		techniq	ues students,	scientific	
					journal	s and periodic	cals	
					related Engine	to the subject ering Design	, reports	
Electro	nic Refere	nces. Webs	ites		Browse	the Google 1	network	
		·, · · · · · ·			using th	ne desired sub	oject key.	

Course Description Communications Fundamentals

Course I	Description Fo	orm					
37.	Course Name	: Communic	ations Fundamentals]		
38.	Course Code:	CET 2016					
39. 9	Semester / Ye	ar					
Yearly I	Program						
40.	Description P	reparation D	late:				
1 / 4	·/ 2024 Availabla Att	ondonco For	m .c.				
41. /	Weekly attend	dance					
42	Number of Cu	redit Hours (Total) / Number of Units	(Total)			
	1	50 (3 theoreti	cal+2 Practical)	(1000)			
43. (Course admini	strator's name	e (mention all, if more than	one name)			
Name: 1	ecturer. REYA	AM MUTHA	NA	/			
Email: r	eyam.m.sabre	e@mauc.edu	iq				
44. (Course Object	ives					
Course	Objectives		As	s illustrated below .	-		
Genera	l goal // The p	urpose of this	course is to teach the stud	ent the basic topics of			
the basi	cs of commun	ication used in	n the transmission of data a	and information			
transmit	ted electricall	У					
Special	(Debassianel)	goolg //					
Special	(Denavioral go	guals //					
	I - At the end of	of the course	the student will be able to	recognize			
	2- At the end of	of the course,	the student will be able to	distinguish			
	3- At the end of	of the course,	the student will be able to	determine			
4	4- At the end o	of the course,	the student will be able to				
4	5- At the end o	of the course,	the student will be able to	analyze			
45.7	Feaching and I	Learning Stra	tegies				
Strateg	y • Brain	nstorming stra	ategy				
	• Mod	eling learning	g strategy				
	• Grou	ip work or co	operative learning strategy				
	• Disc	ussion strateg	У				
	• Proje	ect strategy	hlam calving an mahlam h	and laaming			
	• A su	bining different	ont strategies	aseu learning			
46. Co	urse Structu	re					
		Required					
Week	Hours	Learning Outcomes	Unit or subject name	Learning method	Evaluation method		
		Understor	Introduction to	Combining different			
01	2theoretica	ding and	Communications	strategies	Oral and		
71	1 -	assimilatio	fundamentals: Basic		written		
	2practical	n	elements of		Examination		
		n communication system,					

			S		
92	2theoretica l - 2practical	Understan ding and assimilatio n	Introduction to Communications fundamentals: Basic elements of communication system, s	Combining different strategies	Oral and written Examination
93	2theoretica l - 2practical	Understan ding and assimilatio n	Introduction to Communications fundamentals: Basic elements of communication system, s	Combining different strategies	Oral and written Examination
94	2theoretica l - 2practical	Understan ding and assimilatio n	Fourier Series	Combining different strategies	Oral and written Examination
95	2theoretica l - 2practical	Understan ding and assimilatio n	Fourier Series	Combining different strategies	Oral and written Examination
96	2theoretica l - 2practical	Understan ding and assimilatio n	Fourier Series	Combining different strategies	Oral and written Examination
97	2theoretica l - 2practical	Understan ding and assimilatio n	Fourier Series	Combining different strategies	Oral and written Examination
98	2theoretica l - 2practical	Understan ding and assimilatio n	Fourier Transform	Combining different strategies	Oral and written Examination
99	2theoretica l - 2practical	Understan ding and assimilatio n	Fourier Transform	Combining different strategies	Oral and written Examination
100	2theoretica l - 2practical	Understan ding and assimilatio n	Fourier Transform	Combining different strategies	Oral and written Examination
101	2theoretica 1 - 2practical	Understan ding and assimilatio n	Modulation: Amplitude Modulation frequency Modulation	Combining different strategies	Oral and written Examination

			Modulation	Combining different	
102	2theoretica 1 - 2practical	Understan ding and assimilatio n	Amplitude Modulation frequency Modulation	strategies	Oral and written Examination
103	2theoretica 1 - 2practical	Understan ding and assimilatio n	Modulation: Amplitude Modulation frequency Modulation	Combining different strategies	Oral and written Examination
104	2theoretica 1 - 2practical	Understan ding and assimilatio n	Sampling	Combining different strategies	Oral and written Examination
105	2theoretica l - 2practical	Understan ding and assimilatio n	Sampling	Combining different strategies	Oral and written Examination
106	2theoretica 1 - 2practical	Understan ding and assimilatio n	Pulse Amplitude Modulation	Combining different strategies	Oral and written Examination
107	2theoretica 1 - 2practical	Understan ding and assimilatio n	Pulse Amplitude Modulation	Combining different strategies	Oral and written Examination
108	2theoretica 1 - 2practical	Understan ding and assimilatio n	Pulse Amplitude Modulation	Combining different strategies	Oral and written Examination
109	2theoretica 1 - 2practical	Understan ding and assimilatio n	Pulse Width Modulation, Pulse Position Modulation	Combining different strategies	Oral and written Examination
110	2theoretica 1 - 2practical	Understan ding and assimilatio n	Pulse Width Modulation, Pulse Position Modulation	Combining different strategies	Oral and written Examination
111	2theoretica l - 2practical	Understan ding and assimilatio n	Digital modulation	Combining different strategies	Oral and written Examination
112	2theoretica 1 - 2practical	Understan ding and assimilatio	Digital modulation	Combining different strategies	Oral and written Examination

	[-								
113	2theoretic 1 - 2practica	n Under ding assimi	rstan and ilatio	Digit	al modul	atior	1	Combining strateg	different gies	Oral and written Examination
114	2theoretic 1 - 2practica	Under ding assimi	Understan ding and assimilatio		Filters			Combining strateg	different ries	Oral and written Examination
115	2theoretic 1 - 2practica	under ding assimi n	rstan and ilatio		Filters			Combining strateg	different gies	Oral and written Examination
116	2theoretic 1 - 2practica	under ding assimi n	rstan and ilatio		Filters			Combining strateg	different gies	Oral and written Examination
117	2theoretic 1 - 2practica	under ding assimi n	Understan ding and assimilatio		different gies	Oral and written Examination				
118	2theoretic 1 - 2practica	under ding assimi n	Understan ding and assimilatio		Transmission lines			Combining strateg	different gies	Oral and written Examination
119	2theoretic 1 - 2practica	under ding assimi	rstan and ilatio	Transmission lines		5	Combining strateg	different gies	Oral and written Examination	
120	2theoretic 1 - 2practica	under ding assimi n	rstan and ilatio	Tran	smission	lines	5	Combining strateg	different gies	Oral and written Examination
47. Co	ourse Evalu	ation								
Distribu	ting the sco	re out of	100 ac	cording	to the tas	ks as	ssign	ied to the stud	dent such	
				iuny, of		vanns	, rep	Final		
D Prepa Oral	Daily practic Preparation al Re Oral Exam Exam		eport	Month Exan	ıly n	th]	eoretical + practical exam	Total		
								100		
48. Le	48. Learning and Teaching Resources									
Main ret	Kequirea textbooks (curricular books, if any) Nothing Main references (sources)									
Recomn	Main references (sources) Recommended books and references (scientific journals, reports) Relevant graduation projects for computer Engineering techniques students, scientific journals and periodicals									

	related to the subject,
	Engineering Design reports.
Electronic References, Websites	Browse the Google network
	using the desired subject key.

Course Description:

Electronics

13. Co	ourse Name				
	Electr	onics			
14. Co	ourse Code				
	CET 2	2107			
15. Se	emester / Year				
	(1 & 2 semeste	ers , 2nd Year)			
16. Do	escription Prepara	tion Date:			
	1 / 4 /	2024			
17. Av	vailable Attendance	Forms:			
	Weekly	y attendance			
18. Nu	umber of Credit Hou	urs (Total) / Number of Units			
(Total)					
	120 h	rs. / 6 units			
19. C	ourse administrator'	s name (mention all, if more			
than on	e name)				
	Name: Lecturer.	Saad Taha Yaseen			
	Email: saad.t.yas	sin@mauc.edu.iq			
20. Co	ourse Objectives				
Course Obje	ctives As	s illustrated below			
General goal The course aim fundamental in computer engi Special (Beh	// ns to provide students on formation on the core neering. avioral) goals //	of the second year with concepts of electronics in			
Behavior	al goals //				
1- At the	end of the course, the s	student will be able to recognize			
 1- At the end of the course, the student will be able to recognize the purpose of electronic components and discriminate between their features. 2- At the end of the course, the student will be able to design the AC to DC rectifier; Single and three phase. 3- At the end of the course, the student will be able to design & analyze diode circuits. 4- At the end of the course, the student will be able to design, 					

6	analyz	ze, and	l troublesh	oot transistor circuits	(BJT & FET)	
5- At the end of the course, the student will be able to build.						
(opera	te, and	d analyze P	C Boards with 741 on	erational amplifier.	
21.	opera	Teac	hing and	Learning Strategie	s	
21.Teaching and Learning StrategiesStrategy• Brainstorming strategy • Modeling learning strategy • Group work or cooperative learning strategy • Discussion strategy • Project strategy • A strategy for problem solving or problem-based learning • Combining different strategies						
22. C	ourse	e Stru	icture			
Week	Но	urs	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
121	2 theo / 2 pr	oretical actical	Understand ing and assimilation	Introduction to the semiconductor materials	Combining different strategies	Oral and written Examination
122	2 theo / 2 pr	oretical actical	Understand ing and assimilation	Introduction to the semiconductor materials	Combining different strategies	Oral and written Examination
123	2 theo / 2 pr	oretical actical	Understand ing and assimilation	Diode characteristics	Combining different strategies	Oral and written Examination
124	2 theo / 2 pr	oretical actical	Understand ing and assimilation	Diode characteristics	Combining different strategies	Oral and written Examination
125	2 theoretical / 2 practical / 3 practical		Understand ing and assimilation	Diode application in DC	Combining different strategies	Oral and written Examination
126	2 theo / 2 pr	oretical actical	Understand ing and assimilation	Diode application in DC	Combining different strategies	Oral and written Examination
127	2 theo / 2 pr	oretical actical	Understand ing and assimilation	Diode application in AC	Combining different strategies	Oral and written Examination

[r	[
100	2 theoretical	Understand	Zener diode	Combining different strategies	Oral and
128	/ 2 practical	ing and	characteristics and	strategies	written
	/2 practical	assimilation	applications		Examination
	0 the eratical	Understand	Zener diode	Combining different	Oral and
129		ing and	characteristics and	strategies	written
	2 practical	assimilation	applications		Examination
		Understand	Zener diode	Combining different	Oral and
130	2 theoretical	ing and	characteristics and	strategies	written
	/ 2 practical	assimilation	applications		Examination
		Understand	BIT transistor	Combining different	Oral and
131	2 theoretical	ing and	characteristic and	strategies	written
	/ 2 practical	assimilation	configuration		Examination
	• 41	Understand	BIT transistor	Combining different	Oral and
132	2 theoretical	ing and	characteristic and	strategies	written
	/ 2 practical	assimilation	configuration		Examination
		Understand	BIT transistor	Combining different	Oral and
133	2 theoretical	ing and	characteristic and	strategies	written
	/ 2 practical	assimilation	configuration		Examination
	2.11	Understand		Combining different	Oral and
134	2 theoretical	ing and	methods of BJT DC	strategies	written
	2 practical	assimilation	anarysis		Examination
		Understand		Combining different	Oral and
135	2 theoretical	ing and	methods of BJT DC	strategies	written
	/ 2 practical	assimilation	analysis		Examination
	0.11	Understand		Combining different	Oral and
136	2 theoretical	ing and	methods of BJT DC	strategies	written
	/ 2 practical	assimilation	analysis		Examination
	• 41	Understand		Combining different	Oral and
137	2 theoretical	ing and	methods of BJT DC	strategies	written
	/ 2 practical	assimilation	analysis		Examination
		Understand	Transistor modeling	Combining different	Oral and
138	2 theoretical	ing and	and analysis of AC	strategies	written
	/ 2 practical	assimilation	models used		Examination
		Understand	Troppiston as shallows	Combining different	Oral and
139	2 theoretical	ing and	and analysis of AC	strategies	written
	/ 2 practical	assimilation	models used		Examination
		assimilation			

140	2 theoretical	Understand	Transistor modeling	Combining different strategies	Oral and		
	/ 2 practical	ing and	and analysis of AC		written		
	/ _ p	assimilation	models used		Examination		
	2 theoretical	Understand	Transistor modeling	Combining different	Oral and		
141		ing and	and analysis of AC	strategies	written		
	2 practical	assimilation	models used		Examination		
		Understand	FFT transistor	Combining different	Oral and		
142	2 theoretical	ing and	characteristics and	strategies	written		
	/ 2 practical	assimilation	applications		Examination		
		Understand		Combining different	Oral and		
143	2 theoretical	in a sud	FET transistor	strategies	Oral and		
	/ 2 practical	ing and	characteristics and		written		
	/	assimilation	applications		Examination		
1 4 4	2 theoretical	Understand	FET transistor	Combining different	Oral and		
144		ing and	characteristics and	strategies	written		
	/ 2 practical	assimilation	applications		Examination		
		Understand		Combining different	Oral and		
145	2 theoretical / 2 practical	ing and	Transistors frequency	strategies	written		
		assimilation	response		Examination		
				Combining different	Examination		
146	2 theoretical	Understand	Transistors frequency	strategies	Oral and		
110	/ 2 practical	ing and	response		written		
	/ _	assimilation	1		Examination		
–	2 theoretical	Understand		Combining different	Oral and		
147		ing and	Transistors frequency	strategies	written		
	2 practical	assimilation	response		Examination		
		Understand		Combining different	Oral and		
148	2 theoretical	ing and	Amplifiers types and	strategies	written		
	/ 2 practical		circuits		Examination		
		assimilation		Combining different			
140	2 theoretical	Understand	Amplifiers types and	strategies	Oral and		
149	/ 2 practical	ing and	applications Integrated		written		
		assimilation	circuits		Examination		
		Understand	Amplifiers types and	Combining different	Oral and		
150	2 theoretical	ing and	applications Integrated	strategies	written		
	/ 2 practical	assimilation	circuits		Examination		
22	Oureo Fy	aluation					
<u>L</u> J.	uting the a	aluativii	100 according to the	taalra agaignad ta tha			
otudor	Distributing the score out of 100 according to the tasks assigned to the						
studen	a such as	uany prep	aradon, dany oral, l	monuny, or written			
exams,	exams, reports etc.						

