



جامعة البيان



## Academic Program Description Bologna path

Al-Bayan University

# Technical College of Engineering

2025-2024

Department of computer Technical  
Engineering

2024/9/16

<b>University</b>	Al-Bayan University
<b>Faculty/Institute</b>	Technical College of Engineering
<b>Scientific Department</b>	Department of Computer Technical Engineering
<b>Academic/Professional Program Name</b>	Bachelor of Science in computer Engineering Technology
<b>Final Certificate Name</b>	Bachelor in computer Technical Engineering
<b>Academic System</b>	Bologna path
<b>Description Preparation Date</b>	01-09-2024
<b>File Completion Date</b>	16-09-2024

#### Head of Department

**Signe**



**Name**

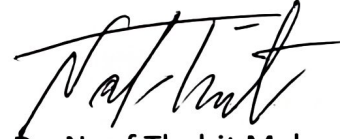
Dr. Mayameen Salman Khadim

**Date**

16-9-2024

#### Scientific Associate

**Signe**



**Name**

Dr. Nouf Thabit Mahmood

**Date**

16-9-2024

This File has been checked by Quality Assurance and University Performance  
Director of Quality Assurance and University Performance Department

#### Head of Quality Assurance Section

**Signe**



**Name**

Dr. Maryam Qutaiba abdalrazak

**Date**

16-9-2024



Dean Approval

امرار من مديرة قسم ضمان الجودة  
عميدة الكلية التقنية الهندسية

## 1. Program Vision

The main vision is to prepare students to become knowledgeable engineers in the latest technologies in the field of Computer Engineering Techniques. The department is committed to providing an academic environment and community services that align with the rapid advancements in technology, offering modern academic programs to keep up with developments in prestigious Arab and international universities in this field.

## 2. Program Mission

- Develop and qualify professionals to meet the needs of the job market in various computer engineering fields by adopting comprehensive teaching methods and guiding students to apply knowledge and skills to real-world problems.
- Create a suitable environment for students to apply their knowledge and skills to understand the needs and social issues related to computing.
- Provide outstanding academic programs in theoretical and applied computer science, adhering to global quality standards and meeting the needs of the job market.
- Build and strengthen partnerships with government and private sectors, and engage with various community institutions.
- Create a motivating environment for faculty members to develop their educational and research knowledge and skills.
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## 3. Program Objectives

The CET Department plays a vital role in achieving the mission of the Engineering Technical College at Al-Bayan University by preparing high-quality graduates. These graduates possess a combination of academic expertise and essential skills demanded by the job market. The department faculty is dedicated to cultivating a comprehensive academic background for students, ensuring their professional success while maintaining a steadfast commitment to ethics and values. Our mission is to inspire and empower students to become leaders and innovators in various fields of computer engineering, actively contributing to community development and technological innovation.

## 4. The Program Accreditation

N/A

## 5. Other External Influences

N/A

## 6. Program Structure

Course Structure	Number of Courses	Credit Units	(%)	Reviews
Institutional Requirements	7	16		First and second stage
College Requirements				
Department Requirements	20	107		First and second stage
Summer Training				
Other				

## 7. Program Description

Year / Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
1 <sup>st</sup>		Bologna path		



2<sup>nd</sup>

Bologna path

## 8. Faculty Members

Titles	Specialization		Numbers	
	General	Special	Staff	Lec
<b>Prof</b>				
<b>Ass. Prof</b>	Electrical Engineering	Electrical Engineering	2	-
	Environmental Engineering	Environmental Engineering		
<b>Lecturers</b>	Electronics and Communications Engineering	Electronics and Communications Engineering	6	2
	Electrical Engineering	Electrical Engineering		
	Information Technology	Information Technology		
	Information and Communications Engineering	Information and Communications Engineering		
	Laser and Optical Electronics Engineering	Laser and Optical Electronics Engineering		
	Computer Science	Computer Science		
<b>Ass. Lecturers</b>	Computer Science	- Computer Science	2	-
	Computer Engineering	- Computer Engineering		

## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Electrical Engineering Fundamentals		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CET1102		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

**Module Aims, Learning Outcomes and Indicative Contents**

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. To develop problem solving skills and understanding of circuit theory through the application of techniques.</li> <li>2. To understand voltage, current and power from a given circuit.</li> <li>3. This course deals with the basic concept of electrical circuits.</li> <li>4. This is the basic subject for all electrical and electronic circuits.</li> <li>5. To understand Kirchhoff's current and voltage Laws problems.</li> <li>6. To perform Thevenin's Norton's Theorem.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Recognize how electricity works in electrical circuits.</li> <li>2. List the various terms associated with electrical circuits.</li> <li>3. Summarize what is meant by a basic electric circuit.</li> <li>4. Discuss the reaction and involvement of atoms in electric circuits.</li> <li>5. Describe electrical power, charge, and current.</li> <li>6. Define Ohm's law.</li> <li>7. Identify the basic circuit elements and their applications.</li> <li>8. Discuss the operations of DC circuits in an electric circuit.</li> <li>9. Discuss the various properties of resistors.</li> <li>10. Explain the two Kirchhoff's laws used in circuit analysis.</li> <li>11. Identify the basic circuit elements, Maximum Power Transfer Theorem and Reciprocity Theorem.</li> <li>12. Describe Thevenin's theorem and Norton's theorem and how they work</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p>1- Definition: Symbols and Abbreviations, Units, Electric Circuit &amp; It's Element. The Direct Current Network. , Ohms low, Charge, Force, Work, Power.( <b>20 hr</b>)</p> <p>2-Circuit Theory: DC circuits – Current and voltage definitions, Passive sign convention and circuit elements, Combining resistive elements in series and parallel. Kirchhoff's laws and Ohm's law. Anatomy of a circuit, Network reduction (<b>20 hr</b>)</p> <p>3-Revision problem classes : Resistive networks, voltage and current sources, Thevenin and Norton equivalent circuits, Conversion Delta To Star Connection, Superposition Method, Maximum Power Transfer Theorem, Reciprocity Theorem ( <b>20 hr</b>)</p>

<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	Type something like: 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.

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	64	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4.26
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	86	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	5.733
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	150		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	Quizzes	1	5% (5)	8	LO #1-4 ,
	Assignments	1	10% (10)	6	LO # 1- 11
	Projects / Lab.	8	20% (20)	Continuous	
	Report	1	5% (5)	12	LO # 6-11
<b>Summative assessment</b>	Midterm Exam	2 hr	10% (10)	10	LO # 1-9
	Final Exam	4hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

### Delivery Plan (Weekly Syllabus)

#### المنهاج الاسبوعي النظري

	Material Covered
<b>Week 1</b>	Symbols And Abbreviations, Units, Electric Circuit & It's Element.
<b>Week 2</b>	The Direct Current Network. Ohms low.
<b>Week 3 and Week 4</b>	Series Circuits (Resistance in Series) Voltage Divider Rule.
<b>Week 5</b>	Parallel Circuits(Resistances in Parallel) Current Divider Rule.
<b>Week 6</b>	Open and Short Circuits, Source Transformation,
<b>Week 7</b>	Series-Parallel Circuits Transformation.
<b>Week 8</b>	Kirchhoff's Laws: - Kirchhoff's current law (KCL) and. Their Use In Network Analysis.
<b>Week 9</b>	Kirchhoff's voltage law (KVL).and Their Use In Network Analysis
<b>Week 10</b>	Midterm exam
<b>Week 11</b>	Conversion Delta To Star Connection And Conversion Star To Delta Connection ,
<b>Week 12</b>	Superposition Method ,
<b>Week 13</b>	Thevenin's Theorem , Norton's Theorem
<b>Week 14</b>	Maximum Power Transfer Theorem
<b>Week 15</b>	Reciprocity Theorem

### Delivery Plan (Weekly Lab. Syllabus)

#### المنهاج الاسبوعي للمختبر

	Material Covered
<b>Week 1</b>	How to use ammeter, voltmeter and ohmmeter.
<b>Week 2</b>	Apply Ohm's Law
<b>Week 3</b>	Apply Kirchhoff's law to measure current
<b>Week 4</b>	Apply Kirchhoff's law to measure voltages
<b>Week 5</b>	Superposition Method
<b>Week 6</b>	Norton's Theorem.
<b>Week 7</b>	Thévenin's Theorem.
<b>Week 8</b>	Delta To Star Connection And Conversion Star To Delta Connection

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Fundamentals of Electric Circuits, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education	Yes
Recommended Texts	DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2020, dissidents.	No
Websites	<a href="https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering">https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering</a>	

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
<p><b>Note:</b> Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				

## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Mathematics I		Module Delivery
Module Type	Support or related learning activity		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CET1103		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	



<b>Module Aims, Learning Outcomes and Indicative Contents</b> أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
<b>Module Aims</b> أهداف المادة الدراسية	<ol style="list-style-type: none"> <li>1. This course deals with differential and integral calculus.</li> <li>2. To develop problem solving skills and understanding of preliminaries to differential calculus.</li> <li>3. To understand differentiation, and differentiation methods.</li> <li>4. To perform applications using the derivative.</li> <li>5. To get a good grasp of Integrals, and Integration methods.</li> <li>6. To understand the relationship between differentiation and integration.</li> </ol>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> <li>1. Recognize Line and Circle Equation and related evaluating formulas.</li> <li>2. List the various terms associated with Functions and their Types.</li> <li>3. Discuss the Limit and Continuity of a Function.</li> <li>4. Describe the Definition of a derivative as a limit, Differentiation Rules, and various types of Function's Derivatives.</li> <li>5. Identify when to use different Differentiation Methods.</li> <li>6. Discuss the Curve Sketching process, and the L'Hospital's Rule.</li> <li>7. Analyze Taylor and Maclaurin Series.</li> <li>8. Identify the Indefinite Integrals.</li> <li>9. Explain the Integration Methods u-substitution, By parts.</li> <li>10. Explain the Integration Methods Involving Trigonometric Functions, Trigonometric substitution.</li> <li>11. Explain the Integration Method Rational Functions by Partial Fractions.</li> <li>12. Explain the Integration Methods Functions Involving Roots, and Functions Involving Quadratics.</li> <li>13. Recognize the Definite Integral and its Application Area Under a Curve.</li> <li>14. Discuss e the Definite Integral Applications Arc Length, Average Value of a Function.</li> <li>15. Discuss the Definite Integral Applications Areas Between Two Curves.</li> </ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p><u>Part A - Preliminaries to differential calculus.</u>                      This part includes the Line and Circle Equation and related evaluating formulas and parameters. Furthermore, main mathematical Functions characteristics Domain, Range, Odd, Even, and their Types. Finally, The Limit and Continuity of a Function Laws, the behavior At Infinity, followed by important Special Limits, then the Continuity Conditions. <b>[9 hrs]</b> + Revision problem classes in weekly tutorials <b>[3 hrs]</b></p> <p><u>Part B – Differential calculus.</u>                      This part will take in details the first key subject of the semester, the Differentiation process from the prospective of Definition as limit, Differentiation Rules, and Function-Derivative Table. Which will be followed by Differentiation Methods namely the Implicit, Logarithmic, and The Chain Rule. Furthermore, four Applications of differentiation will be discussed the Curve Sketching, L'Hospital's Rule, and Taylor and Maclaurin Series. <b>[12 hrs]</b> + Revision problem classes in weekly tutorials <b>[5 hrs]</b></p>