_

Daily Preparation Oral Exams	practical Exams	Report	Month Exam	ly s	Final theoretical + practical exam	Total
10	10	10	20		50	100
24. Learnin	g and T	eaching R	esourc	es		
Required textbo	oks (curri	cular books,	if any)	Ele	ectronic Device	s and Circui
	``		- /	Th	eory, by Boyles	stad.
Main references	(sources	s)			-	
Recommended	books	and refe	rences		-	
(scientific journa	ls, report	s)				
Electronic Refer	ences, W	/ebsites		htt	<u></u>	<u>deshare.n</u>
				<u>et</u>	<u>/shiwamisrie1</u>	<u>/electroni</u>
				<u>c-</u> <u>de</u> <u>the</u>	vicesandcircui edboylestadcha	<u>ttheory10</u> apter1

Course Description Third stage 2024

Course Description Electronic System Simulators

49. Course Name:	
Electronic System Simulators	
50. Course Code:	
CET3101	
51. Semester / Year	
Year	
52. Description Preparat	tion Date:
1 / 4 / 2024	
53. Available Attendance For	ms:
Weekly attendance	
54.Number of Credit Hours (Total)) / Number of Units (Total)
120-4 units	
55. Course administrator's na	ame (mention all, if more than one
name)	``````````````````````````````````````
Name: lecturer. Dr. Amer Kais Obaid	
Email: amerkais2010@yahoo.com	
56.Course Objectives	
Course Objectives	As illustrated below.
General goal //	•

At the end of the course, the student will be able to employ modeling, simulation, and related processes around computers and embedded systems, in addition to the practical tools used in the field of systems design.

Special (Behavioral) goals //

Behavioral goals //

1- At the end of the course, the student will be able to perform modeling and simulation processes to enhance computer electronic design processes and their applications.

2- At the end of the course, the student will be able to distinguish between the different types of modeling and simulation programs in terms of the advantages and disadvantages of each program scheme.

3- At the end of the course, the student will be able to apply simulation tools to enhance the analysis phase of the design process.

	4- At the en into a form numerical c	d of the course, nat suitable for ontrol techniques	the student will be able r production processe s.	to convert models s using computer	
57	7. Teac	hing and Learn	ing Strategies		
Stra	tegy	 Brainstorming Modeling learn Group work or Discussion stra Project strategy A strategy for p Combining diff 	strategy ing strategy cooperative learning st tegy roblem solving or prob ferent strategies	rategy olem-based learning	
58	Course Str	ucture			
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
15	2theoretical – 2practical	Understanding and assimilation	Logic design with MSI components and programmable logic devices	Combining different strategies	Oral and written Examination
15	2theoretical – 2practical	Understanding and assimilation	Comparators, Decoders, Encoders and Multiplexers	Combining different strategies	Oral and written Examination
15	2theoretical – 2practical	Understanding and assimilation	Programmable Logic Devices (PLDs)	Combining different strategies	Oral and written Examination
15	2theoretical – 2practical	Understanding and assimilation	Programmable Logic Arrays (PLAs)	Combining different strategies	Oral and written Examination
15	2theoretical – 2practical	Understanding and assimilation	Programmable Array Logic (PAL)	Combining different strategies	Oral and written Examination
15	2theoretical – 2practical	Understanding and assimilation	Synchronous Sequential Networks	Combining different strategies	Oral and written Examination
15	2theoretical – 2practical	Understanding and assimilation	Synchronous Sequential Networks	Combining different strategies	Oral and written Examination
15	2theoretical – 2practical	Understanding and assimilation	Structure and Operation of Clocked Synchronous Sequential Networks.	Combining different strategies	Oral and written Examination
15	2theoretical – 2practical	Understanding and assimilation	Analysis of Clocked Synchronous Sequential Networks.	Combining different strategies	Oral and written Examination
16	2theoretical – 2practical	Understanding and assimilation	Modeling Clocked Synchronous Sequential Network Behavior	Combining different strategies	Oral and written Examination
16	2theoretical – 2practical	Understanding and assimilation	Modeling Clocked Synchronous Sequential Network Behavior	Combining different strategies	Oral and written Examination

16	2theoretical -	Understanding and	State Table Reduction	Combining different strategies	Oral and written
16	2practical 2theoretical –	Understanding and	Exam -1	Combining different strategies	Oral and written
16	2theoretical – 2practical	Understanding and assimilation	Completing Design Of Clocked Synchronous Sequential Networks	Combining different strategies	Oral and written Examination
16	2theoretical – 2practical	Understanding and assimilation	Completing Design Of Clocked Synchronous Sequential Networks	Combining different strategies	Oral and written Examination
16	2theoretical – 2practical	Understanding and assimilation	The Algorithmic State Machine (ASM)	Combining different strategies	Oral and written Examination
16	2theoretical – 2practical	Understanding and assimilation	The Algorithmic State Machine (ASM)	Combining different strategies	Oral and written Examination
16	2theoretical – 2practical	Understanding and assimilation	The Algorithmic State Machine (ASM)	Combining different strategies	Oral and written Examination
16	2theoretical – 2practical	Understanding and assimilation	ASM Charts	Combining different strategies	Oral and written Examination
17	2theoretical – 2practical	Understanding and assimilation	ASM Charts	Combining different strategies	Oral and written Examination
17	2theoretical – 2practical	Understanding and assimilation	ASM Realizations	Combining different strategies	Oral and written Examination
17	2theoretical – 2practical	Understanding and assimilation	Asynchronous Sequential Networks	Combining different strategies	Oral and written Examination
17	2theoretical – 2practical	Understanding and assimilation	Exam-2	Combining different strategies	Oral and written Examination
17	2theoretical – 2practical	Understanding and assimilation	Structure and Operation of Asynchronous Sequential Networks	Combining different strategies	Oral and written Examination
17	2theoretical – 2practical	Understanding and assimilation	Structure and Operation of Asynchronous Sequential Networks	Combining different strategies	Oral and written Examination
17	2theoretical – 2practical	Understanding and assimilation	Analysis Of Asynchronous Sequential Networks	Combining different strategies	Oral and written Examination
17	2theoretical – 2practical	Understanding and assimilation	Analysis Of Asynchronous Sequential Networks	Combining different strategies	Oral and written Examination
17	2theoretical – 2practical	Understanding and assimilation	Reduction of Input-Restricted Flow Tables.	Combining different strategies	Oral and written Examination
17	2theoretical – 2practical	Understanding and assimilation	Reduction of Input-Restricted Flow Tables	Combining different strategies	Oral and written Examination

18	2theoretical -	Understandin	g and A Gener	al Procedure	e to Flow	Combining	different	Oral and written
	2practical	assimilatio	on	ible Reducti	on	strateg	ies	Examination
59 .	Course Ev	aluation						
Distri	ibuting the s	core out o	f 100 accord	ding to	the ta	sks assigned	d to the	
stude	ent such as da	aily prepar	ation, daily	oral, m	onthly	y, or written	exams,	
repor	rts etc.							
	Daily Preparation Oral Exam	practical Exam	Report	Monthly Ex	am	Final theoretical + practical exam	Total	
	10	10	10	20		50	100	
60 .	Learning a	and Teac	hing Reso	urces				
Requi	ired textbooks	s (curricula	r books, if ar	ny)		Nothing		
Main	references (so	ources)			Digital	Fundamental by	Floyed	
					Digital	_Circuit_Analysi ith Sim	s_and_De	
					ulink_I Steven	Modeling_2nd_E T. Karris	d by	
Recor	nmended boo	oks and re	ferences (sci	ientific	Releva	ant graduation	projects	
journa	als, reports)		[×]		for co	mputer Engine	ering	
5					techni	ques students,	scientific	
					journa	als and periodic	als	
					related	d to the subject	,	
D1	· D C	XX7 1 '			Engin	eering Design i	reports.	
Electr	conic Reference	ces, Websi	tes		Brows	se the Google n	etwork	
					using	me desned sub	jeet key.	

Engineering Analysis

61. Co	urse Name:
Engineering An	alysis
62. Co	urse Code:
3012	
63. Ser	nester / Year:
Yearly Program	
64. De	scription Preparation Date:
7/4/2024	
65.Available	Attendance Forms:
Weekly p	articipation
66.Number of	of Credit Hours (Total) / Number of Units (Total)
120 (60 tl	neoretical+60 Practical)- 6 units
67. Co	urse administrator's name (mention all, if more than one name)
Name: W	ala'a A. Mahdi
Email: wa	alaaa.mahdi@mauc.edu.iq
68. Co	urse Objectives
Course Objectives	 Aim to assist the student to understand the laws and mathematical issues for the purpose of solving engineering problems such as complex electrical and electronic circuits. Identify basic software used in facilitating the solution of complex sports issues Search the modern subjects and define problems that need depth scientific research
69. Tea	aching and Learning Strategies
Strategy	 B. Subject-specific skills B1 - Ability to analyze complex engineering problems B2.The ability to think about dealing with the problem according to certain rules B3 - The ability to implement methods of solving mathematical problems in a practical way to verify result B4 - Knowing the comparison between the theoretical side in solvi mathematical problems and the practical side Teaching and Learning Methods

• Readings, self-learning and discussion sessions that are
applied in the laboratory
 Classroom exercises and activities
• Guide students to some websites to benefit from them to
develop their capabilities.
• Holding research seminars to explain and analyze some
problems and find solutions to them
 Holding research seminars to explain and analyze some
problems and find solutions to them
Assessment methods
Assessment methods
• Participation in the classroom
• Semester and final exams (theoretical and practical) and
activities
• Quizzes
• Searching the Internet and writing relevant reports
. Thinking Skills
deliver them on time
C2. Logical and practical thinking to find solutions to problems in
a theoretical-mathematical style
C3. Develop the student's ability to dialogue and discussion
C4. Develop the student's ability to volunteer to participate in group
work
Teaching and Learning Methods
• Manage the lecture in a way that feels the importance of time
• Assigning the student some group activities and assignments
• Allocate a percentage of the grade for group activities
Assessment methods
• Active participation in the classroom is evidence of student
commitment and responsibility
• Commitment to the deadline specified in submitting the
assignments and research required of the student to submit
them
• The semester and final exams (theoretical and practical)
express commitment and cognitive and skill achievement
D General and Transferable Skills (other skills relevant to
employability and personal development)
D1. Develop the student's ability to deal with technical means
D2. Develop the student's ability to deal with the Internet and
multiple media
D3. Develop the student's ability to dialogue and discussion, thus enabling him to pass professional example organized by
local/regional/international bodies

70. Cou	I se Structure	D4. Enabling the graduation	student for conti	nuous self-c	levelopment a
Week	Hours	Required	Unit or subject	Learning	Evaluation
		Learning	name	method	method
		Outcomes			
1,2	2	Learn to u	Laplace	theor	Genera
.4.	theoreti	the Lapla	transform	cal	questio
	+2	transform		pract	and
	practica			ĺ	discuss
	For ea				
	week				
6,7	2	Laplace app	Laplace	=	Achievemen
	theoreti		transform		t test
	+2		theorems a		and
	practica		applications		quizze
	For ea				
	week				
8,9	2	arn to use	Z	=	Genera
10	oretical	Z	transform		questic
1,1	+2	transform			and
	oractical				discuss
	r each				
	week				
13	2	The use of the Z	Z-transform	=	Achievemen
4	oretical	transform and its	Theorems a		t test
	+2	applications	applications		and
	ractical				quizze
	r each				
	week	Ŧ			a 1
15	2	Learn	Probability	=	General
6,1	oretical	probability	and statisti		lestions
18	+2				and
9	practical	na statistics			cussion
	r each				and
	week				ont test
					ent test

20	=	Numerical	Numerical	=	Achievemen
1,2		alysis and	computations 1)		t test
23		uses in	bisection		and
		solving	method,		quizzes
		complex	2) false position		
		athematical	method,		
		problems	3) Newto		
			Raphson		
24			method		
24, F	=		Solution	=	Achievemen
5			nonlinear		t test
			equation		and
			NY 1 1		quizzes
26	=	-	Numerical	=	Achievemen
7,2			solution of		t test
			ordinary		and
			differential		quizzes
			equation:		
29	=		Matrix	=	Achievemen
			operations,		t test
			solution of		and
			linear		quizzes
			system		
			equation		
30	=		linear	=	Achievemen
			transformations,		t test
			Cayley-		and
			Hamilton		quizzes
			theorem		
71. Co	urse Evaluatior	1			
Distributir	ng the score out	of 100 according to	the tasks assigned	to the studer	it such as daily
preparatio	on, dally oral, mo	ntniy, or written exan	ns, reports etc		
72. Lea	arning and Tea	ching Resources	T		
Required te	extbooks (curricul	ar books, if any)	ERWIN	KREYSZI	G, "Advand
			Engineerin	g Mathemat	ics", 10 th Editi
			JOHN WII	LEY & SON	S, INC., 2011
Main refere	ences (sources)				
Recommer	nded books and	references (scientific	Richard L. Bur	den & J. Dou	uglas Faires,
journals, re	ports…)		"Numerical Ana	alysis", 8 th E	dition, 2011.
	,				

Electronic References, Websites	"Laplace Transforms (LT)", Tutorials Point
	website
	"Z-Transforms (ZT)", Tutorials Point
	website
	"Statistics - Probability", Tutorials Point
	websit
	"MATLAB - Overview", Tutorials Point
	website
	http://www.tutorialspoint.com

Course Description:



73. Course Name	
Control Engi	neering Fundamentals
74. Course Code	
0	CET 3103
75. Semester / Year	
(1 & 2 sem	nesters , 3rd Year)
76. Description Prep	aration Date:
1 /	/ 4 / 2024
77. Available Attendar	nce Forms:
We	eekly attendance
78. Number of Credit	Hours (Total) / Number of Units
(Total)	
12	20 hrs. / 6 units
79. Course administra	tor's name (mention all, if more
than one name)	
Name: Lectur	rer. Saad Taha Yaseen
Email: saad.	t.vasin@mauc.edu.ig
80. Course Objectives	
Course Objectives	As illustrated below
General goal // The course aims to provide st fundamental core concepts of design controllers and execute stability. Special (Behavioral) goals //	tudents of the third stage with f control engineering to be able to procedures to determine systems
Behavioral goals //	
1- At the end of the course,	the student will be able to perform
system analysis in the time de the lumpy field using Laplace 2- At the end of the course, system analysis in the frequenc 3- At the end of the course, analysis of different systems 4- At the end of the course,	omain by using differential equations in e transform. the student will be able to perform ey domain in the lumpy field. the student will be able to do for different entries response. the student will be able to analyze

t	he sta	bility	of different	types of control system	18.	
81.		Teac	hing and	Learning Strategies	S	
Strate	gy	 Bra Mo Gro Dis Pro A st Corr 	instorming deling learn oup work of cussion str ject strateg trategy for nbining dif	g strategy ning strategy r cooperative learning ategy gy problem solving or pr ferent strategies	strategy oblem-based learning	
82. C	ourse	e Stru				
Week	Ho	ours	Learning Outcomes	Unit or subject name	Learning method	Evaluation method
181	2 theo / 2 pi	oretical ractical	Understand ing and assimilation	Open and closed loop system	Combining different strategies	Oral and written Examination
182	2 theo / 2 pi	oretical ractical	Understand ing and assimilation	Open and closed loop system	Combining different strategies	Oral and written Examination
183	2 theo / 2 pi	oretical ractical	Understand ing and assimilation	Transfer function and Mathematical modelling of control systems	Combining different strategies	Oral and written Examination
184	2 theo / 2 pi	oretical ractical	Understand ing and assimilation	Transfer function and Mathematical modelling of control systems	Combining different strategies	Oral and written Examination
185	2 theo / 2 pi	oretical ractical	Understand ing and assimilation	Transfer function and Mathematical modelling of control systems.	Combining different strategies	Oral and written Examination
186	2 theo / 2 pr	oretical ractical	Understand ing and assimilation	DC servo motor transfer function	Combining different strategies	Oral and written Examination
187	2 theo / 2 pr	oretical ractical	Understand ing and assimilation	DC servo motor transfer function	Combining different strategies	Oral and written Examination
188	2 theo / 2 pr	oretical ractical	Understand ing and assimilation	Block diagram representation	Combining different strategies	Oral and written Examination

				~	1
190	2 theoretical	Understand	Time domain analysis	Combining different strategies	Oral and
109	/ 2 practical	ing and	of control system	00000	written
		assimilation	or conder system		Examination
100	2 theoretical	Understand		Combining different	Oral and
190		ing and	Steady state analysis	strategies	written
		assimilation			Examination
		Understand	Transient	Combining different	Oral and
191		ing and	response	strategies	written
	/ 2 practical	assimilation	analysis		Examination
		Understand	Analysis of 1 st order	Combining different	Oral and
192	2 theoretical	ing and	system	strategies	written
	2 practical	assimilation	system		Examination
		Understand		Combining different	Oral and
193	2 theoretical	ing and	P-I-D controllers	strategies	written
	2 practical	assimilation			Examination
		Understand		Combining different	Oral and
194	2 theoretical	ing and	P-I-D controllers	strategies	written
	2 practical	assimilation			Examination
	2 theoretical	Understand	Routh's criterion	Combining different	Oral and
195		ing and	and applications of	strategies	written
	2 practical	assimilation	Routh's Criterion		Examination
		Understand	Routh's criterion	Combining different	Oral and
196	/ 2 practical	ing and	and applications of	strategies	written
		assimilation	Routh's Criterion		Examination
		Understand		Combining different	Oral and
197	2 theoretical	ing and	Root Locus	strategies	written
	/ 2 practical	assimilation			Examination
		Understand		Combining different	Oral and
198	2 theoretical / 2 practical	ing and	Root Locus	strategies	written
		assimilation			Examination
	2 theoretical	Understand		Combining different	Oral and
199		ing and	Root Locus	strategies	written
	/ 2 practical	assimilation			Examination
		Understand		Combining different	Oral and
200	2 theoretical / 2 practical	ing and	Root Locus	strategies	written
		assimilation			Examination

201	2 theoretical	Understand				Combinin strat	g different egies	Oral and
201		ing and	Bode p	lot			-	written
		assimilation						Examination
202	2 theoretical	Understand				Combinin strat	g different	Oral and
202		ing and	Bode p	ot	Strut	05105	written	
	/ 2 practical	assimilation						Examination
	2.45	Understand				Combinin	g different	Oral and
203	2 theoretical	ing and	Bode p	lot		strategies		written
	2 practical	assimilation	··· r					Examination
	2 the exetical	Understand				Combinin	g different	Oral and
204	2 theoretical	ing and	Bode p	lot		strategies		written
	/ 2 practical	assimilation	F					Examination
	2 theoretical	Understand				Combinin	g different	Oral and
205		ing and	Compe	nsation		strat	egies	written
	/ 2 practical	assimilation						Examination
	2 the exetical	Understand				Combinin	g different	Oral and
206	2 theoretical	ing and	Compe	nsation		strat	egies	written
	2 practical	assimilation	-					Examination
	2 theoretical	Understand				Combinin	g different	Oral and
207	2 theoretical / 2 practical	ing and	Compe	nsation		strat	egies	written
		assimilation	_					Examination
	2 the exetical	Understand				Combinin	g different	Oral and
208	2 theoretical / 2 practical	ing and	Compensation		strategies		written	
		assimilation	-					Examination
_	2 theoretical	Understand				Combinin	g different	Oral and
209		ing and	Differe	nt examples		strat	egies	written
	/ 2 practical	assimilation					Examination	
	2 theoretical	Understand				Combinin	g different	Oral and
210		ing and	Different examples		sualegies		written	
/ 2 practio		assimilation						Examination
83. Course Evaluation								
Distributing the score out of 100 according to the tasks assigned to the								
studen	t such as	daily prep	paration	n, daily or	al,	monthly, c	or written	
exams, reports etc.								
Daily Pr	eparation	practical		Monthly	Fin	al theoretical		

Daily Preparation Oral Exams	practical Exams	Report	Monthly Exams	Final theoretical + practical exam	Total
10	10	10	20	50	100

84. Learning and Teaching Resources					
Required textbooks (curricular books, if any)	Modern Control Engineering				
	Ogata				
Main references (sources)	Control Systems by Bakshi				
Recommended books and references	Modern Control Systems by				
(scientific journals, reports)	Dorf				
	Control Systems				
	Engineering by Nise				
Electronic References, Websites	-				

Course Description:

Power Electronics

85.	Course Name				
	Power Electronics				
86.	Course Code				
	CET 3104				
87.	Semester / Year				
	(1 & 2 semesters , 3rd Year)				
88.	Description Preparation Date:				
	1 / 4 / 2024				
89.	Available Attendance Forms:				
0.0	Weekly attendance				
90.	Number of Credit Hours (Total) / Number of Units				
(1)	otal)				
	120 ms. 7 8 units				
91.	Course administrator's name (mention all, if more				
tha	an one name)				
	Name: Lecturer. Saad Taha Yaseen				
	Email: saad.t.yasin@mauc.edu.iq				
92.	Course Objectives				
Course	Objectives As illustrated below				
General	goal //				
fundame	se alms to provide students of the third year with				
engineer	ing techniques.				
Special	(Behavioral) goals //				
Beł	navioral goals //				
1- At the end of the course, the student will be able to recognize					
the nurnose of PE and discriminate between PE devices'					
features.					
2- At the end of the course, the student will be able to design the					
AC to DC converter (rectifier); Single and three phase rectifiers.					
3- At the end of the course, the student will be able to design &					
ana	alyze Thyristor triggering circuits.				
4-7	At the end of the course, the student will be able to design,				

analyze, and troubleshoot AC to AC converters, DC to AC converters (inverters), and DC choppers (Buck, Boost and Buck-Boost).						
5- At the end of the course, the student will be able to sketch						
ł	block	diagr	am for Sv	vitch-mode power su	upply and DC drive	
(consti	ructio	n & analyze	e its operation.		
93.		Teac	hing and I	Learning Strategie	8	
Strate	gy	• Bra	instorming	g strategy		
	•••	• Mo	deling lear	ning strategy		
		• Gro	up work of	r cooperative learning	strategy	
		• Dis	iect strated	ategy		
		• A st	rategy for	problem solving or pr	oblem-based learning	
		• Con	nbining dif	ferent strategies		-
94. C	ourse	e Stru	icture			
Week	Hours		Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
211	2 theoretical / 2 practical		Understand ing and assimilation	Power Electronics Devices: SCR's construction, symbol, operation, characteristics, and applications.	Combining different strategies	Oral and written Examination
212	2 theoretical / 2 practical		Understand ing and assimilation	Power Electronics Devices: TRIAC's construction, symbol, operation, characteristics, and applications.	Combining different strategies	Oral and written Examination
213	2 theoretical / 2 practical		Understand ing and assimilation	Power Electronics Devices: DIAC's construction, symbol, operation, characteristics, and applications.	Combining different strategies	Oral and written Examination
214	2 theoretical / 2 practical		Understand ing and assimilation	Power Electronics Devices: IGBT's construction, symbol, operation, characteristics, and applications.	Combining different strategies	Oral and written Examination
215	2 theoretical / 2 practical		Understand ing and assimilation	Power Electronics Devices: MOSFET's construction, symbol, operation, characteristics, and applications.	Combining different strategies	Oral and written Examination
216	5 2 theoretical / 2 practical		Understand ing and assimilation	Single and three phase rectifiers using SCR (thyristors) and diodes & the firing circuits design.	Combining different strategies	Oral and written Examination
			1	1		
-----	-------------------------------	--------------	---	-----------------------------------	---	
	2 theoretical	Understand	Single and three phase	Combining different	Oral and	
217		ing and	rectifiers using SCR (thyristors) and diodes &	strategies	written	
	/ 2 practical	assimilation	the firing circuits design.		Examination	
		Understand	Single and three phase	Combining different	Oral and	
218		ing and	rectifiers using SCR (thyristors) and diodes &	strategies	written	
	2 practical	assimilation	the firing circuits design.		Examination	
	0 the section 1	Understand	Single and three phase	Combining different	Oral and	
219		ing and	rectifiers using SCR (thyristors) and diodes &	strategies	written	
	/ 2 practical	assimilation	the firing circuits design.		Examination	
	2 theoretical	Understand	Single and three phase	Combining different	Oral and	
220		ing and	rectifiers using SCR (thyristors) and diodes &	strategies	written	
		assimilation	the firing circuits design.		Examination	
201	2 theoretical	Understand	DC to DC converter (DC	Combining different	Oral and	
221		ing and	-Buck	strategies	written	
		assimilation	-boost, and Buck-boost		Examination	
222	2 theoretical	Understand	DC to DC converter (DC	Combining different	Oral and	
222		ing and	-Buck	strategies	written	
		assimilation	-boost, and Buck-boost		Examination	
222	2 theoretical	Understand	DC to DC converter (DC	Combining different strategies	Oral and	
223	/ 2 practical	ing and	-Buck.	Sumegres	written	
		assimilation	-boost, and Buck-boost		Examination	
224	2 theoretical	Understand	DC line commutation	Combining different strategies	Oral and	
224	/ 2 practical	ing and	circuits and transient	Strategies	written	
		assimilation	analysis		Examination	
225	2 theoretical	Understand	DC line commutation	Combining different strategies	Oral and	
225	/ 2 practical	ing and	circuits and transient	Strategies	written	
		assimilation	analysis		Examination	
226	2 theoretical	Understand	AC voltage controllers:	Combining different strategies	Oral and	
220	/ 2 practical	ing and	phase control and on-off	Sumogros	written Examination Oral and written Examination Oral and written Examination Oral and written Examination Oral and written Examination Oral and written Examination Oral and written Examination Oral and written Examination Oral and written Examination	
		assimilation	control		Examination	
227	2 theoretical	Understand	AC voltage controllers:	Combining different strategies	Oral and	
227	/ 2 practical	ing and	phase control and on-off	Successo Successo	written	
		assimilation	control		Examination	
228	2 theoretical	Understand	AC voltage controllers;	Combining different strategies	Oral and	
228	2 more tical	ing and	phase control and on-off	Sumogros	written	
		assimilation	control		ExaminationOral and writtenExaminationOral and writtenExamination	