	<p><u>Part C – Integral calculus.</u></p> <p>This part discusses the second key subject the Integration of functions. Followed by dissecting the main Integration Methods, u-substitution, By parts, Involving Trigonometric Functions, Trigonometric substitution, Rational Functions by Partial Fractions, Functions Involving Roots, and Functions Involving Quadratics. Furthermore, it will consider six definite Integral applications, namely The Area Under a Curve, Arc Length, Average Value of a Function, and Areas Between two Curves. <b>[22 hrs]</b> + Revision problem classes in weekly tutorials <b>[8 hrs]</b></p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	This module will primarily focus on encouraging students to participate in the activities, as well as refining and developing their critical thinking skills. This will be achieved through lectures, tutorials, discussions, and grading activities.

<b>Student Workload (SWL)</b> الحمل الدراسي للطلاب موزع على 15 اسبوع			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطلاب خلال الفصل	48	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطلاب أسبوعيا	3.2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطلاب خلال الفصل	77	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطلاب أسبوعيا	5.13
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطلاب خلال الفصل	125		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5,10	LO #1 - 9
	<b>Assignments</b>	2	20% (10)	5,10	LO # 1 - 4, LO # 6-9
	<b>Projects / Lab.</b>	N/A			
	<b>Report</b>	1	10% (10)		LO # 1 - 14
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr	10% (10)	5	LO # 1-11
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b> المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Line and Circle Equation. Functions (Domain, Range, Odd, Even, Types.)
Week 2	The Limit and Continuity of a Function (Laws, At Infinity, Special Limits, Continuity Conditions.)
Week 3	Differentiation (Definition as limit, Differentiation Rules, Function-Derivative Table.)
Week 4	Differentiation Methods (Implicit, Logarithmic, The Chain Rule.)
Week 5	Midterm Exam
Week 6	Applications of Differentiation (Curve Sketching, L'Hospital's Rule.), Applications of Differentiation (Taylor and Maclaurin Series.)
Week 7	Introduction to Indefinite Integrals, Integration Methods (u-substitution, By parts.)
Week 8	Integration Methods (Involving Trigonometric Functions, Trigonometric substitution.)
Week 9	Integration Methods (Integration of Rational Functions by Partial Fractions.)
Week 10	Midterm Exam
Week 11	Integration Methods (Functions Involving Roots, Functions Involving Quadratics.)
Week 12	Midterm Exam
Week 13	Definite Integral and Applications (Definite Integral, Area Under a Curve.)
Week 14	Definite Integral and Applications (Arc Length, Average Value of a Function.)
Week 15	Definite Integral and Applications (Areas Between two Curves)
Week 16	Preparatory week before the final Exam

<b>Delivery Plan (Weekly Tutorial)</b> المنهاج الاسبوعي الاضافي	
	Material Covered
Each week, a question sheet related to the material presented in the theoretical lecture will be solved and debated.	

<b>Learning and Teaching Resources</b> مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Joel R. Hass, Christopher E. Heil, Maurice D. Weir, "Thomas' Calculus: Early Transcendentals", Pearson Education, 14th Edition, (January 1, 2017), ISBN-13: 978-0134439020.	Yes
Recommended Texts	Anthony Croft, Robert Davison, "Mathematics for Engineers: A Modern Interactive Approach", Prentice Hall, 3rd edition, (January 1, 2008), ISBN-13: 978-0132051569.	No

<b>Websites</b>	<a href="https://www.khanacademy.org/math/differential-calculus">https://www.khanacademy.org/math/differential-calculus</a>
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<b>Grading Scheme</b> مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX – Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	راسب	(0-44)	Considerable amount of work required
<p><b>Note:</b> Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				

## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Engineering Drawing		Module Delivery
Module Type	Support or related learning activity		<input type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CET1104		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. To develop spatial visualization skills: Enhance your ability to visualize and mentally manipulate objects in three-dimensional space based on two-dimensional drawings. Strengthen your spatial awareness and improve your understanding of complex engineering design</li> <li>2. Learn sketching and taking field dimensions.</li> <li>3. Take data and transform it into graphic drawings.</li> <li>4. Learn basic engineering drawing formats.</li> <li>5. Learn basic AutoCAD skills.</li> <li>6. Learn how to draw 2D drawings in AutoCAD.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Identify the basic of AutoCAD</li> <li>2. Explain Drawing settings</li> <li>3. How to drawing: Point, Line, Multiline, P line, Spline, X line, Rectangle.</li> <li>4. How to drawing: Donut, Polygon, Circle, Arc, Ellipse</li> <li>5. List Modify Tools Identify: Erase, Undo, Redo, Explode, Move, Copy, Rotate, Mirror,</li> <li>6. Identify Array, Align, Scale, Stretch, Lengthen, Trim, Extend, Break, Join, Chamfer, Fillet.</li> <li>7. Explain Zoom, Pan.</li> <li>8. How to assign: Dimension - Linear, Aligned, Radius, Diameter, Center Mark, Angle, Arc length, Continuous, Baseline, Tolerance, Dimension Space, Dimension Break, Jogged radius, Ordinate dimensions.</li> <li>9. Dealing with: Text, Style, M text, Scale text, Spell,</li> <li>10. Knowing the Hatching Objects.</li> <li>11. Drawing 3d modeling.</li> <li>12. Drawing the Exercises .</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p>--<b>AutoCAD Software</b>, drawing settings, Drawing Tools, Line, Circle, Arc, Ellipse, Donut, Polygon, Rectangle, Point, Multiline, P line, Spline, X line. <b>[20 hrs.]</b></p> <p>--<b>Modify Tools</b> Erase, Undo, Redo, Explode, Move, Copy, Rotate, Mirror, Array, Align, Scale, Stretch, Lengthen, Trim, Extend, Break, Join, Chamfer, Fillet. <b>[4 hrs.]</b></p> <p>--<b>Display Control</b> Zoom, Pan, Redraw, Clean Screen. <b>[4 hrs.]</b></p> <p>--<b>Dimension</b> - Linear, Aligned, Radius, Diameter, Center Mark, Angle, Arc length, Continuous, Baseline, Tolerance, Dimension Space, Dimension Break, Jogged radius, Ordinate dimensions. <b>[4 hrs.]</b></p>

	<p>--Hatching Objects [4hrs]</p> <p>--Text, Style, M text, Scale text, Spell, [4 hrs.]</p> <p>--3D MODELLING, Convert 2D to 3D, Solid Editing [20 hrs.]</p>
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<p style="text-align: center;"><b>Learning and Teaching Strategies</b></p> <p style="text-align: center;">استراتيجيات التعلم والتعليم</p>	
<b>Strategies</b>	<ol style="list-style-type: none"> <li>1. Familiarize with the Software: Before diving into engineering drawing concepts, it's important to become familiar with the AutoCAD software. This includes understanding the user interface, basic tools, and commands. with introductory tutorials or online resources that cover the basics of AutoCAD.</li> <li>2. Step-by-Step Instructions: Break down complex drawing tasks into smaller, manageable steps. Provide step-by-step instructions and demonstrations using AutoCAD, showing students how to execute each step effectively. This approach helps students understand the workflow and build their confidence.</li> <li>3. Visual Aids and Examples: Utilize visual aids, such as slides, diagrams, and examples, to reinforce concepts. Show real-world engineering drawings and explain how they were created using AutoCAD. Visual representations can enhance understanding and make abstract concepts more tangible.</li> <li>4. Group Activities and Collaboration: Promote collaboration among students by assigning group activities or projects. This allows them to work together, share knowledge, and learn from one another. Encourage students to discuss their approaches and problem-solving techniques related to engineering drawing in AutoCAD.</li> <li>5. Provide Feedback: Regularly provide constructive feedback on students' drawings. Highlight areas for improvement, suggest alternative methods, and point out common mistakes. This feedback loop is crucial for students to refine their skills and develop a deeper understanding of engineering drawing principles.</li> </ol>

<p><b>Student Workload (SWL)</b></p> <p>الحمل الدراسي للطالب موزع على 15 اسبوع</p>
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<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطلاب خلال الفصل	48	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطلاب أسبوعيا	3.2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطلاب خلال الفصل	77	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطلاب أسبوعيا	5.13
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطلاب خلال الفصل	125		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5, 11	LO #1-3, 4 and 11
	<b>Assignments</b>	2	10% (10)	4,11	1-3 , 3-10
	<b>Projects / Lab.</b>	10	20% (20)	Continuous	
	<b>Report</b>				
<b>Summative assessment</b>	<b>Midterm Exam</b>	3 hr	10% (10)	7	LO # 1-7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Lab. Syllabus)</b> المنهاج الاسبوعي للمختبر	
	Material Covered
<b>Week 1</b>	Introducing of Engineering Drawing
<b>Week 2</b>	Drawing settings of AutoCAD
<b>Week 3</b>	Drawing Tools Point, Line ,Multiline, P line, Spline, X line.
<b>Week 4</b>	Rectangle, Donut, Polygon
<b>Week 5</b>	Circle, Arc, Ellipse
<b>Week 6</b>	Modify Tools