		Understand		Combining different	Oral and
229	2 theoretical	ing and	AC voltage controllers;	strategies	writton
	/ 2 practical		control		Examination
		assimilation		Combining different	Examination
230	2 theoretical	Understand		strategies	Oral and
230	/ 2 practical	ing and	(Cycloconverters)		written
		assimilation			Examination
		Understand	Switch mode	Combining different	Oral and
231		ing and	power supply(SMPS)	strategies	written
	2 practical	assimilation	Flyback (SMPS)		Examination
		Understand		Combining different	Oral and
232	2 theoretical	ing and	Switch-mode	strategies	written
	/ 2 practical	assimilation	Flyback (SMPS)		Examination
		Indoratoral	Inverter (DC to AC	Combining different	
233	2 theoretical	Understand	converter). Half-bridge &	strategies	Oral and
200	/ 2 practical	ing and	Full-bridge inverter.		Oral and written Examination Oral and written Examination
	, .	assimilation	inverters		Examination
		Understand	Inverter (DC to AC	Combining different	Oral and
234	2 theoretical	ing and	converter). Half-bridge &	strategies	written
	/ 2 practical	assimilation	Single and three phase		Oral and written Examination Oral and written Examination Oral and written Examination
		assimilation	inverters	Combining different	
225	2 theoretical	Understand	Inverter (DC to AC	strategies	Oral and
235		ing and	Full-bridge inverter.		written
		assimilation	Single and three phase		Examination
		Understand	Inverter (DC to AC	Combining different	Oral and
236	2 theoretical		converter). Half-bridge &	strategies	
	/ 2 practical	ing and	Full-bridge inverter.		written Evensingtion
		assimilation	inverters		
	2 theoretical	Understand	DC machine	Combining different	Oral and
237		ing and	analysis and	Structus	written
		assimilation	DC motor drives		Examination
	2.45	Understand	DC machina	Combining different	Oral and
238	2 theoretical	ing and	analysis and	strategies	written
	/ 2 practical	assimilation	DC motor drives		Examination
		Understand		Combining different	Oral and
239	2 theoretical	ing and	DC machine analysis and	strategies	written
	/ 2 practical	assimilation	DC motor drives		written Examination Oral and written Examination Examination Coral and written Examination Coral and written Examination Coral and written Examination Coral and written Examination Oral and written Examination Oral and written Examination Oral and written Examination
0.40	2 theoretical	Understand	Fourier series analysis for	Combining different	Oral and
240	2 incorctical	ing and	signal waveforms to find	strategies	written
		ing anu	their harmonics		written

		assimi	ation					
95. (Course I	Evaluat	ion					
Distrib	uting the	e score o	ut of 100 ac	cording	to	the t	asks assig	ned to the
studen	t such a	s daily	preparation	n, daily	or	al, r	nonthly, c	or written
exams,	reports .	etc.						
Daily Pro	eparation	practical	Report	Month	y	Fina	al theoretical	Total
Oral I	Exams	Exams	Report	Exam	5	+ pr	actical exam	Total
1	.0	10	10	20			50	100
96. I	Learning	g and T	eaching R	esourc	es			
Require	ed textboo	oks (curri	icular books,	if any)		-	1	
Main re	eferences	(sources))		Po	wer	electronic	systems,
by Lander.								
Recommended books and references (scienti Power electronics and								
journals, reports) application, by Rashid.								
Electro	nic Refer	ences, W	ebsites				-	

Course Description Real Time System Designs

Course Description Form

97. Course Name:

Real Time System Designs

98. Course Code:

CET 3105

99. Semester / Year

(1st and 2nd semester , 2023-2024 Year)

100. Description Preparation Date:

1 / 9 / 2023

101. Available Attendance Forms:

Weekly attendance

102. Number of Credit Hours (Total) / Number of Units (Total)

120-2 units

103. Course administrator's name (mention all, if more than one name)

Name: lecturer. Dr. Hussein Alsheakh Email: iraqnorth@gmail.com

104. Course Objectives

Course Objectives

As illustrated below .

General goal //

Computers are embedded in countless real-world devices such as cell phones and remote controllers and in systems inside automobiles and aircrafts. These devices and systems are required to perform flawlessly and in real-time. This course will address fundamental challenges in the design, implementation, and validation of these real-time and embedded systems. Course topics include resource management, concurrency, secure coding practices, memory management, timeline design and analysis, stimulability tests, hardware interfacing, device driver programming, memory maps and boot kernels, firmware and ROM-resident system code, communications and networking, and debugging live systems. These concepts will be reinforced through C programming assignments using the Linux-based operating systems. Students will work on special devices such as a mobile phone, Internet of Things, small device controllers (Arduino, Raspberry Pi, mobile tablets and phones), drones and virtual reality (VR/AR) devices

Special (Behavioral) goals //

Behavioral goals //

On completion of this course students will be able to (i) understand the components and working of a realtime and embedded operating systems. program devices using C programming language. (ii) design and implement various embedded systems functions. Students (iii) will also learn the regulations, privacy, security and safety issues related to designing and using drones. 105. **Teaching and Learning Strategies** Brainstorming strategy Strategy Modeling learning strategy • Group work or cooperative learning strategy • Discussion strategy • Project strategy • A strategy for problem solving or problem-based learning • Combining different strategies 106. **Course Structure**

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
241	2theoretical - 2practical	Understand ing and assimilation	Definitions of RTS	Combining different strategies	Oral and written Examination
242	2theoretical - 2practical	Understand ing and assimilation	Definitions of RTS	Combining different strategies	Oral and written Examination
243	2theoretical - 2practical	Understand ing and assimilation	Definitions of RTS	Combining different strategies	Oral and written Examination
244	2theoretical - 2practical	Understand ing and assimilation	Signals systems, specification	Combining different strategies	Oral and written Examination
245	2theoretical - 2practical	Understand ing and	Signals systems, specification	Combining different strategies	Oral and written Examination

		assimilation			
246	2theoretical - 2practical	Understand ing and assimilation	Analog Computer components, system	Combining different strategies	Oral and written Examination
247	2theoretical - 2practical	Understand ing and assimilation	Analog Computer components, system	Combining different strategies	Oral and written Examination
248	2theoretical - 2practical	Understand ing and assimilation	Analog Computer components, system	Combining different strategies	Oral and written Examination
249	2theoretical - 2practical	Understand ing and assimilation	ADC,DAC	Combining different strategies	Oral and written Examination
250	2theoretical - 2practical	Understand ing and assimilation	ADC,DAC	Combining different strategies	Oral and written Examination
251	2theoretical - 2practical	Understand ing and assimilation	ADC,DAC	Combining different strategies	Oral and written Examination
252	2theoretical - 2practical	Understand ing and assimilation	Introduction to digital systems	Combining different strategies	Oral and written Examination
253	2theoretical - 2practical	Understand ing and assimilation	Basic interfacing devices	Combining different strategies	Oral and written Examination
254	2theoretical - 2practical	Understand ing and assimilation	Basic interfacing devices	Combining different strategies	Oral and written Examination
255	2theoretical - 2practical	Understand ing and assimilation	Data transfer controlling	Combining different strategies	Oral and written Examination
256	2theoretical - 2practical	Understand ing and assimilation	Un Programmable interfacing device	Combining different strategies	Oral and written Examination
257	2theoretical - 2practical	Understand ing and assimilation	Programmable interfacing devices	Combining different strategies	Oral and written Examination

· · · · · · · · · · · · · · · · · · ·		I			I
250	2theoretical	Understand	Duo quore en al-la	Combining different strategies	Oral and
258		ing and	Programmable interfacing devices		written
		assimilation	interracing devices		Examination
	046	Understand		Combining different strategies	Oral and
259	2theoretical	ing and	Programmable		written
	- 2practical	assimilation	interfacing devices		Examination
		Understand		Combining different strategies	Oral and
260	2theoretical	ing and	Programmable		written
	- 2practical	assimilation	interfacing devices		Examination
		Understand		Combining different strategies	Oral and
261	2theoretical	ing and	Programmable		written
	- 2practical	assimilation	interfacing devices		Examination
		Understand	Interrupts controller	Combining different strategies	Oral and
262	2theoretical	ing and	handshaking and		written
	- 2practical	assimilation	interrupts, methods		Examination
	Understand		Interrupts controller	Combining different strategies	Oral and
263	2theoretical	ing and	handshaking and		written
	- 2practical	assimilation	interrupts, methods		Examination
		Understand	Interrupts controller	Combining different strategies	Oral and
264	2theoretical	ing and	handshaking and		written
	- 2practical	assimilation	interrupts, methods		Examination
		Understand	Interrupts, controller	Combining different strategies	Oral and
265		ing and	handshaking and		written
	- 2practical	assimilation	interrupts, methods		Examination
	Otheerstical	Understand	Interrupts, controller	Combining different strategies	Oral and
266		ing and	handshaking and		written
	- 2practical	assimilation	interrupts ,methods		Examination
	Otheerstical	Understand		Combining different strategies	Oral and
267		ing and	DNA, serial interfacing		written
	- 2practical	assimilation			Examination
	Otheoretical	Understand		Combining different strategies	Oral and
268		ing and	DNA, serial interfacing		written
	- <i>z</i> practical	assimilation			Examination
	0th e e	Understand		Combining different strategies	Oral and
269	2theoretical	ing and	DNA, serial interfacing		written
	- 2practical	assimilation			Examination
		1			1

	Otheoretic	Under	stand					Combining d	ifferent strategies	Oral and
270	Ztheoretic	ai ing a	and	DNA, serial inte		erfaci	ng			written
	 2practic 	al assimi	lation	,			U			Examination
		dooinn	lation							
107.	Co	urse Ev	alua	tion						
Distrib	outing the	e score o	out o	f 100 a	ccordir	ng to	o the	e tasks ass	signed to the	
studen	t such as	daily p	repar	ation, o	daily or	al, n	non	thly, or wi	ritten exams,	
report	s etc.									
Daily P	reparation	practical	F	Report	Monthly E	xam	Fin	nal theoretical +	Total	
Oral	Exam	Exam 15		5	15		p	60	100	
100				Tooobi					100	
108.	Lea	arning a	and	reach	ing Re	sou	irce	25		
Require	ed textboo	oks (curr	icular	books,	if any)	Del	bugg	ging: The 9	Indispensable	
						Elu	sive	Software ar	d Hardware	
						Pro	bler	ns by Da	vid J Agans,	
						Puł	olish	er: AMAC	OM; ISBN-10:	
						081	1447	74578		
Main re	eferences	(sources	5)			Rea	l-Tir	me Systems	Development	
		v	,			(Paj	perba	ack) by Rob	Williams	
						a. r h Pi	aper	ber [.] 520 pa	ges Butterworth-	
						Hei	nema	ann (Decemb	per 3, 2005)	
							SBN	1-10: 075066	4711 ISBN-13:	
						978	-075	0664714		
Recom	mended	books	and	d refe	rences	Pro	gram Imp	mable Contr	oller, theory	
(scienti	(scientific journals, reports)					and	mp			
Electro	nic Refer	ences, V	/ebsit	es		N/A	1			