	Erase, Undo, Redo, Explode, Move, Copy, Rotate, Mirror, Array, Align, Scale, Stretch, Lengthen, Trim, Extend, Break, Join, Chamfer, Fillet. Display Control Zoom, Pan, Redraw, Clean Screen.
<b>Week 7</b>	Mid exam
<b>Week 8</b>	Dimension - Linear, Aligned, Radius, Diameter, Center Mark, Angle, Arc length, Continuous, Baseline, Tolerance, Dimension Space, Dimension Break, Jogged radius, Ordinate dimensions
<b>Week 9</b>	Annotation Tools Text, Style, M text, Scale text, Spell
<b>Week 10</b>	Hatching Objects
<b>Week 11,12</b>	3D modeling
<b>Week13</b>	Convert 2D To 3D
<b>Week 14</b>	Solid Editing
<b>Week 15</b>	Exercises drawing
<b>Week 16</b>	Preparatory week before the final Exam

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Introduction to AutoCAD 2010 By Alf Yarwood Copyright 2009	Yes
<b>Recommended Texts</b>	An Introduction to Autodesk Inventor 2010 and AutoCAD 2010 Unbnd Edition by Randy Shih	No
<b>Websites</b>		

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX – Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	راسب	(0-44)	Considerable amount of work required
<p><b>Note:</b> Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				

## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>Engineering Workshops</b>		Module Delivery
Module Type	<b>Support or related learning activity</b>		<input type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	<b>CET1105</b>		
ECTS Credits	<b>6</b>		
SWL (hr/sem)	<b>150</b>		
Module Level	1	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b></p> <p>أهداف المادة الدراسية</p>	<p>The objective of studying Electrical, Electronic, and Mechanical workshops is to enable students to acquire the necessary skills and knowledge to deal with electrical, electronic, and mechanical systems and devices. This subject aims to teach students how to diagnose faults, repair systems, and perform maintenance on these systems and devices.</p> <p>By studying Electrical, Electronic, and Mechanical workshops, students can understand the principles of electricity, electronics, and mechanics, as well as how to read engineering diagrams and use various tools and equipment to work on them. They also learn how to diagnose faults, repair them, and properly maintain different devices in a safe manner.</p> <p>In general, studying this subject aims to prepare students to become skilled technicians in the field of electrical, electronic, and mechanical engineering. They can work in areas such as industrial maintenance and repair, electrical and electronic installations, automation and robotics, medical devices, and other modern technologies</p>
<p><b>Module Learning Outcomes</b></p> <p>مخرجات التعلم للمادة الدراسية</p>	<p>The learning outcomes of studying Electrical, Electronic, and Mechanical workshops include:</p> <ol style="list-style-type: none"> <li>1. Acquisition of diagnostic and repair skills: Students learn how to analyze problems, identify faults in electrical, electronic, and mechanical systems, and implement appropriate repair procedures.</li> <li>2. Understanding of electrical, electronic, and mechanical principles: Students gain knowledge of engineering and technical fundamentals related to electricity, electronics, and mechanics, including reading engineering diagrams and practical understanding of circuits, electronic devices, and mechanical components.</li> <li>3. Development of practical work skills: Students have the opportunity to learn hands-on and practice using various tools and equipment used in electrical, electronic, and mechanical workshops.</li> <li>4. Ability to perform preventive maintenance: Students learn how to maintain systems and devices and carry out preventive maintenance to ensure proper and sustainable performance.</li> <li>5. Enhancement of teamwork and communication skills: Studying Electrical, Electronic, and Mechanical workshops promotes collaboration among students and the ability to work as a team in problem-solving and executing practical projects.</li> <li>6. Knowledge and Understanding: a. Demonstrate a comprehensive understanding of the principles and concepts related to electrical and mechanical workshop operations. b. Identify and explain the safety measures and regulations applicable to electrical and mechanical workshops.</li> </ol>

	<p>7. Describe the different tools, machines, and materials used in electrical and mechanical workshops.</p> <p>8. Practical Skills: a. Apply safe working practices and use appropriate personal protective equipment (PPE) in electrical and mechanical workshop environments. b. Demonstrate proficiency in using various tools and equipment for turning, filing, drilling, welding, and assembly.</p> <p>9. Perform practical tasks related to electrical and mechanical workshop operations accurately and efficiently. d. Apply problem-solving techniques to troubleshoot and rectify common issues encountered in electrical and mechanical workshop activities.</p> <p>10. Critical Thinking and Analysis: a. Analyze and evaluate different turning processes, instrumentation measures, and cutting tools used in the workshop. b. Assess the quality of filing processes and choose appropriate rasps and tools for different filing tasks.</p> <p>11. Evaluate the drilling processes and select suitable drilling tools based on specific requirements. d. Analyze welding processes, including oxy-acetylene and arc welding, and determine safety precautions and best practices.</p> <p>12. Communication and Collaboration: a. Effectively communicate and collaborate with peers in group projects and workshop activities. b. Present findings, results, and recommendations related to electrical and mechanical workshop tasks in a clear and concise manner.</p> <p>13. Professional and Ethical Responsibility: a. Demonstrate ethical behavior and responsibility in adhering to safety regulations, environmental considerations, and industry standards in electrical and mechanical workshop practices</p> <p>14. Overall, studying this subject prepares students to enter the job market in various technical and engineering fields, such as industrial maintenance, electrical and electronic installations, automation and robotics, medical devices, and other modern technologies.</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A – Electronic workshop</u></p> <p>In this part, we will learn how to check the elements in the electrical circuits, what is the way each element works, how to check it, and find out what is damaged and replace it. <b>[14 hrs.]</b></p> <p>We will also talk about conductors and semiconductors <b>[10 hrs.]</b></p> <p><u>Part B – Electrical workshop</u></p> <ol style="list-style-type: none"> <li>1. Principles of Industrial Safety in Electrical Workshops <b>[4 hrs.]</b></li> <li>2. Tools Used in Electrical Workshops <b>[5 hrs.]</b>.</li> <li>3. Power Sources and Characteristics <b>[5 hrs.]</b></li> <li>4. Multimeter and Wire Size Measurement <b>[5 hrs.]</b></li> </ol> <p><u>Part C – Mechanical workshop</u></p> <ol style="list-style-type: none"> <li>1. Different Types of Welding Irons and Spot Welding <b>[4 hrs.]</b></li> <li>2. Electric Transformers <b>[5 hrs.]</b></li> <li>3. Electric Circuits and Transformer Operation <b>[5 hrs.]</b>.</li> <li>4. Types of Electric Motors <b>[5 hrs.]</b></li> </ol>

### Learning and Teaching Strategies

#### استراتيجيات التعلم والتعليم

<b>Strategies</b>	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 labs, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.
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### Student Workload (SWL)

#### الحمل الدراسي للطالب موزع على 15 اسبوع

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	64	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	4.26
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	86	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.73
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	150		

### Module Evaluation

#### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5, 11	LO #1-4, LO #8-11
	<b>Assignments</b>	1	5% (10)	12	LO # 1-14
	<b>Projects / Lab.</b>	2	20% (10)	Continuous	ALL
	<b>Report</b>	1	5% (10)	13	ALL
<b>Summative assessment</b>	<b>Midterm Exam</b>	4 hr	10% (10)	8	LO # 1-7
	<b>Final Exam</b>	4hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		



<b>Delivery Plan (Weekly Syllabus)</b> المنهاج الاسبوعي للمختبر <b>Electronic, Electrical , Mechanical Workshops</b>	
	<b>Material Covered</b>
<b>Week 1,2</b>	<ul style="list-style-type: none"> <li>❖ Use different measuring devices in the workshop</li> <li>❖ 1- Principles of Industrial Safety in Electrical Workshops. 2- Different Types of Welding Irons (with different capacities) and Spot Welding</li> </ul>
<b>Week 3,4</b>	<ul style="list-style-type: none"> <li>❖ How to use irons, types of soldering used, and how to use absorbent soldering irons</li> <li>❖ 1- Electric Circuits and Transformer Operation. 2- Electrical Installations and Types of Wiring (Surface and Concealed)</li> </ul>
<b>Week 5,6,7</b>	<ul style="list-style-type: none"> <li>❖ Electronic components (resistor , inductors , capacitors)</li> <li>❖ 1- ONE LAMP CONTROLLED BY ONE SWITCH 2- Parallel Wiring of Two Lamps with a Switch and Socket</li> </ul>
<b>Week 8</b>	❖ <b>Midterm Exam</b>
<b>Week 9 ,10</b>	Electronic components(resistor , inductors , capacitors) Drawing a Staircase Lamp (Two-Way Switch) Circuit
<b>Week 11,12</b>	<ul style="list-style-type: none"> <li>❖ Electronic components (Battery , jumper, fuse, push button, switch, rotary switch)</li> <li>❖ 1-Introduction to Workshop Safety 2- Turning Process and Instrumentation Measures</li> </ul>
<b>Week 13,14</b>	<ul style="list-style-type: none"> <li>❖ Electronic components (Diode , Transistor, Transformer)</li> <li>❖ 1- Cutting Tools 2-Practical Exercise - Horizontal Turning</li> </ul>
<b>Week 15</b>	<ul style="list-style-type: none"> <li>❖ using bread board and Vero board, Building a Circuit on Breadboard, Building a Circuit on Vero board</li> <li>❖ 1- Turning Different Shapes 2- Introduction to Filing Process ( practical Exercise)</li> </ul>
<b>Week 16</b>	<b>Final Exam</b>

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1-Encyclopedia of Electronic Components Volume 1 (Charles Platt). 2- J. Smith and E. Johnson, "Electrical Engineering Workshop:Theory and Practice	Yes / online
Recommended Texts		No
Websites		

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
<p><b>Note:</b> Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				

## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Digital Systems		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory Lecture <input checked="" type="checkbox"/> Lab Tutorial Practical Seminar
Module Code	CET1201		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	CET1101	Semester	1
Co-requisites module	None	Semester	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. To understand the flip flop operation.</li> <li>2. To understand the latches operation.</li> <li>3. This course deals with the designing of logic systems.</li> <li>4. To understand the principles of counter circuits.</li> <li>5. To understand the shift registers.</li> <li>6. To have a skill to design ADC and DAC.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Discuss the flip-flops.</li> <li>2. Recognize the differences between flip-flops and latches.</li> <li>3. List the applications of flip-flops.</li> <li>4. Summarize what is meant by the logic systems.</li> <li>5. Explain the counter circuits and discuss the difference between synchronous and asynchronous counter.</li> <li>6. Discuss the types of asynchronous counter circuits.</li> <li>7. Discuss the types of synchronous circuit.</li> <li>8. Identify the shift registers.</li> <li>9. Discuss the operations of each types of shift registers.</li> <li>10. Discuss the shift register counter.</li> <li>11. Explain the principles of ADC and DAC.</li> <li>12. Explain the design for each type of ADC and DAC.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p>--Flip-Flops – SR latch, T latch, D latch. <b>[10 hrs]</b></p> <p>--Flip-Flops- JK FF, edge triggered, and conversion from one type to another. <b>[10 hrs]</b></p> <p>--Counters- Asynchronous, synchronous counters, Decade, up-down counters, and counter decoding. <b>[15 hrs]</b></p> <p>--Shift-registers - serial in/serial out, serial in/parallel out, parallel in/serial out, parallel in/parallel out, bidirectional , shift register counter (Johnson counter, Ring counter)) <b>[10 hrs]</b></p> <p>--Multivibrators- definition, astable, bistable, mono-stable, and 555 timer <b>[5 hrs]</b></p> <p>--A/D convertors modeling -flash ADC, tacking ADC, slope ADC ,successive approximation ADC, digital ramp ADC, delta sigma ADC. <b>[5 hrs]</b></p> <p>--D/A convertors modeling -R/2R DAC, R/2nR DAC. <b>[5 hrs]</b></p>

## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم	
<b>Strategies</b>	Type something like: 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.

Student Workload (SWL)			
الحمل الدراسي للطالب موزعة على 15 اسبوع			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	64	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	4.26
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	86	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.73
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	1	10% (10)	8	LO #1-7
	<b>Assignments</b>	2	10% (10)	4, 10	LO # 1, 3, LO # 3- 8
	<b>Projects / Lab.</b>	10	10% (1)	Continuous	LO # 1-14
	<b>Report</b>	10	10% (1)	Continuous	LO # 1-14
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr	10% (10)	10	LO # 1-10
	<b>Final Exam</b>	4hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b>	
المنهاج الاسبوعي النظري	
	<b>Material Covered</b>
<b>Week 1</b>	Flip-flops and latches(SR latch, D latch)
<b>Week 2</b>	Flip-Flops(T-latch, JK )
<b>Week 3</b>	Flip-Flops(edge triggered, master-slave)
<b>Week 4</b>	Flip-flops (conversion from one type to another, flip flop applications)
<b>Week 5</b>	Asynchronous counter
<b>Week 6</b>	Synchronous counter
<b>Week 7</b>	Decade, up-down counter
<b>Week 8</b>	Cascade counter, Counter decoding
<b>Week 9</b>	Shift-registers (serial in/serial out, serial in/parallel out, parallel in/serial out, parallel in/parallel out)
<b>Week 10</b>	Midterm exam
<b>Week 11</b>	Shift-registers (bidirectional , shift register counter), Johnson counter, Ring counter
<b>Week 12</b>	Multivibrators (definition, astable, bistable)
<b>Week 13</b>	Multivibrators (monostable, 555 timer)
<b>Week 14</b>	A/D convertors (flash ADC, tacking ADC, slope ADC ,successive approximation ADC, digital ramp ADC, delta sigma ADC)
<b>Week 15</b>	D/A convertors (R/2R DAC, $R/2^nR$ DAC)
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

<b>Delivery Plan (Weekly Lab. Syllabus)</b>	
المنهاج الاسبوعي للمختبر	
	<b>Material Covered</b>
<b>Week 1</b>	SR ff, T ff
<b>Week 2</b>	D ff, JK ff
<b>Week 3</b>	Master-slave ff
<b>Week 4</b>	asynchronous counter (2-bit,3-bit)

<b>Week 5</b>	asynchronous counter(4-bit, modulus counter)
<b>Week 6</b>	synchronous counter (2-bit, 3-bit)
<b>Week 7</b>	synchronous counter ( decade, up-down counter)
<b>Week 8</b>	Cascade counter, counter decoding
<b>Week 9</b>	Serial in-serial out, parallel in-parallel out shift register
<b>Week 10</b>	Serial in-parallel out, parallel in- serial out SR
<b>Week 11</b>	Johnson counter, ring counter
<b>Week 12</b>	multivibrator
<b>Week 13</b>	Analogue to digital convertor
<b>Week 14</b>	Digital to analogue convertor

### Learning and Teaching Resources

#### مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Digital Fundamentals by Floyed	Yes
<b>Recommended Texts</b>	Digital circuit analysis and design with Simulink modeling by Steven T. Karris	No
<b>Websites</b>	<a href="https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering">https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering</a>	

### Grading Scheme

#### مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
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<b>Fail Group (0 – 49)</b>	<b>FX</b> – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F</b> – Fail	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.



## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Electrical Circuits		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CET1202		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Electrical Engineering Fundamentals	Semester	1
Co-requisites module	None	Semester	

**Module Aims, Learning Outcomes and Indicative Contents**

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. To develop problem solving skills and understanding of circuit theory through the application of techniques Alternating Waveforms (A.C).</li> <li>2. To understand voltage, current and power from a (A.C) circuit.</li> <li>3. Deals with the basic concept of electrical (A.C) circuits.</li> <li>4. This is the basic subject for all electrical and electronic circuits.</li> <li>5. To understand Kirchhoff's current and voltage Laws problems.</li> <li>6. To perform Thevenin's Norton's Theorem.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Recognize how electricity works in electrical circuits.</li> <li>2. List the various terms associated with electrical circuits.</li> <li>3. Summarize what is meant by a basic electric circuit.</li> <li>4. Discuss the reaction and involvement of atoms in electric circuits.</li> <li>5. Describe electrical power, charge, and current.</li> <li>6. Define Ohm's law.</li> <li>7. Identify the basic circuit elements and their applications.</li> <li>8. Discuss the operations of AC circuits in an electric circuit.</li> <li>9. Discuss the various properties of resistors.</li> <li>10. Explain the two Kirchhoff's laws used in circuit analysis.</li> <li>11. Identify the basic circuit elements, Maximum Power Transfer Theorem and Superposition's method</li> <li>12. Describe Thevenin's theorem and Norton's theorem and how they work IN AC Circuits.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Definition:</u> - The Alternating Current Network Types of Alternating Waveforms, Generation of Alternating Current, and Definitions related to Alternating Waveforms The Alternating Current Network.</p> <p>Ohms law, The Mean Values, The Effective Values, The Vector Diagram <b>(40 hr)</b></p> <p><u>Circuit Theory in (A.C)</u> Ac circuits – Current and voltage definitions, Passive sign convention and circuit elements, Combining resistive elements in series and parallel. Kirchhoff's laws and Ohm's law. Anatomy of a circuit, Network reduction, Series Ac Circuits (R L C), Reviews for Complex Numbers and their mathematical operations <b>(24 hr)</b></p>

	<p><u>Fundamentals</u> Resistive networks, voltage and current sources, Thevenin and Norton equivalent circuits, Conversion Delta To Star Connection, Superposition Method, Maximum Power Transfer Theorem, Superposition's method (<b>24 hr</b>)</p>
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<p style="text-align: center;"><b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم</p>	
<b>Strategies</b>	<p>This Course Specification prepares the student to be able to realize basic parameters in electrical engineering and how to link these parameters. It also makes him capable of solving electrical circuits using different theorems in addition to utilizing the dc theorems to solve ac circuits. Moreover, it goes into configuring 3 phase circuits, vectors, phase and total powers and to have the student being capable of linking electricity to magnetism</p>

<p style="text-align: center;"><b>Student Workload (SWL)</b> الحمل الدراسي للطالب</p>			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	64	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4.26
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	86	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	5.733
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	150		

<p style="text-align: center;"><b>Module Evaluation</b> تقييم المادة الدراسية</p>					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	Quizzes	1	5% (5)	8	LO #1-4
	Assignments	1	5% (5)	14	LO # 1- 11
	Projects / Lab.	10	20% (10)	Continuous	
	Report	10	10% (10)	12	LO # 1-12
<b>Summative assessment</b>	Midterm Exam	2 hr	10% (10)	8	LO # 1-9
	Final Exam	4hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

### Delivery Plan (Weekly Syllabus)

#### المنهاج الاسبوعي النظري

	Material Covered
<b>Week 1</b>	The Alternating Current Network Types of Alternating Waveforms, Generation of Alternating Current, and Definitions related to Alternating Waveforms
<b>Week 2</b>	The Mean Values of Current and Voltage
<b>Week 3</b>	The Effective Values of Current and Voltage
<b>Week 4</b>	Circuit Elements in the Phasor Domain
<b>Week 5</b>	The Vector Diagram
<b>Week 6</b>	Reviews for Complex Numbers and their mathematical operations
<b>Week 7</b>	Series Ac Circuits (R L C) ,Parallel Ac Circuits(R L C)
<b>Week 8</b>	Mid exam
<b>Week 9</b>	The Instantaneous Power and Mean Power of AC, Reactive and Apparent Power
<b>Week 10</b>	Using Kirchhoff's law's to solve AC circuits
<b>Week 11</b>	Using Superposition's method to solve AC circuits
<b>Week 12</b>	Using Thevenin's theorem, to solve AC circuits
<b>Week 13</b>	Using Norton's theorem to solve AC circuits
<b>Week 14</b>	3- Phase Current, 3- Phase System, Y- Connection Delta Connection.
<b>Week 15</b>	Transformers , The hysteresis losses , The eddy current losses

### Delivery Plan (Weekly Lab. Syllabus)

#### المنهاج الاسبوعي للمختبر

	Material Covered
<b>Week 1</b>	Lab 1: How to use measuring devices for alternating circuits (A.C) Oscilloscope, voltmeter and ammeter
<b>Week 2</b>	Lab 2: how to measure Alternating Waveforms
<b>Week 3</b>	Lab 3: Apply Ohm's Law
<b>Week 4</b>	Lab 4: Series Ac Circuits (R C)
<b>Week 5</b>	Lab 5: Series Ac Circuits (R L)
<b>Week 6</b>	Lab 6: Series Ac Circuits (R L C)
<b>Week 7</b>	Lab 7: Apply Kirchhoff's law to measure voltages
<b>Week 8</b>	Lab 8: Apply Kirchhoff's law to measure current

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Fundamentals of Electric Circuits, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education	Yes
Recommended Texts	DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2020, dissidents.	No
Websites	<a href="https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering">https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering</a>	

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
<p><b>Note:</b> Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				

## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Programming Essentials		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CET1203		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

**Module Aims, Learning Outcomes and Indicative Contents**

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. To develop problem solving skills and understanding of programming principles.</li> <li>2. To understand the logic behind programming.</li> <li>3. This course include using C++ as a programming language.</li> <li>4. This course include algorithm design.</li> <li>5. To understand how a programmer should prepare his work and think logically.</li> <li>6. To perform programming project using control statements, functions, and to deal with the data stored in an array or file.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Use of algorithms (Flowchart specifically).</li> <li>2. Explain how the program is written using C++ Programming language.</li> <li>3. Define and use of variables (Data types, Declaration of variables).</li> <li>4. Use of operators and its precedence (Assignment, Arithmetic operators, Relational and Logical operators, Bitwise Operators, Increment and decrement, Cast operator, and Conditional operator).</li> <li>5. Making Decisions (use of: if, if-else, and switch statements) and draw of Flowchart of if-else statement.</li> <li>6. Use of Loops (for, while, do-while), and use of break and continue statements with loops, and draw of Flowchart of loops.</li> <li>7. Use of Arrays (one and two dimensional).</li> <li>8. Use of Functions (Built-in function functions (Library functions), and User-Defined functions).</li> <li>9. Use of arguments passed by value and by reference, and use of Local and global variables.</li> <li>10. Use of Character sequences and string handling.</li> <li>11. Handling and processing text files in C++.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p>- Introduction to computers and programming. Types of programs (Applications and Systems). Programming languages (Machine, Assembly, and High-level language). Introduction to Compilers, Interpreters, object file, and executable file. Introduction to C++ with a simple program implementation. Types of programming errors, Program development life cycle, Algorithms - Flowchart - .</p> <p>Header files, Standard Input/output instructions, Comments in C++. <b>[15 hrs]</b></p> <p>-- Variables, Data Types, Declaration of variables, Constants, Statements. Operators (Assignment, Arithmetic operators, Relational and Logical operators,</p>

	<p>Bitwise Operators, Increment and decrement, Cast operator, and Conditional operator), Precedence of operators. <b>[5 hrs]</b></p> <p>-- Making Decisions (if, if-else statements), Flowchart of if-else statement. Making Decisions (switch statement), using break statement with switch statement, Flowchart of switch statement. Loops (for, while, do-while), using break and continue statements with loops, Flowchart of loops. <b>[10 hrs]</b></p> <p>- -Arrays (One dimensional and Two Dimensional) <b>[5 hrs]</b></p> <p>-- Functions (Built-in function functions (Library functions), and User-Defined functions), Function prototype (Declaration), Function call, Passing arguments to a function, return statement, Value-Returning vs. Void (Non Value Returning) functions, Function with no argument and no return value, Function with no argument but return value, Function with argument but no return value, Function with argument and return value. Arguments passed by value and by reference, Recursion, Local and global variables. <b>[15 hrs]</b></p> <p>-- Character sequences and string handling, ASCII table. <b>[5 hrs]</b></p> <p>- -Handling and processing text files in C++ <b>[5 hrs]</b></p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p>The main strategy that will be adopted in delivering this module is to encourage students' participation in learning and developing their skills in programming and logic thinking, 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 lab experiments involving assignments and project design activities that are interesting to the students.</p>



<b>Student Workload (SWL)</b> الحمل الدراسي للطالب			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	64	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4.26
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	86	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	5.73
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	150		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	1	10% (10)	6	LO #1- 6
	<b>Assignments</b>	1	10% (10)	Continuous	LO #1-10
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	LO #1-11
	<b>Report</b>	1	5% (10)	Continuous	LO #1, 11
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr	10% (10)	7	LO # 1 to 7
	<b>Final Exam</b>	4hr	50% (50)	15	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b> المنهاج الأسبوعي النظري	
	Material Covered
<b>Week 1</b>	Introduction (History of computers). Types of programs (Applications and Systems). Programming languages (Machine, Assembly, and High-level language).
<b>Week 2</b>	Introduction to Compilers, Interpreters, object file, and executable file. Types of programming errors, program development life cycle.
<b>Week 3</b>	Algorithms (Flowchart).
<b>Week 4</b>	Variables, Data Types, Declaration of variables, Constants, Statements, and Operators.
<b>Week 5</b>	Making Decisions (if, if-else statements), flowchart of if-else statement.
<b>Week 6</b>	Making Decisions (switch statement), using break statement with switch statement, flowchart of switch statement.

<b>Week 7</b>	Mid-term Exam
<b>Week 8</b>	Loops (while, do-while), using break and continue statements with loops, flowchart of loops.
<b>Week 9</b>	Arrays (One dimensional)
<b>Week 10</b>	Arrays (Two Dimensional)
<b>Week 11</b>	Functions: Built-in function functions (Library functions), and User-Defined functions), Function prototype (Declaration), function call, Passing arguments to a function, return statement, Local and global variables.
<b>Week 12</b>	Functions (Value-Returning) vs. Void (Non Value Returning) functions, function with no argument and no return value, function with no argument but return value, function with argument but no return value, function with argument and return value. Arguments passed by value and by reference.
<b>Week 13</b>	Character sequences and string handling, ASCII table.
<b>Week 14</b>	Handling and processing text files in C++
<b>Week 15</b>	<b>Preparatory week before the final Exam</b>

### Delivery Plan (Weekly Lab. Syllabus)

#### المنهاج الأسبوعي للمختبر

	Material Covered
<b>Week 1</b>	Lab 1: Introduction to C++ with a simple program implementation. Header files, Standard Input/output instructions, Comments in C++.
<b>Week 2</b>	Lab 2: Variables and Operators (Assignment, Arithmetic operators, Relational and Logical operators, Bitwise Operators, Increment and decrement, Cast operator, and Conditional operator), Precedence of operators.
<b>Week 3</b>	Lab 3: Making Decisions (if, if-else).
<b>Week 4</b>	Lab 4: Making Decisions (switch statements).
<b>Week 5</b>	Lab 5: Loops (for)
<b>Week 6</b>	Lab 6: Loops (while, and do-while)
<b>Week 7</b>	Lab 7: Arrays (1D)
<b>Week 8</b>	Lab 8: Arrays (2D)
<b>Week 9</b>	Lab 9: Functions
<b>Week 10</b>	Lab 10: Function types according to whether it take arguments and/or return a value or not.
<b>Week 11</b>	Lab 11: Character sequences and string handling.
<b>Week 12</b>	Lab 12: Text files

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	C++ How to Program, 6th Edition 2007 By P. J. Deitel - Deitel & Associates, Inc., H. M. Deitel - Deitel & Associates, Inc.	Yes
Recommended Texts	Starting Out with Programming Logic and Design (What's New in Computer Science), 5th Edition 2018 By Tony Gaddis	No
Websites	<a href="https://www.geeksforgeeks.org/c-plus-plus">https://www.geeksforgeeks.org/c-plus-plus</a>	

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
<p><b>Note:</b> Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				

## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Mathematics II		Module Delivery
Module Type	Support or related learning activity		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CET1204		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	CET 1103	Semester	1
Co-requisites module	None	Semester	

<b>Module Aims, Learning Outcomes and Indicative Contents</b> أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
<b>Module Aims</b> أهداف المادة الدراسية	<ol style="list-style-type: none"> <li>1. To Understand concepts of vectors and vector operations.</li> <li>2. To Understand concepts of linear algebra.</li> <li>3. To get a grasp of various methods to solve systems of linear equations.</li> <li>4. To Compute linear transformations.</li> <li>5. To be able to determine Eigenvalues and Eigenvectors.</li> <li>6. To perform matrix diagonalization.</li> </ol>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> <li>1. Recognize Vectors concepts, notation and Operations.</li> <li>2. Discuss dot product, cross product, Orthogonal and orthonormal vectors.</li> <li>3. Discuss the terms Diagonal, Triangular, Symmetric, Square Matrix, Transpose of a Matrix.</li> <li>4. Describe the matrix operations {addition, subtraction, scalar multiplication, multiplication}.</li> <li>5. Identify Determinant and Inverse for Nonsingular matrices.</li> <li>6. Discuss aspects about System of Linear Equations (Linear Equations, Linear Equations Solution, Matrix equations.).</li> <li>7. Identify Row operations, row-echelon form “triangular”, Rank of a Matrix, reduced row-echelon form, Augmented Matrix.</li> <li>8. Discuss Gaussian elimination.</li> <li>9. Explain Gauss–Jordan elimination and Solving Systems with Inverses.</li> <li>10. Explain Cramer's Rule.</li> <li>11. Explain Linear Combinations of Vector, span.</li> <li>12. Explain Linear Dependence and Independence, Basis and Dimension, Rank of a Matrix.</li> <li>13. Recognize Linear Transformations.</li> <li>14. Discuss Polynomials of Matrices, Characteristic Polynomial, Cayley–Hamilton Theorem.</li> <li>15. Discuss Eigenvalues and Eigenvectors, Diagonalizing Matrices.</li> </ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p><u>Part A - Vectors.</u>                      This part includes Vectors definition, notation {Ordered set, Matrix, Unit vector}, Magnitude, Unit, Zero, negative, Direction, Operations on vectors {addition, subtraction, scalar multiplication}. In addition to Operations on vectors {dot product, cross product}, Orthogonal, orthonormal vectors. <b>[6 hrs]</b> + Revision problem classes in weekly tutorials <b>[2 hrs]</b></p> <p><u>Part B – Matrices.</u>                      This part will take in details Matrices (Matrix, Diagonal, Triangular, Symmetric, Square Matrix, Transpose of a Matrix.), in addition to operations {addition, subtraction, scalar multiplication, multiplication}. Furthermore, Determinant, Inverse (Nonsingular). <b>[10 hrs]</b> + Revision problem classes in weekly tutorials <b>[3 hrs]</b></p>