Course Description Digital Signal Processing

	Course I	Description Form	
	109. (Course Name:	
C	igital Sign	al Processing	
	110 . (Course Code:	
C	ET3106		
	111. S	Semester / Year	
	Year		
	112. I	Description Prepara	ntion Date:
1	/ 4 / 20	24	
	113. A	Available Attendance Fo	orms:
	Week	ly attendance	
	<u>114.</u> N	Number of Credit Hours	s (Total) / Number of Units (Total)
		120-6 units	5
	115 (ourse administrator's	name (mention all if more than one
			and (mention an, it more than one
	name)		name (mention an, n more than one
N F	ame: lecture	r. Dr. Amer Kais Obaid	
N E	name) ame: lecture mail: amerka	r. Dr. Amer Kais Obaid ais2010@yahoo.com	
N E	name) ame: lecture mail: amerka	r. Dr. Amer Kais Obaid ais2010@yahoo.com Course Objectives	
N E	name) ame: lecture mail: amerka 116. (ourse Objee	r. Dr. Amer Kais Obaid ais2010@yahoo.com Course Objectives ctives	As illustrated below.
	name) ame: lecture mail: amerka 116. (ourse Object eneral goal At the e enginee	er. Dr. Amer Kais Obaid ais2010@yahoo.com Course Objectives ctives // end of the course, the stuc- ering methodology in ana	As illustrated below. dent will be able to employ a scientific lyzing systems and representing them
	name) ame: lecture mail: amerka 116. (ourse Object eneral goal At the e enginee with ma	er. Dr. Amer Kais Obaid ais2010@yahoo.com Course Objectives ctives // end of the course, the stud ering methodology in ana athematical and computer	As illustrated below. dent will be able to employ a scientific lyzing systems and representing them r models.
	name) ame: lecture mail: amerka 116. (ourse Object eneral goal At the e engineet with ma	er. Dr. Amer Kais Obaid ais2010@yahoo.com Course Objectives ctives // end of the course, the stud ering methodology in ana athematical and computer avioral) goals //	As illustrated below. dent will be able to employ a scientific lyzing systems and representing them r models.
	name) ame: lecture mail: amerka 116. (ourse Object eneral goal At the e engineet with ma Special (Behavi	er. Dr. Amer Kais Obaid ais2010@yahoo.com Course Objectives ctives // end of the course, the stud ering methodology in ana athematical and computer avioral) goals // oral goals //	As illustrated below. lent will be able to employ a scientific lyzing systems and representing them r models.
	name) ame: lecture mail: amerka 116. (ourse Object eneral goal At the e engineet with ma pecial (Behavi 1- At method	er. Dr. Amer Kais Obaid ais2010@yahoo.com Course Objectives Course Objectives ctives // end of the course, the stud ering methodology in ana athematical and computer avioral) goals // oral goals // the end of the course, ology in analyzing sy	As illustrated below. lent will be able to employ a scientific lyzing systems and representing them r models. will Follow a scientific engineering stems and representing them with
	name) ame: lecture mail: amerka 116. C ourse Object eneral goal At the e enginee with ma pecial (Behavi 1- At method mathem	er. Dr. Amer Kais Obaid ais2010@yahoo.com Course Objectives ctives // end of the course, the stud ering methodology in ana athematical and computer avioral) goals // oral goals // the end of the course, ology in analyzing synatical and computer mod	As illustrated below. As illustrated below. lent will be able to employ a scientific lyzing systems and representing them r models. will Follow a scientific engineering stems and representing them with lels.
	name) ame: lecture mail: amerka 116. C ourse Object eneral goal At the e enginee with ma Decial (Behavi 1- At method mathem 2- At t	r. Dr. Amer Kais Obaid ais2010@yahoo.com Course Objectives ctives // end of the course, the stud ering methodology in ana athematical and computer avioral) goals // oral goals // the end of the course, ology in analyzing sy natical and computer mod he end of the course, u	As illustrated below. As illustrated below. lent will be able to employ a scientific lyzing systems and representing them r models. will Follow a scientific engineering stems and representing them with lels. using signal processing techniques to
	name) ame: lecture mail: amerka 116. C ourse Object eneral goal At the e engineet with ma pecial (Beha Behavi 1- At method mathem 2- At t solve	r. Dr. Amer Kais Obaid ais2010@yahoo.com Course Objectives ctives // end of the course, the stud ering methodology in ana athematical and computer avioral) goals // oral goals // the end of the course, ology in analyzing sy natical and computer mod he end of the course, u practical problems and	As illustrated below. As illustrated below. dent will be able to employ a scientific lyzing systems and representing them r models. will Follow a scientific engineering stems and representing them with lels. using signal processing techniques to an engineering applications that he
	name) ame: lecture mail: amerka 116. C ourse Object eneral goal At the e engineet with ma Decial (Beha Behavi 1- At the method mathem 2- At the solve	er. Dr. Amer Kais Obaid ais2010@yahoo.com Course Objectives ctives // end of the course, the studering methodology in ana athematical and computer avioral) goals // oral goals // the end of the course, ology in analyzing synatical and computer mode he end of the course, upractical problems and ters in his projects and pro-	As illustrated below. As illustrated below. dent will be able to employ a scientific lyzing systems and representing them r models. will Follow a scientific engineering stems and representing them with lels. using signal processing techniques to and engineering applications that he ofessional work.
	name) ame: lecture mail: amerka 116. C ourse Object eneral goal At the e engineet with ma Decial (Beha Behavi 1- At the method mathem 2- At the solve encount 3- Created	er. Dr. Amer Kais Obaid ais2010@yahoo.com Course Objectives ctives // end of the course, the stud ering methodology in ana athematical and computer avioral) goals // oral goals // the end of the course, ology in analyzing sy natical and computer mod he end of the course, u practical problems and ters in his projects and pr eating criteria for eva oing it using filters and ot	As illustrated below. As illustrated below. dent will be able to employ a scientific lyzing systems and representing them r models. will Follow a scientific engineering stems and representing them with lels. using signal processing techniques to l engineering applications that he ofessional work. aluating systems performance and her digital tools

	<u> </u>					
	11	17. Teach	ing and Learni	ng Strategies		
S	tra					
	11	8. Cours	se Structure	erent strategies		
v	eek	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	27	2theoretical – 2practical	Understanding and assimilation	Introduction to digital signal processing	Combining different strategies	Oral and written Examination
	27	2theoretical – 2practical	Understanding and assimilation	Basic elements of DSP, DSP vs. ASP, application of DSP,	Combining different strategies	Oral and written Examination
	27	2theoretical – 2practical	Understanding and assimilation	Discrete time signals and sequences	Combining different strategies	Oral and written Examination
	27	2theoretical – 2practical	Understanding and assimilation	Unit sample sequence, Unit step sequence,	Combining different strategies	Oral and written Examination
	27	2theoretical – 2practical	Understanding and assimilation	(classification of discrete time signals) system properties	Combining different strategies	Oral and written Examination
	27	2theoretical – 2practical	Understanding and assimilation	Static and dynamic system,	Combining different strategies	Oral and written Examination
	27	2theoretical – 2practical	Understanding and assimilation	shift invariant and shift variant system,	Combining different strategies	Oral and written Examination
	27	2theoretical – 2practical	Understanding and assimilation	Causal and non-causal system,	Combining different strategies	Oral and written Examination
	27	2theoretical – 2practical	Understanding and assimilation	linear and nonlinear system, stable and unstable	Combining different strategies	Oral and written Examination
	28	2theoretical – 2practical	Understanding and assimilation	Exam-1	Combining different strategies	Oral and written Examination
	28	2theoretical – 2practical	Understanding and assimilation	Convolution: Direct form method,	Combining different strategies	Oral and written Examination
	28	2theoretical – 2practical	Understanding and assimilation	Convolution: Direct form method,	Combining different strategies	Oral and written Examination
	28	2theoretical – 2practical	Understanding and assimilation	Convolution: graphical method	Combining different strategies	Oral and written Examination

	28	2theoretical – 2practical	Understanding and assimilation	Correlation of discrete time sequence	Combining different strategies	Oral and written Examination		
	28	2theoretical – 2practical	Understanding and assimilation	Cross correlation and auto correlation	Combining different strategies	Oral and written Examination		
	28	2theoretical – 2practical	Understanding and assimilation	Discrete Fourier transform (DFT)	Combining different strategies	Oral and written Examination		
	28	2theoretical – 2practical	Understanding and assimilation	Discrete Fourier transform (DFT)	Combining different strategies	Oral and written Examination		
	28	2theoretical – 2practical	Understanding and assimilation	Invers Discrete Fourier transform IDFT	Combining different strategies	Oral and written Examination		
	28	2theoretical – 2practical	Understanding and assimilation	Invers Discrete Fourier transform IDFT	Combining different strategies	Oral and written Examination		
	29	2theoretical – 2practical	Understanding and assimilation	Linear convolution using DFT	Combining different strategies	Oral and written Examination		
	29	2theoretical – 2practical	Understanding and assimilation	Linear convolution using DFT	Combining different strategies	Oral and written Examination		
	29	2theoretical – 2practical	Understanding and assimilation	Cascaded form of FIR structure	Combining different strategies	Oral and written Examination		
	29	2theoretical – 2practical	Understanding and assimilation	Cascaded form of FIR structure	Combining different strategies	Oral and written Examination		
	29	2theoretical – 2practical	Understanding and assimilation	Exam-2	Combining different strategies	Oral and written Examination		
	29	2theoretical – 2practical	Understanding and assimilation	Basic IIR filter structure	Combining different strategies	Oral and written Examination		
	29	2theoretical – 2practical	Understanding and assimilation	Direct form of IIR structure	Combining different strategies	Oral and written Examination		
	29	2theoretical – 2practical	Understanding and assimilation	Cascaded form of IIR structure. Parallel form of IR structure	Combining different strategies	Oral and written Examination		
	29	2theoretical – 2practical	Understanding and assimilation	Cascaded form of IIR structure. Parallel form of IR structure	Combining different strategies	Oral and written Examination		
	29	2theoretical – 2practical	Understanding and assimilation	Cascaded form of IIR structure. Parallel form of IR structure	Combining different strategies	Oral and written Examination		
	30	2theoretical – 2practical	Understanding and assimilation	Cascaded form of IIR structure. Parallel form of IR structure	Combining different strategies	Oral and written Examination		
	119) Cour	se Evaluation	1				
Г	istri	ibuting the s	core out of 100) according to the task	rs assigned to the			
_ L	Listributing the score out of 100 according to the tasks assigned to the							

S	udent such as dail	y prepai	ration, daily	oral, m	ont	hly, or written	exams,
r	ports etc.						
	Daily Preparation Oral Exam	practical Exam	Report	Monthly E	xam	Final theoretical + practical exam	Total
	10	10	10	20		50	100
120. Learning and Teaching Resources							
R	equired textbooks (curricula	r books, if ar	ıy)		Nothing	
N	Nain references (sources) John G. Proakis, Dimitris G. Manolakis," Digital Signal Processing", 4th Edition. Monson H. Hayes, "Schaum's Outline of Theory and Problems of Digital Signal Processing",						
R je	ecommended book urnals, reports)	s and re	ferences (sc	ientific	Rel for tecl jou rela	evant graduation computer Engine nniques students, rnals and periodic ted to the subject gineering Design 1	projects ering scientific eals , reports.
Ē	ectronic Reference	s, Websi	tes		Bro	owse the Google n ng the desired sub	etwork ject key.