	<p><u>Part C – System of Linear Equations.</u></p> <p>This part discusses System of Linear Equations (Linear Equations, Linear Equations Solution, Matrix equations.), in addition to Row operations, row-echelon form “triangular”, Rank of a Matrix, reduced row-echelon form, Augmented Matrix. Furthermore, Gaussian elimination, Gauss–Jordan elimination, Solving Systems with Inverses, Cramer's Rule is described. <b>[14 hrs]</b> + Revision problem classes in weekly tutorials <b>[4 hrs]</b></p> <p><u>Part D – Vector Spaces and Diagonalization.</u></p> <p>This part discusses Vector Spaces (Linear Combinations of Vector, span, Linear Dependence and Independence, Basis and Dimension, Rank of a Matrix, Linear Transformations. Furthermore, Diagonalization (Polynomials of Matrices, Characteristic Polynomial, Cayley–Hamilton Theorem, Eigenvalues and Eigenvectors, Diagonalizing Matrices.) [15 hrs] + Revision problem classes in weekly tutorials [5 hrs]</p>
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### Learning and Teaching Strategies

#### استراتيجيات التعلم والتعليم

<b>Strategies</b>	This module will primarily focus on encouraging students to participate in the activities, as well as refining and developing their critical thinking skills. This will be achieved through lectures, tutorials, discussions, and grading activities.
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### Student Workload (SWL)

#### الحمل الدراسي للطالب

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	48	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3.2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	5.13
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	125		

### Module Evaluation

#### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	20%	5,10	LO #1 - 4, LO # 6-9
	<b>Assignments</b>	2	15%	5,10	LO # 1 - 14, LO # 6-9
	<b>Projects / Lab.</b>	N/A			
	<b>Report</b>	5	5%	Cont.	LO # 1-15
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr	10% (10)	5	LO # 1-7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

	Material Covered
Week 1	<b>Vectors</b> (Definition, notation {Ordered set, Matrix, Unit vector}, Magnitude, Unit, Zero, negative, Direction, Operations on vectors {addition, subtraction, scalar multiplication}.)
Week 2	<b>Vectors</b> (Operations on vectors {dot product, cross product}, Orthogonal, orthonormal vectors.)
Week 3	<b>Matrices</b> (Matrix, Diagonal, Triangular, Symmetric, Square Matrix, Transpose of a Matrix.)
Week 4	<b>Matrices</b> (operations {addition, subtraction, scalar multiplication, multiplication}). <b>Matrices</b> (Determinant, Inverse (Nonsingular))
Week 5	<b>Midterm Exam</b>
Week 6	<b>System of Linear Equations</b> (Linear Equations, Linear Equations Solution, Matrix equations.)
Week 7	<b>System of Linear Equations</b> (Row operations, row-echelon form “triangular”, Rank of a Matrix, reduced row-echelon form, Augmented Matrix.)
Week 8	<b>System of Linear Equations (Gaussian elimination.), System of Linear Equations (Gauss–Jordan elimination, Solving Systems with Inverses.)</b>
Week 9	<b>System of Linear Equations (Cramer's Rule.)</b>
Week 10	<b>Midterm Exam</b>
Week 11	<b>Vector Spaces</b> (Linear Combinations of Vector, span.). <b>Vector Spaces</b> (Linear Transformations.)
Week 12	<b>Midterm Exam</b>
Week 13	<b>Vector Spaces</b> (Linear Dependence and Independence, Basis and Dimension, Rank of a Matrix.)
Week 14	<b>Diagonalization</b> (Polynomials of Matrices, Characteristic Polynomial, Cayley–Hamilton Theorem.)
Week 15	<b>Diagonalization</b> (Eigenvalues and Eigenvectors, Diagonalizing Matrices.)
Week 16	<b>Preparatory week before the final Exam</b>

### Delivery Plan (Weekly Tutorial)

#### المنهاج الاسبوعي الاضافي

#### Material Covered

Each week, a question sheet related to the material presented in the theoretical lecture will be solved and debated.

### Learning and Teaching Resources

#### مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	David C. Lay, Judi J. McDonald, Steven R. Lay, "Linear Algebra and Its Applications", Pearson Education, 6th edition (July 10th 2020), ISBN-13: 978- 0136880929.	Yes
<b>Recommended Texts</b>	Gilbert Strang, " Linear Algebra and Its Applications", Cengage Learning, 4th edition, (January 1, 2006), ISBN-13: 978-0030105678.	No
<b>Websites</b>	<a href="https://www.udemy.com/course/linear-algebra-with-applications/">https://www.udemy.com/course/linear-algebra-with-applications/</a>	

### Grading Scheme

#### مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 – 49)</b>	<b>FX – Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.



## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Arabic Language		Module Delivery
Module Type	Basic learning activities		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	MTU1001		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	1	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<p>أهداف المادة الدراسية هي اني يكون الطالب قادراً على أن :</p> <ol style="list-style-type: none"><li>1. يتعرف على أنواع الأخطاء اللغوية المشتركة وتوضيح أسبابها وكيفية تجنبها.</li><li>2. يتعلم القواعد المتعلقة بالتاء المربوطة والطويلة والتاء المفتوحة وكيفية كتابتها بشكل صحيح.</li><li>3. يتعلم قواعد كتابة الألف الممدودة والمقصورة واستخدام الحروف الشمسية والقمرية بشكل صحيح.</li><li>4. التعرف على الضاد والطاء ومعرفة كيفية التمييز بينهما في الكتابة.</li><li>5. يتعلم طرق كتابة الهمزة بشكل صحيح وفقاً للقواعد اللغوية.</li><li>6. التعرف على علامات الترقيم واستخدامها بشكل صحيح في النصوص.</li><li>7. يفهم الفروق بين الاسم والفعل والتمييز بينهما في الجمل.</li><li>8. يفهم المفاعيل وكيفية استخدامها بشكل صحيح في النصوص.</li><li>9. يتعلم الأرقام والعدد واستخدامها في التعبير عن الكميات.</li><li>10. يتجنب الأخطاء اللغوية الشائعة في سياقات عملية لتعزيز فهم القواعد وتحسين المهارات اللغوية.</li><li>11. يدرس النون والتنوين وفهم معاني حروف الجر واستخدامها بشكل صحيح في الجمل.</li><li>12. يركز على الجوانب الشكلية للخطاب الإداري وكيفية كتابته بأسلوب صحيح ومناسب.</li><li>13. التعرف على لغة الخطاب الإداري وفهم استخدامها في التواصل الإداري.</li><li>14. يفهم نماذج من المراسلات الإدارية لتطبيق المفاهيم والمهارات المكتسبة في الخطاب الإداري.</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>مخرجات التعلم للمادة الدراسية هي:</p> <ol style="list-style-type: none"><li>1. قدرة الطلاب على تحليل وتعريف الأخطاء اللغوية المشتركة وتطبيق القواعد الصحيحة لتجنبها.</li><li>2. القدرة على استخدام القواعد اللغوية المتعلقة بالتاء المربوطة والطويلة والتاء المفتوحة بشكل صحيح.</li><li>3. قدرة الطلاب على استخدام الألف الممدودة والمقصورة بشكل صحيح واستخدام الحروف الشمسية والقمرية بطريقة صحيحة.</li><li>4. تمكين الطلاب من التمييز بين الضاد والطاء وتطبيق القواعد الصحيحة في الكتابة.</li><li>5. القدرة على كتابة الهمزة بشكل صحيح وفقاً للقواعد اللغوية.</li><li>6. استخدام علامات الترقيم بشكل صحيح في النصوص المكتوبة.</li><li>7. فهم الطلاب للفروق بين الاسم والفعل وتمكينهم من استخدامها بشكل صحيح في الجمل.</li><li>8. القدرة على استخدام المفاعيل بشكل صحيح في النصوص المكتوبة.</li><li>9. استخدام الأرقام والعدد بطريقة صحيحة للتعبير عن الكميات.</li><li>10. التمكن من تطبيق الأخطاء اللغوية الشائعة في سياقات عملية وتصحيحها بشكل مناسب.</li><li>11. فهم استخدام النون والتنوين ومعاني حروف الجر واستخدامها بشكل صحيح في الجمل.</li><li>12. القدرة على كتابة الخطاب الإداري بأسلوب صحيح ومناسب وفهم لغة الخطاب الإداري.</li><li>13. تطبيق المفاهيم والمهارات المكتسبة في كتابة المراسلات الإدارية بشكل صحيح وفعال.</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>المحتويات الإرشادية في مادة اللغة تشمل مجموعة من المفاهيم والمواضيع التي يتم تغطيتها خلال عملية التعلم. ومن بين المحتويات الإرشادية المهمة:</p> <ol style="list-style-type: none"><li>1. مقدمة عن الأخطاء اللغوية والتعريف بالتاء المربوطة والتاء المطولة والتاء المفتوحة. ( 4 ساعات)</li><li>2. قواعد كتابة الألف الممدودة والمقصورة والتعرف على الحروف الشمسية والقمرية. ( 4 ساعات)</li><li>3. دراسة الضاد والطاء وتعلم طرق كتابتهما بشكل صحيح. ( 4 ساعات)</li><li>4. تعلم كتابة الهمزة بشكل صحيح وفقاً للقواعد اللغوية. ( 4 ساعات)</li><li>5. دراسة علامات الترقيم وتعلم استخدامها بشكل صحيح في النصوص اللغوية. ( 4 ساعات)</li><li>6. التعرف على الاسم والفعل والتفريق بينهما وفهم القواعد المتعلقة بهما. ( 4 ساعات)</li><li>7. دراسة المفاعيل وتعلم استخدامها في الجمل اللغوية. ( 4 ساعات)</li><li>8. التعرف على الأعداد واستخدامها بشكل صحيح في العبارات والجمل. ( 4 ساعات)</li><li>9. دراسة الأخطاء اللغوية الشائعة وتطبيقاتها في النصوص اللغوية. ( 4 ساعات)</li><li>10. تعلم استخدام النون والتنوين وفهم معاني حروف الجر واستخدامها بشكل صحيح في الجمل. ( 3 ساعات)</li><li>11. التعرف على الجوانب الشكلية للخطاب الإداري وفهم لغته وقواعده. ( 3 ساعات)</li><li>12. دراسة نماذج من المراسلات الإدارية وتطبيقها في الكتابة. ( 3 ساعات)</li></ol> <p>توفر هذه المحتويات الإرشادية للطلاب فهماً شاملاً للمفاهيم اللغوية وتعلم القواعد والتطبيقات العملية التي تساعدهم في تطوير مهاراتهم اللغوية.</p>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	استراتيجيات التعلم والتعليم المستخدمة في مادة اللغة تشمل مجموعة متنوعة من النهج والتقنيات التي تعزز عملية التعلم للطلاب. من بين هذه الاستراتيجيات:
	1. التفاعل النشط: يتم تشجيع الطلاب على المشاركة والمشاركة الفعالة في الدروس من خلال المناقشات الجماعية والأنشطة التفاعلية.
	2. التعلم التعاوني: يشجع التعاون والتعاون بين الطلاب من خلال العمل الجماعي والمشاريع الجماعية، حيث يتعاون الطلاب مع بعضهم البعض لتحقيق أهداف التعلم المحددة.
	3. التطبيق العملي: يتم توفير فرص للطلاب لتطبيق المفاهيم والمهارات المكتسبة في سياقات عملية وواقعية، مما يعزز التفاعل الفعال مع المادة.
	4. استخدام التقنيات الحديثة: يستفيد الطلاب من استخدام التكنولوجيا في عملية التعلم، مثل استخدام الحواسيب والإنترنت للبحث والتعلم الذاتي.
	5. توفير ردود فعل فورية: يتم توفير ردود فعل فورية وتقييم مستمر للطلاب، سواء عن طريق التقييمات الشفهية أو الكتابية، مما يساعدهم على تحسين أدائهم وتطوير مهاراتهم.
	6. التنوع في وسائل التواصل: يتم استخدام مجموعة متنوعة من وسائل التواصل والتعليم، مثل المحاضرات التوضيحية، والمناقشات الجماعية، والأنشطة العملية، والعروض التقديمية، لتلبية احتياجات وأساليب التعلم المختلفة للطلاب.
	7. باستخدام هذه الاستراتيجيات، يتم تعزيز التفاعل والتعلم الفعال للطلاب، و تحفيزهم على المشاركة واكتساب المعرفة والمهارات بشكل شامل وشيق.

## Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطلاب خلال الفصل	33	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطلاب أسبوعيا	2.2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطلاب خلال الفصل	17	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطلاب أسبوعيا	1.13
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطلاب خلال الفصل	50		

## Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	Quizzes	2	20%	5, 10	LO #1-4 LO #4-9
	Assignments	2	10% (10)	2, 12	LO # 1-5 , 5-12
	Projects / Lab.				
	Report	1	10% (10)	14	LO # 1-12
<b>Summative assessment</b>	Midterm Exam	2 hours	20% (10)	7	LO # 1-7
	Final Exam	3 hours	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)		
المنهاج الاسبوعي النظري		
8-1	مقدمة عن الأخطاء اللغوية – التاء المربوطة والطويلة والتاء المفتوحة	الأسبوع الأول
14-9	قواعد كتابة الالف الممدودة والمقصورة – الحروف الشمسية والقمرية	الأسبوع الثاني
19-15	الضاد والطاء	الاسبوع الثالث
30-20	كتابة الهمزة	الأسبوع الرابع
36-31	علامات الترقيم	الأسبوع الخامس
50-37	الاسم والفعل والتفريق بينهما - المفاعيل	الأسبوع السادس
	الامتحان النصفي	الأسبوع السابع
61-51	العدد	الأسبوع الثامن
69-62	تطبيقات الأخطاء اللغوية الشائعة	الأسبوع التاسع والعاشر
75-70	النون والتنوين - معاني حروف الجر	الاسبوع الحادي عشر
80-76	الجوانب الشكلية للخطاب الإداري	الاسبوع الثاني عشر
86-81	لغة الخطاب الإداري	الأسبوع الثالث عشر والرابع عشر
	نماذج من المراسلات الإدارية	الأسبوع الخامس عشر
	الاستعداد للامتحان النهائي	الأسبوع السادس عشر

Learning and Teaching Resources				
مصادر التعلم والتدريس				
	Text	Available in the Library?		
<b>Required Texts</b>	• ملزمة اللغة العربية ( المعجمة من وزارة التعليم العالي والبحث العلمي)	Yes		
<b>Recommended Texts</b>		No		
<b>Websites</b>	The Collage E-Library			
Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX</b> - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F</b> - Fail	راسب	(0-44)	Considerable amount of work required
<b>Note:</b> Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	English Language I		Module Delivery
Module Type	Basic learning activities		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	MTU1002		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	1	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. know students with essential information in the English language in association with reading, writing and speaking skills, and knowing more English vocabulary.</li> <li>2. To understand pronouns, questions and short answers, tenses (present, past and future), adjective, adverb, prepositions of place, punctuation marks and practicing writing.</li> <li>3. This module works towards enhancing students' English language competencies along with their technical or professional knowledge.</li> <li>4. Enhance students' communication skills in English can result in better job opportunities in the future</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>The student will have the ability to:</p> <ol style="list-style-type: none"> <li>1. Know the English skills of reading, and writing.</li> <li>2. Recognize other English language skills such as: grammar, vocabulary.</li> <li>3. Understand and appreciate the importance of grammar aspects and vocabulary to increase the ability of communicating ideas about the English language.</li> <li>4. Understand pronouns, questions and short answers.</li> <li>5. Understand tenses present, past and future.</li> <li>6. Understand adjectives, adverbs, prepositions of place, and punctuation marks.</li> <li>7. Practicing reading and writing.</li> <li>8. Enhance students' communication skills in English.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><b>Part A: Parts of Sentence.</b> Pronoun, question and short answer, adjective, adverb, prepositions of place. [14 hrs]</p> <p><b>Part B: Tenses</b> Past Tense, Present Tense, and Future Tense. [8 hrs]</p> <p><b>Part C: Reading and Writing</b> Punctuation marks, and practicing writing [8 hrs]</p>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<p><b>Strategies</b></p>	<p>The main strategies that will be adopted in delivering this module are:</p> <ul style="list-style-type: none"> <li>- Allow students to actively participate in the learning process with class discussions and exercises that support the initiative.</li> <li>- Use didactic questioning through questions to determine student understanding of the material.</li> <li>- Writing an assignment and report that encourages students to clarify and organize their thinking and independently research and present on a topic.</li> </ul>
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<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	33	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	2.2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.13
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	50		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	20% (20)	5, 10	LO # 1-3 , 4- 7
	<b>Assignments</b>	2	10% (10)	Cont.	LO # 1- 7
	<b>Projects / Lab.</b>				
	<b>Report</b>	1	10% (10)	14	1-8
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hours	10% (10)	8	LO # 1-5
	<b>Final Exam</b>	3 hours	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b> المنهاج الاسبوعي النظري	
	Material Covered
<b>Week 1</b>	<b>Unit 1:</b> Grammar: Types of Pronouns Vocabulary: Everyday objects, Plurals Reading and Writing Skill
<b>Week 2</b>	<b>Unit 2:</b> Grammar: Pronoun, Questions Vocabulary: Countries, Adjective and Nouns Reading and Writing Skill
<b>Week 3</b>	<b>Unit 3:</b> Grammar: Negatives, Questions and short answer Vocabulary: Jobs, Personal Information Reading and Writing Skill

<b>Week 4</b>	<b>Unit 4:</b> Grammar: Possessive adjectives, Possessive 's, common verbs (1): has/have, love, like, work. Vocabulary: The family, The alphabet Reading and Writing Skill
<b>Week 5</b>	<b>Unit 5:</b> Present Simple, Questions Vocabulary: Sport, Food and Drink, Verb phrase, Languages and nationalities, Adjective + noun. Reading and Writing Skill
<b>Week 6</b>	<b>Unit 6:</b> Grammar: Adverbs of frequency (sometimes, always, never), Questions and Negatives. Vocabulary: The Time, Word that go together Reading and Writing Skill
<b>Week 7</b>	<b>Unit 7:</b> Grammar: Question words, Pronouns (subject, object, possessive), that and this. Vocabulary: Adjectives Reading and Writing Skill Grammar: There is/There are, Prepositions of place Vocabulary: Rooms and furniture, Place of town Reading and Writing Skill
<b>Week 8</b>	<b>Mid exam</b>
<b>Week 9</b>	<b>Unit 9:</b> Grammar: Past Simple Tense - regular verbs Vocabulary: years, have, do, go Reading and Writing Skill
<b>Week 10</b>	<b>Unit 10:</b> Grammar: Past Simple Tense - irregular verbs, Questions and Negatives, Time expression, ago. Vocabulary: Weekend activities, Sport and leisure Reading and Writing Skill
<b>Week 11</b>	<b>Unit 11:</b> Grammar: can/can't, Adverbs, Request and offers. Vocabulary: Verb + noun, Adjective + noun, Opposite adjective Reading and Writing Skill
<b>Week 12</b>	<b>Unit 12:</b> Grammar: Would like, some and any, like and would like Vocabulary: Places and town, In cafe Reading and Writing Skill
<b>Week 13</b>	<b>Unit 13:</b> Grammar: Present Continuous Tense Vocabulary: Colors, Clothes, Opposite verbs Reading and Writing Skill
<b>Week 14</b>	<b>Unit 14:</b> Grammar: Future Tense, going to Vocabulary: Forms of transport Reading and Writing Skill
<b>Week 15</b>	Grammar: Punctuation Marks, Grammar revision Vocabulary: Vocabulary revision Reading and Writing Skill
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>