Course Description Fourth stage 2024 Course Description Smart Systems Modelling

Course Description Form

121.	Course Name:		
Smart Systems	Modelling		
122.	Course Code:		
CET 41	01		
123.	Semester / Yea	r	
(first and	l second semeste	r, fourth Year)	
124.	Description Pr	eparation Date:	
1 / 4	/ 2024		
125.	Available Atte	ndance Forms:	
We	ekly attendance		
126.	Number of Cre	edit Hours (Total) /	
Nu	mber of Units (T	otal)	
	120-2 unit	S S	
127.	Course adminis	trator's name (mention all,	
if n	nore than one nam	e)	
Name: le	cturer. Dr. ghada	salim mohammed	
Email: gl	naa2090@mauc.e	edu.iq	
U		•	
128.	Course Objectiv	ves	
Course (Dbjectives	As illustrated below	
Overall go	al //		Overall goal /
Att	the end of the cours	se, the student will be able to	At the end of student will b
kno	w what artificial neu	ral networks are and be able to	what artificial
cho	ose the neural network	work Artificial materials and	are and be abl
wor	king on them thro	ugh a specific programming	materials and
lang	uage, MATLAB.		through a spe- language, MA
Behavio	al goals //	was the student will be able to	Behavioral go
1- F	At the end of the cou	rise, the student will be able to	student will b
neur	ral networks	portant principles of artificial	recognize the
2- A	t the end of the cou	rse the student will be able to	networks.
dist	inguish between the	e different types of artificial	2- At the end
neu	ral networks.		distinguish be
3- A	At the end of the cou	rse, the student will be able to	different type
dete	rmine the type of le	earning algorithms in artificial	3- At the end
neu	ral networks.		student will b

// the course, the e able to know neural networks le to choose the rk Artificial working on them cific programming ATLAB. oals // of the course, the e able to most important artificial neural of the course, the e able to etween the s of artificial rks. of the course, the e able to determine the type of learning

 4- At the end of the course, the student will be able to identify the genetic search algorithm, identify the types of algorithms Genetic traits 5- At the end of the course, the student will be able to analyze the results of the programs that are implemented 						algorithms in a networks. 4- At the end o student will be the genetic sear identify the typ Genetic traits 5- At the end o student will be the results of th are implemente	rtificial neural f the course, the able to identify rch algorithm, es of algorithms f the course, the able to analyze he programs that rcd
12	9.	Tea	aching ai	nd Learning Strat	egies		
Strategy • Brainstorming strategy • Modeling learning strategy • Group work or cooperative learning strategy • Discussion strategy • Project strategy • A strategy for problem solving or problem-based learning • Combining different strategies							
130.	Cou	rse	Struct	ure			_
Week	Hour	'S	Require d Learning Outcome	Unit or subject name	Learning method	Evaluation method	
301	2theore al - 2practio	etic cal	Understa nding and assimilati on	Introduction and role of ANNs, fundamentals of biological Neural Network,	Combining different strategies	Oral and written Examinatio n	
302	2theore al - 2practio	etic cal	Understa nding and assimilati on	basic principles of ANNs and their early structures	Combining different strategies	Oral and written Examinatio n	
303	2theore al - 2practio	etic cal	Understa nding and assimilati on	Properties of ANN,	Combining different strategies	Oral and written Examinatio n	
304	2theore al - 2practio	etic cal	Understa nding and assimilati on	advantage, and disadvantage	Combining different strategies	Oral and written Examinatio n	
305	2theore al - 2practio	etic cal	Understa nding and assimilati on	network architectures	Combining different strategies	Oral and written Examinatio n	
306	2theore al - 2practio	etic cal	Understa nding and assimilati on	network architectures	Combining different strategies	Oral and written Examinatio n	

207	2theoretic	Understa	network architectures	Combining	Oral and
307	al -	assimilati		different strategies	Fxaminatio
	2practical	on			n
	Ithooratio	Understa	Types of learning	Combining	Oral and
308	al -	nding and	rules	different strategies	written
	2practical	assimilati			Examinatio
	I	On		Combining.	n Oral and
300	2theoretic	Understa	learning	Combining different strategies	Ural and
309	al -	assimilati	algorithms	unrerent strategies	Examinatio
	2practical	on			n
	Ithooratio	Understa		Combining	Oral and
310	al -	nding and	training styles	different strategies	written
	2practical	assimilati	training styles		Examinatio
	L	On Un denote		Combining	n Oral and
311	2theoretic	nding and		different strategies	Written
511	al -	assimilati	Hub	unificient strategies	Examinatio
	2practical	on			n
	2theoretic	Understa		Combining	Oral and
312	al -	nding and	Adaline	different strategies	written
	2practical	assimilati			Examinatio
		Understa	Mdaline delta rule	Combining	Oral and
313	2theoretic	nding and	Widdinie, deita fuie	different strategies	written
	al -	assimilati		6	Examinatio
	2practical	on			n
	2theoretic	Understa	Mdaline, delta rule	Combining	Oral and
314	al -	nding and		different strategies	written
	2practical	on			examinatio
		Understa	Important perception	Combining	Oral and
315	2theoretic	nding and	function, neuron	different strategies	written
	ar - 2practical	assimilati	model	_	Examinatio
	-practicul	On U. 1			n
210	2theoretic	Understa	perception	Combining different strategies	Ural and
510	al -	assimilati	rules training (train)	unrerent strategies	Examinatio
	2practical	on	Teres, autility (tuili)		n
			The back propagation	Combining	
	2theoretic	Understa	learning procedure,	different strategies	Oral and
317	al -	nding and	derivation of the BP		written
	2practical	assimilati	algorithm, Back		Examinatio
		OII	algorithm		11
			The back propagation	Combining	
	2 theoretic	Understa	learning procedure,	different strategies	Oral and
318	al -	nding and	derivation of the BP		written
	2practical	assimilati	algorithm, Back		Examinatio
	•	on	propagation training		n
			argonunn		

1			a	a	
319 2the 2pra	eoretic al - actical	Understa nding and assimilati on	Search algorithm, Genetic algorithm	Combining different strategies	Oral and written Examinatio n
320 2the 2pra	eoretic al - actical	Understa nding and assimilati on	Search algorithm, Genetic algorithm	Combining different strategies	Oral and written Examinatio n
321 2the 2pra	eoretic al - actical	Understa nding and assimilati on	Type of operators, population, selection, crossover, crossover rate, mutation, mutation rate	Combining different strategies	Oral and written Examinatio n
322 2the 2 2pra	eoretic al - actical	Understa nding and assimilati on	Type of operators, population, selection, crossover, crossover rate, mutation, mutation rate	Combining different strategies	Oral and written Examinatio n
323 2the 2 2pra	eoretic al - actical	Understa nding and assimilati on	Type of operators, population, selection, crossover, crossover rate, mutation, mutation rate	Combining different strategies	Oral and written Examinatio n
324 2the 2pra	eoretic al - actical	Understa nding and assimilati on	Type of operators, population, selection, crossover, crossover rate, mutation, mutation rate	Combining different strategies	Oral and written Examinatio n
325 2the	eoretic al - actical	Understa nding and assimilati on	Population, selection, crossover, and mutation algorithms	Combining different strategies	Oral and written Examinatio n
326 2the	eoretic al - actical	Understa nding and assimilati on	Population, selection, crossover, and mutation algorithms	Combining different strategies	Oral and written Examinatio n
327 2the 2pra	eoretic al - actical	Understa nding and assimilati on	Population, selection, crossover, and mutation algorithms	Combining different strategies	Oral and written Examinatio n
328 2the 2pra	eoretic al - actical	Understa nding and assimilati on	Application of genetic algorithms	Combining different strategies	Oral and written Examinatio n
329 2the 2 2pra	eoretic al - actical	Understa nding and assimilati on	Advantage and disadvantage of Genetic algorithms	Combining different strategies	Oral and written Examinatio n
330 2the 2 2pra	eoretic al - actical	Understa nding and assimilati on	Advantage and disadvantage of Genetic algorithms	Combining different strategies	Oral and written Examinatio n
131.Co	urse	Evaluati	on		

Distributing the score out of 100 according to the tasks								
assigned to th	e stude	nt such as	daily p	orep	paration, dail	y oral,		
monthly, or w	monthly, or written exams, reports etc.							
Daily Preparation Oral Exam	practical Exam	Report	Monthl Exam	у	Final theoretical + practical exam	Total		
						100		
132.Learning and Teaching Resources								
Required text	books (curricular	books.		Nothing			
any)								
Main referenc	es (sou	ces)						
Recommende	d books	and refer	ences	Relevant graduation				
(scientific jou	rnals, re	ports)		projects for computer				
(j		r)		En	gineering techr	niques		
				stu	dents, scientifi	c		
				jot	irnals and perio	odicals		
				rel	ated to the subj	ject,		
				En	gineering Desi	gn		
				rep	oorts.			
Electronic Ret	ferences	, Websites		Br	owse the Goog	le		
		-		net	twork using the	;		
				des	sired subject ke	ev.		

Course Description Advanced Computer Technology

Course Description Form

133. Course Name:

Computer Interface Circuits Design

134. Course Code:

CET 4102

135. Semester / Year

(2, 4th Year)

- **136.** Description Preparation Date:
 - 1/4/2024

137. Available Attendance Forms:

Weekly attendance

138.Number of Credit Hours (Total) / Number of Units (Total)120 (60 theoretical+60 Practical) - 6 units

139. Course administrator's name (mention all, if more than one name)

Name: lecturer. Dr. khudhaier. j. kazim Email: khudhair.j.kazim@Gmail.com

140. Course Objectives

Course Objectives

General goal // The course aims to provide students of the 4th stage with information and prepare them to be able to:

- The μ P and its architecture and the addressing modes.
- Paging mechanism, Segment translation and Page translation.
- Cache memory, Cache organization, fully associative, Direct mapped and set associative.
- Cache memory used for 80386
 - ✓ Direct Maps
 - ✓ Two-way set associative
 - Intel's Pentium and its Features

- Pentium pro, out of order execution
- Other Pentium processors, Core Processor.

Special (Behavioral) goals //

Behavioral goals //

1- At the end of the course, the student will be able to recognize Internal organization of computers, Paging mechanism.

2- At the end of the course, the student will be able to distinguish Protected mode memory addressing, Selectors and descriptors and Descriptor and page table entries

3- At the end of the course, the student will be able to determine Pentium processors.

4- At the end of the course, the student will be able to determine the Major changes in the 80386. And ache memory used for 80386.

5- At the end of the course, the student will be able to analyze Pentium processors.

141.	Teaching and Learning Strategies
Strategy	 Brainstorming strategy Modeling learning strategy Group work or cooperative learning strategy Discussion strategy Project strategy A strategy for problem solving or problem-based learning Combining different strategies

142. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1,2,3	2theoretical – 2practical	Understanding and assimilation	Introduction to computers and assembly programing	Combining different strategies	Oral and written Examination
4,5	2theoretical – 2practical	Understanding and assimilation	The µP and its architecture	Combining different strategies	Oral and written

			. Addressing modes		Examination
	Otheoretical	Lindoratonding and	Protected mode memory	Combining	Oral and
			. Selectors and descriptors	strategies	written
6,7	2practical	assimilation	. Local and global descriptor tables	C	Examination
	2theoretical -	Understanding and		Combining	Oral and
8,9	2theoretical		Descriptor and page	strategies	written
	2practical	assimilation	table entries	C	Examination
	2theoretical –	Understanding and		Combining	Oral and
10,11	Incorotical	assimilation	- Memory paging	strategies	written
	Zpractical	assimilation	vintual memory		Examination
	2theoretical -	Understanding and	- Paging mechanism	Combining different	Oral and
12,13,14	2practical	assimilation	. Segment translation	strategies	written
	201001001		. Page translation		Examination
	2theoretical -	Understanding and	Major changes in the	Combining different	Oral and
15.16.17	2practical	assimilation	organization of the memory	strategies	written
	20.000		address space		Examination
	2theoretical –	Inderstanding and	- Cache memory	Combining different	Oral and
18,19,20	Incorotical	assimilation	. Fully associative	strategies	written
,21	Zpractical	assimilation	. Direct mapped		Examination
	2theoretical -	Understanding and	Cache memory used for	Combining	Oral and
22.22			80386 - Direct Mans	different strategies	written
22,23	2practical	assimilation	Two-way set associative	C	Examination
	2theoretical –	Understanding and	Enhancements of	Combining	Oral and
24.25	Incorotical	assimilation	80386, Pipelining design	strategies	written
21,23	Zpractical	assimilation	Techniques		Examination
	2theoretical -	Understanding and		Combining different	Oral and
26,27	2practical	assimilation	Intel's Pentium	strategies	written
	Zpraotioar				Examination
	2theoretical -	Understanding and	Pentium pro	Combining different	Oral and
28,29,30	2practical	assimilation	. Out of order execution Core	strategies	written
	2914011041		processor		Examination

143. Course Evaluation

Distributing the	e score o	out of 100 ac	cording to	the tasks assi	gned to the student			
such as daily preparation, daily oral, monthly, or written exams, reports etc.								
Daily Preparation	practical	Demost	Manthha Fuan	Final theoretical +	T-4-1			
Oral Exam	Exam	кероп	Report Monthly Exam Total Total					
5 20 5 20 50 100								

144. Learning and Teaching Resources

Required textbooks (curricu	The 80386, 80486 and Pentium Processor
books, if any)	By: Walter A. Triebel
Main references (sources)	The 80x86 IBM Pc and Compatible Computers (Volumes I & II)
	By: Mohammed Ali Mazidi
Recommended books and	
references (scientific journals,	Intel Microprocessors
reports)	
Electronic References, Websites	

Course Description Computer Interface Circuits Design **Course Description Form**

145. Course Name:

Computer Interface Circuits Design

146. Course Code:

CET 4103

147. Semester / Year

(2 Semester, 4th Year)

148. **Description Preparation Date:**

1/4/2024

149. Available Attendance Forms:

Weekly attendance

150. Number of Credit Hours (Total) / Number of Units (Total)

120 (60 theoretical+60 Practical) - 6 units

151. Course administrator's name (mention all, if more than one name)

Name: lecturer. **Dr. khudhaier. j. kazim** Email: **khudhair.j.kazim@Gmail.com**

152. Course Objectives

Course Objectives

General goal *//* Giving the learner information on how to design computer interfacing circuits and using the main computer ports in the interlocking work and the use of signal generation circuits in addition to the protection circuits for the ports.

Special (Behavioral) goals //

Behavioral goals //

1- At the end of the course, the student will be able to recognize the main computer ports and the protocols for each port.

2- At the end of the course, the student will be able to distinguish how to use: (USB to PIC Microcontroller interface), (USB to RS232 interface), (USB to parallel interface), (parallel to serial interface) and (serial to parallel interface), (parallel to serial interface) and (serial to parallel interface).
3- At the end of the course, the student will be able to determine the

differentiate between: (serial data transmission) and (parallel data transmission).

4- At the end of the course, the student will be able to

- 4.A- Design (DC Power Supply) to be compatible with the device, designs (Digital and Analog Signal generator), and designs electronic circuits for (I/O Interface) such as (Serial) or (Parallel) and what you need from Components such as (ADC) and (DAC), thus being able to modify any port to suit the device to be connected with the computer.
- Connects the (PIC Microcontroller) or (Arduino) to the computer and knows the components required to complete the connection process.
- And expanding the parallel interfacing and expanding the RS232 interfacing ports.

5- At the end of the course, the student will be able to analyze he protocol used to transfer data to suit the components used in terms of (Baud rate), (number of bits), ... etc.

153.	Teaching and Learning Strategies
Strategy	 Brainstorming strategy Modeling learning strategy Group work or cooperative learning strategy Discussion strategy Project strategy A strategy for problem solving or problem-based learning Combining different strategies
	 Discussion strategy Project strategy A strategy for problem solving or problem-based learning Combining different strategies

1:	154. Course Structure								
Week	Hours	Required Learnin	ng Outcomes	Unit or subject name	Learning method	Evaluation method			
331	2theoretical – 2practical	The student understa principles power s	is able to nd the s of DC upply	DC power supply	Combining different strategies	Oral and written Examination			
332	2theoretical - 2practical	The student understa principles power s	is able to nd the s of DC upply	Voltage convertors	Combining different strategies	Oral and written Examination			
333	2theoretical - 2practical	The student is able to design digital and analog signal		Digital and analog signal generators	Combining different strategies	Oral and written Examination			
334	2theoretical - 2practical	The student is able to describe this type of PC ports and to design there circuits and how to expand its electronic		Pin configuratio n of Centronic (parallel) port	Combining different strategies	Oral and written Examination			
335	2theoretical – 2practical	The student is able to describe this type of PC ports and to design there circuits and how to expand its electronic circuit.		Internal hardware organization	Combining different strategies	Oral and written Examination			
336	2theoretical - 2practical	The student is able to describe this type of PC ports and to design there circuits and how to expand its electronic circuit.		Groups (Status, data, and control)	Combining different strategies	Oral and written Examination			
337	2theoretical - 2practical	The student describe thi	is able to is type of	Centronic experiment	Combining different strategies	Oral and written Examination			

		PC ports and to design	hoard design		
		there circuits and how	bourd design		
		to expand its electronic			
		circuit			
		The student is able to			
		describe this type of			
220	2theoretical	DC ports and to design	Expanding	Combining	Oral and written
338	Zineoretical	PC ports and to design	the parallel	different	
	- 2practical	there circuits and how	interfacing	strategies	Examination
		to expand its electronic	0		
		cırcuit.			
		The student is able to			
		compare between the			
		Centronic and serial		a 1	
339	2theoretical	port and describe them	Serial data	different	Oral and written
	 2practical 	as well. Also he can	transmission	strategies	Examination
		design a suitable			
		interfacing circuit for			
		each port			
		The student is able to			
	2theoretical - 2practical	compare between the	DC222 nin	Combining different strategies	Oral and written Examination
		Centronic and serial	KSZSZ pili		
340		port and describe them	n and		
		as well. Also he can			
		design a suitable	internal	SumoBros	
		interfacing circuit for	organization		
		each port			
		The student is able to			
		compare between the			
		Centronic and serial			
341	2theoretical	port and describe them	RS232	Combining	Oral and written
541	- 2practical	as well Also he can	experiment	different	Examination
	20.00000	design a suitable	board design	strategies	
		interfacing circuit for			
		each nort			
		The student is able to			
		compare between the			
		Centronic and serial			
240	2theoretical	nort and describe them	RS232 to Pic	Combining	Oral and written
342		as well Also he can	microcontrol	different	Examination
		design a suitable	ler interface	strategies	
		interfacing aircuit for			
		and nort			
		each port			

343	2theoretical - 2practical	The student is able to compare between the Centronic and serial port and describe them as well. Also he can design a suitable interfacing circuit for each port	Expanding the RS232 interfacing	Combining different strategies	Oral and written Examination
344	2theoretical - 2practical	The student to be able to compare between this port and other kinds. He will be able to describe this type and design its interfacing circuits	Universal Serial Bus (USB) Interface	Combining different strategies	Oral and written Examination
345	2theoretical - 2practical	The student to be able to compare between this port and other kinds. He will be able to describe this type and design its interfacing circuits	USB to PIC Microcontrol ler	Combining different strategies	Oral and written Examination
346	2theoretical - 2practical	The student to be able to compare between this port and other kinds. He will be able to describe this type and design its interfacing circuits	USB to RS232 Converter Design	Combining different strategies	Oral and written Examination
347	2theoretical - 2practical	The student to be able to compare between this port and other kinds. He will be able to describe this type and design its interfacing circuits	USB to Parallel Converter Design	Combining different strategies	Oral and written Examination
348	2theoretical - 2practical	The student to be able to recognize when to use parallel to serial interface and serial to parallel interface	Parallel to serial interface	Combining different strategies	Oral and written Examination

<u>.</u>					1
349	2theoretical - 2practical	The student to be able to recognize when to use parallel to serial interface and serial to parallel interface	Serial to parallel interface	Combining different strategies	Oral and written Examination
350	2theoretical - 2practical	The student will have knowledge about A\D convertors and design there interfacing circuits	Types of ADCs	Combining different strategies	Oral and written Examination
351	2theoretical - 2practical	The student will have knowledge about A\D convertors and design there interfacing circuits	Specification of ADCs	Combining different strategies	Oral and written Examination
352	2theoretical - 2practical	The student will have knowledge about A\D convertors and design there interfacing circuits	ADC with Parallel I/O interface	Combining different strategies	Oral and written Examination
353	2theoretical - 2practical	The student will have knowledge about A\D convertors and design there interfacing circuits	ADC with Serial I/O interface	Combining different strategies	Oral and written Examination
354	2theoretical - 2practical	The student will have knowledge about D\A convertors and design there interfacing circuits	Specification of DAC	Combining different strategies	Oral and written Examination
355	2theoretical - 2practical	The student will have knowledge about D\A convertors and design there interfacing circuits	DACs execution using OP- AMP	Combining different strategies	Oral and written Examination
356	2theoretical - 2practical	The student will have knowledge about D\A convertors and design there interfacing circuits	DACs execution using OP- AMP	Combining different strategies	Oral and written Examination
357	2theoretical	The student will be able to connect a PIC	Application Projects	Combining different strategies	Oral and written Examination

	- 2practical	or Arduino with PC			
358	2theoretical - 2practical	The student will be able to connect a PIC or Arduino with PC	Application Projects	Combining different strategies	Oral and written Examination
359	2theoretical - 2practical	The student will be able to connect a PIC or Arduino with PC	Application Projects	Combining different strategies	Oral and written Examination
360	2theoretical - 2practical	The student will be able to connect a PIC or Arduino with PC	Application Projects	Combining different strategies	Oral and written Examination

155. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc.

		/ /	, ,,		,		
Daily Preparation	practical	Penort	Monthly Exam	Final theoretical +		Total	
Oral Exam	Exam	Report		practical exam		Total	
5	20	5	20	50		100	

156. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Nothing
Main references (sources)	"PC Interfacing using Centronic, RS232 and Game Ports".
Recommended books and references	R. E. Vears, "Microprocessor Interfacing", 1990
(scientific journais, reports)	
Electronic References, Websites	http://www.pyroelectro.com/tutorials/

Project management

Cour	se Description Form				
157.	Course Name:				
Project mana	roject management				
158.	Course Code: 4105				
159.	Semester / Year: Yearly Program				
Yearly Progr	am				
160.	Description Preparation Date:				
7/4/2024					
161.	Available Attendance Forms:				
Weekl	y participation				
162.	Number of Credit Hours (Total) / Number of Units (Total)				
120 (6	0 theoretical + 60 Practical - 6 units				
163.	Course administrator's name (mention all, if more than one name)				
Name	: Wala'a A. Mahdi				
Email	walaaa.mahdi@mauc.edu.iq				
	-				
164.	Course Objectives				
Course Objecti	The course aims to provide students of the fourth stage of computer electronics				
	branch and prepare them to be able to:				
	 study definitions of project management learn methods to draw network diagrams for projects 				
	 The knowledge and understanding of linear programming process 				
	 learn methods of inventory models in management 				
	 know how to find the break even point 				
1.65	know and understand the maintenance				
165.	Teaching and Learning Strategies				
Strategy	A- Knowledge and Understanding A1 Learn methods of drawing networking schemes for the project				
	A2. Knowledge to find the critical path of the project overall and float				
	of the project and the early start and late				
	A3. Knowledge and understanding of the distribution of sources of				
	A4. Knowledge and understanding of linear programming for project				
	A5 Knowledge and understand the ways of the project inventory				
	management A6 knowledge and understand the fee break-even point of the project				
	A7 K now and understand the maintenance A8 K now and underset a				
	the Quality control				
	B. Subject-specific skills				
	B1. Drawing networking for the project in a manner critical path				
and pert B2. solving equations to reduce the duration of the					
--					
project - P2 Convert the equations to linear programming using the					
by Convert the equations to inteal programming using the					
B_{4} Solving equations to find the breakeyen					
B5Solving equations to find the cost of inventory					
management R6 account maintenance cost					
B 7 Solving equations to calculate the quality control of the project					
Togething and Learning Methods					
A codomic loctures: providing a solid foundation upon which to					
develop students knowledge					
L aboratory and practical workshops: that provide overwthing peeded					
student's experiences to help develop prestical skills side and consolid					
the principles pacesery to correction practical projects correctly of					
follow the occupational sofety stars to reduce the damage caused					
noople and property					
Assessment methods					
Assessment methods Interactive Pating: where it is this evaluation process directly					
between the student and teacher and be one of the fundamentals					
of feedback upon which faculty members evaluate the teaching					
and learning process					
Periodic written tests: The availability of these tests to a faculty					
member about the extent of follow-up students for the academic					
content and how to interact with information and observations given					
by teaching students					
Quarterly tests: Episode moderation and be to assess the student's inter					
and its interaction with the scientific article received during the semes					
academic skills Final tests: These are the final episode to assess					
student's interest and its interaction with the scientific article receiv					
during the school year academic skills					
C. Thinking Skills					
C1. Planting the spirit of creativity and innovation					
among students C2. develop a sense of responsibility for students					
C3. Development diligence and perseverance to get the job					
done to reach satisfactory results values					
C4. scalability students to develop teamwork					
Teaching and Learning Methods					
Ask a scientific problems and the demand of the students to find me					
than a solution to it different scientific methods to stimulate the creat					
side of students Form working groups are evaluating the results of					
work and change their structure periodically to develop a spirit					
cooperation and motivate students to make every effort necessary to we					
under different conditions and with several people					

	Ass Direct as through value tar Pra crea scie D. Gene empl D1. Co drawin project D3. Li D4	sessment me sessment: V interaction gets and inst ctical project ativity and t entific proble oral and Tran oyability an onvert the tai onvert the tai ag D2. Find to nerar program.	thods Where is this assess Note students and tall notes about it ets is to assess the co work in teams a ems facing students asferable Skills (oth d personal develop bles of activity of p the crtical path and mming of project break – even point	sment by the d their applic e student's at and get results ser skills releve ment) project to netwe total float of	teaching directly and cation of sentimental pility to achievement a s and solutions to vario vant to vork
166. Cours	e Structure				
Week	Hours	Require d Learnin g Outcom es	Unit or subject name	Learning method	Evaluation method
1,2	8		Introduction to project mangement	Lecture , lab	Interactive assessment Editorial periodic test Direct assessment
3,4	8		Economics and mangement for engineering	=	=
5,6,7	12		Layoutfor factoriesand workshops productivity	=	=
8,9	8		Networks	=	=
10,11,12	8		Cirtical path Method(cpm)	=	=

13,14,15	12	Pert techique (time and cost)	=	=
16	4	Theresource allocation problems	=	
17,18	8	Linear programming grafical method	=	Interactive assessment Editorial periodic test Direct assessment
19,20,21	12	Inventory model(EOQ)	=	=
22	4	The break even point	=	=
23,24,25, 26	12	The cost of inventory	=	=
27	4	Maintenance policy and concepts	=	=
27,28,29	8	Quality control	=	=
30	4	Employer management	=	-
Course Evalu	ation			
Distributing the monthly, or w	ne score out of 100 acco rritten exams, reports	ording to the tasks assigned to the s etc	tudent such as o	daily preparation, daily oral,
Learning and	Teaching Resources			

Required textbooks (curricular books, if any)	S. choudhury" project mangement", tata	
	McGraw hill-2003	
Main references (sources)		
Recommended books and references		
(scientific journals, reports…)		
Electronic References, Websites		

Course Description Computer Network

Course Description Form

Computer Network

168. Course Code:

CET4106

169. Semester / Year

Year

170. Description Preparation Date:

1 / 4 / 2024

171. Available Attendance Forms:

Weekly attendance

172. Number of Credit Hours (Total) / Number of Units (Total)

120-6 units

173. Course administrator's name (mention all, if more than one name)

Name: lecturer. Dr. Amer Kais Obaid Email: amerkais2010@yahoo.com

174. Course Objectives

Course Objectives As illustrated below.

General goal //

At the end of the course, the student will be able to employ the theory of computer networks as well as the practical tools used in the field of networks.

Special (Behavioral) goals //

Behavioral goals //

1- At the end of the course, the student will be able to identify a computer network and its components.

2- At the end of the course, the student will be able to distinguish between computer network diagrams in terms of shape, advantages and disadvantages of each network diagram.

3- At the end of the course, the student will be able to identify network devices and types of devices.

4- At the end of the course, the student will be able to compare

	the ty geogra 5- At t charac				
	175.				
S	trategy 176.	ategy em-based learning			
V e e k	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	2theoretical – 2practical	Understanding and assimilation	Introduction to Commuter Networks	Combining different strategies	Oral and written Examination
	2theoretical – 2practical	Understanding and assimilation	Types of computer Networks (clients server, Peer-to-peer,& Wireless networks)	Combining different strategies	Oral and written Examination
	2theoretical – 2practical	Understanding and assimilation	Classifying the computer networks (Home network, LAN, MAN, WAN, Wireless Networks,& Internet work(Combining different strategies	Oral and written Examination
	2theoretical – 2practical	Understanding and assimilation	The Reference models The OSI model	Combining different strategies	Oral and written Examination
	2theoretical - 2practical	Understanding and assimilation	Design issues for the layers connection oriented	Combining different strategies	Oral and written Examination
	2theoretical - 2practical	Understanding and assimilation	Connectionless layers services,	Combining different strategies	Oral and written Examination
	2theoretical - 2practical	- Understanding and assimilation	Service Primitives	Combining different strategies	Oral and written Examination
	2theoretical - 2practical	- Understanding and assimilation	OSI layers responsibilities	Combining different strategies	Oral and written Examination
	2theoretical - 2practical	- Understanding and assimilation	Signals and Encoding transmission media	Combining different strategies	Oral and written Examination
	2theoretical - 2practical	- Understanding and assimilation	Digital to digital encoding	Combining different strategies	Oral and written Examination

2theoretical –	Understanding and assimilation	TCP/IP Protocol	Combining different strategies	Oral and written Examination
2theoretical – 2practical	Understanding and assimilation	TCP/IP layers responsibilities	Combining different strategies	Oral and written Examination
2theoretical – 2practical	Understanding and assimilation	TCP/IP layers responsibilities	Combining different strategies	Oral and written Examination
2theoretical – 2practical	Understanding and assimilation	Analogue to digital encoding	Combining different strategies	Oral and written Examination
2theoretical – 2practical	Understanding and assimilation	Digital to analogue encoding Guided & unguided media	Combining different strategies	Oral and written Examination
2theoretical – 2practical	Understanding and assimilation	Exam-1	Combining different strategies	Oral and written Examination
2theoretical – 2practical	Understanding and assimilation	Multiplexing FDM,	Combining different strategies	Oral and written Examination
2theoretical – 2practical	Understanding and assimilation	Multiplexing TDM and WDM	Combining different strategies	Oral and written Examination
2theoretical – 2practical	Understanding and assimilation	Data Link controls and protocols	Combining different strategies	Oral and written Examination
2theoretical – 2practical	Understanding and assimilation	framing, flow control,	Combining different strategies	Oral and written Examination
2theoretical – 2practical	Understanding and assimilation	Error control, HDLC, PPP protocol	Combining different strategies	Oral and written Examination
2theoretical – 2practical	Understanding and assimilation	Types of errors, error detections	Combining different strategies	Oral and written Examination
2theoretical – 2practical	Understanding and assimilation	VRC, CRC, LRC check sum.	Combining different strategies	Oral and written Examination
2theoretical – 2practical	Understanding and assimilation	Exam2	Combining different strategies	Oral and written Examination
2theoretical – 2practical	Understanding and assimilation	Error correction (code blocks, cyclic codes)	Combining different strategies	Oral and written Examination
2theoretical – 2practical	Understanding and assimilation	Circuit Switching	Combining different strategies	Oral and written Examination
2theoretical – 2practical	Understanding and assimilation	Message Switching	Combining different strategies	Oral and written Examination
2theoretical – 2practical	Understanding and assimilation	Packet Switching	Combining different strategies	Oral and written Examination

	2theoretical – 2practical 2theoretical – 2practical	Understanding and assimilation Understanding and assimilation		Communication Satellites Combining different strategies Communication Satellites Combining different strategies		Communication Satellites Communication Satellites		g different egies g different egies	Oral and written Examination Oral and written Examination	
	177. Course Evaluation									
L t v	Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams reports									
	Daily Preparation Oral Exam	practical Exam	Rep	oort	Monthly E	xam	Fina pra	l theoretical + actical exam	Total	
	10	10	1	0	20			50	100	
	178. Le	earning	and ⁻	Feac h	ning Re	eso	ource	es		
F	Required textbo	ooks (cur	ricular	books	s, if any		N	lothing		
N	Iain reference	s (source	s)			Dat Net A. I Cor Tan	a working Forouza nputer enbaun	Communication g, 5th Edition n Networks,5th	ons & 1, Behrouz 1 Edition,	
F (Recommended books and references (scientific journals, reports)				erences	Rel for tec jou rela En	levant comp hnique rnals a ated to gineer	graduation uter Engined es students, s and periodic the subject ing Design 1	projects ering scientific als , reports.	
F	Electronic Refe	erences, V	Vebsit	es		Bro usi	owse the	he Google n desired sub	etwork ject key.	

Course Description

Professional ethics

Course Description Form

179. Course Name:

Professional ethics

180. Course Code:

CET 41010

181. Semester / Year

The fourth stage

182. Description Preparation Date:

1 / 2 / 2024

183. Available Attendance Forms:

Weekly attendance

184. Number of Credit Hours (Total) / Number of Units (Total)

30 hours first semester

185. Course administrator's name (mention all, if more than one name)

Name: lecturer. Dr. Mustafa Faleh Email: mustafa. faleh@mauc.edu.iq

186. Course Objectives

Course Objectives

As illustrated below .

General goal //

The course contains a group of valuable topics that the student must become familiar with, the concept of professional ethics, a statement between the profession and the job, the sources of professional ethics, the conditions of the profession in society and the status of work in society, general professional ethics for all professions in society and the ethics required of the employer, duties. The professor towards education, the general characteristics of the professor, his rights and behavior, job ethics, and combating financial and administrative corruption.

Special (Behavioral) goals //

Behavioral goals //

1- At the end of the course, the student will be able to learn about professional ethics and its place in the job

2- At the end of the course, the student will be able to realize the importance of professional ethics in the success of work and an individual's life.

3- At the end of the course, the student will be able to possess the personal skills necessary to succeed in his work.

4_ At the end of the course, the student will be able to have the ethics of belonging to his community and strive to achieve satisfactory results.

187.	Teaching and Learning Strategies
Strategy	 A strategy to enhance the student's level of understanding through modern methods. A strategy for instilling initiative in students in line with practical skills. Strategy to enhance cooperative education. The strategy for students to acquire special skills and modern learning theories. Combining different strategies
188.	Course Structure

		Required			
Week	Hours	Learning	Unit or subject name	Learning method	Evaluation
		Outcomes		-	method
		An	introduction	In presenc	Oral exam,
391	2	introductory			papers, reports.
	2	introduction			monthly
		to the topic			exams
392	2	Defining professiona l ethics, its importance, goals, and sources that the student must be aware of.	Concept, importance, goals and sources	In presenc	Oral exam, papers, reports, monthly exams
393	2	Classificati ons of professiona l ethics that include 9 important classificatio ns.	Category	In presenc	Oral exam, papers, reports, monthly exams
394	2	Means of consolidati ng professiona l ethics and the principles and rules of professiona l ethic.	Methods and principles	In presenc	Oral exam, papers, reports, monthly exams
395	2	The factors that contributed to the emergence of professiona l ethics and its historical developme nt, which includes several civilization	Historical development	In presenc	Oral exam, papers, reports, monthly exams
396	2	General rules of	Rules of professional ethics and their	In presenc	Oral exam, papers,

					T
		professiona	relationship to		reports,
		l ethics	professional behavior		monthly
		Distinguish			exams
		ing			
		between			
		them and			
		the rules of			
		job			
		conduct,			
		the			
		importance			
		of job			
		behavior			
		and the			
		impact of			
		adherence			
		to it.			
		Defining	The benefit of	In presenc	Oral exam,
		professiona	professional ethics	_	papers,
		l ethics, its	•		reports,
207	2	importance,			monthly
397		goals, and			exams
		sources that			
		the student			
		must be			
		aware of.			
		The	Drofossional athias and its	In masono	Oral arom
		The	Professional ethics and its	In presenc	Oral exam,
	2	concept of	relationship to		papers,
200		administrati	administrative corruption		reports,
398		ve			monthly
		corruption,			exams
		its types			
		and			
		treatment.			
		The	Conflict of interest	In presenc	Oral exam,
		concept of			papers,
		conflicts of			reports,
399	2	interest and			monthly
	Z	elements of			exams
		preventing			
		conflicts of			
		interest.			
		Characteris	Properties, properties.	In presenc	Oral exam.
		tics of	theoretical models and	r	papers.
		professiona	their practical applications		reports.
		l ethics.	r		monthly
		characterist			exams
		ics of			
400	2	professiona			
		1 ethice			
		standarde			
		and			
		anu			
		of come			
		the series of			
		theories of			1

		professiona			
		1 ethics			
		The	Professional standards,	In presenc	Oral exam,
		concept of	ethics and levels		papers,
		standards,			reports,
		standards			monthly
		manageme			exams
401	ſ	nt, and			
	Z	professiona			
		1 ethics			
		The four			
		levels of			
		professiona			
		1 ethics			
		The	Ethics of the profession of	In presenc	Oral exam,
		professor's	university professor	_	papers,
		professiona			reports,
		1 ethics			monthly
		towards his			exams
402		students,			
402	2	the			
		educational			
		process,			
		and his			
		colleagues			
		in the			
		profession			
		University	The role of the university	In presenc	Oral exam,
		teaching	in teaching professional		papers,
		between	ethics		reports,
		professiona			monthly
		l ethics and			exams
403	-	the reality			
105	2	of practice			
		and			
		between			
		self- and			
		systemic			
		consolidati			
		on			
		Ethics of	Faculty member ethics	In presenc	Oral exam,
		the faculty			papers,
		member			reports,
		with the			monthly
		nursing and			exams
		health staff,			
404	•	in scientific			
	2	research,			
		supervision			
		of scientific			
		theses, and			
		promotion			
		and			
		arbitration			
		L committees			

		TT				
405	2	The concept of organizatio nal behavior and the role of professiona l ethics in achieving organizatio nal commitmen	The relationsh professional eth organizational be	ip of hics to ehavior	In presenc	Oral exam, papers, reports, monthly exams
189.	Cour	rse Evalua	tion			
25 mar discussi monthly	ks for th on meth v and quar	e first sem od, writing rterly exams	ester, divideo reports on	d as fo the	llows: lecture by scientific subject,	
190 .	Lear	ning and T	eaching Re	source	es	
Required textbooks (curricular books, if any) Nothing						
Main ref	erences (s	sources)		Amr Da Professi edition, Written speciali Universi Hawa II Universi Mr. II College Social S	arrag, Engineering ional Ethics, second 2006, p. 4 by a group of sts at King Saud sity. brahim, Al-Marqab sity Dr. Malik Shabani, of Humanities and Sciences	
Recommended books and references (scientific journals, reports)				Graduation projects of students in the computer technology engineering branch related to it, scientific journals and periodicals related to the subjec		
Electronic References, Websites				Submission of reports by students to explain a specific topic of the professional ethics curriculum		