## Learning and Teaching Resources

### مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	New Headway Plus/ Beginner, John and Liz Soars, Oxford University Press	No
<b>Recommended Texts</b>	Understanding and Using English Grammar, 5 <sup>th</sup> Edition, Betty S. Azar Stacy A. Hagen.	No
<b>Websites</b>		

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound works with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX – Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Computer fundamentals		Module Delivery
Module Type	Basic		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	MTU1004		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	1	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<p>The module aims to:</p> <ol style="list-style-type: none"><li>1. To introduce students to the fundamental concepts of computers, including their evolution, advantages, and classification based on purpose, size, and data type.</li><li>2. To familiarize students with the physical components of a computer and software entities, highlighting their roles in computer operations.</li><li>3. To promote awareness of computer security, ethics, and intellectual property rights, emphasizing the types of violations and measures for protection.</li><li>4. To provide an overview of operating systems, their functions, classifications, and examples, with a focus on the Windows 11 operating system and its desktop components.</li><li>5. To equip students with practical knowledge of computer usage and maintenance, covering file organization, software installation, common computer settings, and promoting responsible practices.</li><li>6. These aims and indicative contents aim to achieve a comprehensive understanding of computer fundamentals, security, operating systems, and proper computer usage and maintenance.</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>By the end of the module, students should be able to:</p> <ol style="list-style-type: none"><li>1. Demonstrate a comprehensive understanding of computer fundamentals, including the concept of a computer, stages of the computer life cycle, and advantages of computers.</li><li>2. Classify computers based on their purpose, size, and data type, and identify the physical components and software entities of a computer system.</li><li>3. Apply ethical principles in the digital world and understand the importance of computer security, software licenses, and protecting against hacking and cyber intrusions.</li><li>4. Recognize the health effects of computer usage and implement ergonomic practices for a safe and healthy computing environment.</li><li>5. Understand the role and objectives of operating systems, classify different types of operating systems, and demonstrate proficiency in using the Windows 11 operating system.</li><li>6. Utilize common desktop components, navigate file systems, manage programs and settings, and perform basic file organization and maintenance tasks.</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<ol style="list-style-type: none"><li>1. Introduction to Computer Fundamentals and Classification [14 hrs.]<ul style="list-style-type: none"><li>• Concept of a computer</li><li>• Stages of the computer life cycle</li><li>• Evolution of computer generations</li><li>• Advantages of computers and their applications</li><li>• Classification of computers based on purpose, size, and data type.</li></ul></li><li>2. Computer Components and Software Entities[14 hrs.]<ul style="list-style-type: none"><li>• Physical components of a computer</li><li>• Introduction to software entities</li></ul></li><li>3. Computer Security, Ethics, and Intellectual Property[14 hrs.]<ul style="list-style-type: none"><li>• Concept of computer security</li><li>• Software licenses and intellectual property</li><li>• Ethics in the digital world</li><li>• Types of violations and cyber intrusions</li><li>• Protecting against hacking</li></ul></li><li>4. Health Effects of Computers and Ergonomics [14 hrs.]</li></ol>

	<ul style="list-style-type: none"> <li>• Understanding and mitigating health risks associated with computer use.</li> <li>• Importance of ergonomics and safe computing practices</li> </ul> <p>5. Operating Systems and Desktop Operations[14 hrs.]</p> <ul style="list-style-type: none"> <li>• Introduction to operating systems</li> <li>• Functions and objectives of operating systems</li> <li>• Classification of operating systems</li> <li>• Overview of the Windows 11 operating system</li> <li>• Desktop components and operations</li> <li>• Control Panel categories and functions</li> <li>• File organization and maintenance</li> </ul>
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### Learning and Teaching Strategies

#### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p>The learning and teaching strategies for the module on Computer Principles and operating systems can include:</p> <ol style="list-style-type: none"> <li>1. Lectures and Presentations: The instructor can deliver lectures and presentations to introduce and explain key concepts, theories, and principles related to computer fundamentals and operating systems. This can help students develop a foundational understanding of the subject matter.</li> <li>2. Practical Demonstrations: Hands-on practical demonstrations can be conducted to illustrate the usage of different computer components, software applications, and operating system functionalities. This can enhance students' understanding of the practical aspects of computer systems.</li> <li>3. Group Discussions and Collaborative Learning: Engaging students in group discussions and collaborative learning activities can promote active participation and deeper understanding. Students can discuss and analyze case studies, real-life examples, and scenarios related to computer fundamentals and operating systems.</li> <li>4. Laboratory Exercises: Practical laboratory exercises can provide students with opportunities to apply their knowledge and skills in a controlled environment. They can work on computer hardware, software installations, operating system configurations, and troubleshooting tasks, allowing them to gain practical experience.</li> <li>5. Assignments and Projects: Assignments and projects can be assigned to students to encourage independent learning and critical thinking. They can involve research, analysis, problem-solving, and the application of concepts learned in the module. This can help students develop their skills and deepen their understanding.</li> </ol>
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### Student Workload (SWL)

#### الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	34	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	2.26
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	41	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.73
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>75</b>		

## Module Evaluation

تقييم المادة الدراسية

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5, 10	LO #1, 2, 8 and 9
	<b>Assignments</b>	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	All
	<b>Report</b>	1	10% (10)	14	LO # 1-14
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hours	10% (10)	7	LO # 1-7
	<b>Final Exam</b>	3 hours	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
<b>Week 1</b>	<ul style="list-style-type: none"> <li>• Introduction to Computer Fundamentals.</li> <li>• Concept of a Computer.</li> </ul>
<b>Week 2</b>	<ul style="list-style-type: none"> <li>• Stages of the Computer Life Cycle.</li> <li>• Evolution of Computer Generations.</li> </ul>
<b>Week 3</b>	<ul style="list-style-type: none"> <li>• Advantages of Computers and their Applications.</li> <li>• Classification of Computers based on Purpose, Size, and Data Type.</li> </ul>
<b>Week 4</b>	<ul style="list-style-type: none"> <li>• Computer Components: Physical Components of a Computer.</li> <li>• Computer Components: Software Entities.</li> </ul>
<b>Week 5</b>	<ul style="list-style-type: none"> <li>• Personal Computers.</li> <li>• Concept of Computer Security and Software Licenses.</li> </ul>
<b>Week 6</b>	<ul style="list-style-type: none"> <li>• Software Licenses: Types and Importance.</li> <li>• Intellectual Property.</li> </ul>
<b>Week 7</b>	<b>Mid Exam+</b> <ul style="list-style-type: none"> <li>• Software Licenses: Types and Importance.</li> <li>• Intellectual Property.</li> </ul>
<b>Week 8</b>	<ul style="list-style-type: none"> <li>• Cyber Intrusions and Malicious Software.</li> <li>• Steps for Protecting Against Hacking.</li> </ul>
<b>Week 9</b>	<ul style="list-style-type: none"> <li>• Health Effects of Computers.</li> <li>• Introduction to Operating Systems.</li> </ul>
<b>Week 10</b>	<ul style="list-style-type: none"> <li>• Functions and Objectives of Operating Systems.</li> <li>• Classification of Operating Systems.</li> </ul>
<b>Week 11</b>	<ul style="list-style-type: none"> <li>• Examples of Different Operating Systems.</li> <li>• Windows 11 Operating System.</li> </ul>
<b>Week 12</b>	<ul style="list-style-type: none"> <li>• Desktop Components.</li> <li>• Start Menu and Taskbar.</li> </ul>
<b>Week 13</b>	<ul style="list-style-type: none"> <li>• Folders and Files.</li> <li>• Icons and Operations on Windows.</li> </ul>

<b>Week 14</b>	<ul style="list-style-type: none"> <li>• Desktop Wallpapers.</li> <li>• Control Panel: Categories and Functions.</li> <li>• File Organization and Maintenance.</li> </ul>
<b>Week 15</b>	<ul style="list-style-type: none"> <li>• Installing and Uninstalling Programs.</li> <li>• Common Computer Settings: Printer Management, Time and Date Settings, Primary Disk Maintenance.</li> </ul>
<b>Week 16</b>	<ul style="list-style-type: none"> <li>• Preparatory week before the final Exam</li> </ul>

<b>Delivery Plan (Weekly Lab. Syllabus)</b> المنهاج الاسبوعي للمختبر	
	<b>Material Covered</b>
<b>Week 1</b>	<ul style="list-style-type: none"> <li>• Practical examples of browsing, opening, and closing windows and dialog boxes, and the proper way to interact with the keyboard, cursor, and other devices. Computer Fundamentals: Concept of a Computer, Stages of the Computer Life Cycle, Evolution of Computer Generations.</li> </ul>
<b>Week 2</b>	<ul style="list-style-type: none"> <li>• Practical examples of customization, working with icons, and changing screen resolution. Computer Advantages and Applications, Classification of Computers based on Purpose, Size, and Data Type.</li> </ul>
<b>Week 3</b>	<ul style="list-style-type: none"> <li>• Training the student on creating a new user, maximizing windows, displaying the keyboard, and familiarizing with the physical components of the computer. Computer Components: Physical Components of a Computer, Software Entities.</li> </ul>
<b>Week 4</b>	<ul style="list-style-type: none"> <li>• Training the student on dealing with computer software licenses, their types, and handling original software sources. Your Personal Computer: Concept of Computer Security and Software Licenses.</li> </ul>
<b>Week 5</b>	<ul style="list-style-type: none"> <li>• Training the students in computer security. Computer Safety &amp; Software Licenses, Computer Safety, and Security.</li> </ul>
<b>Week 6</b>	<ul style="list-style-type: none"> <li>• Training the student in computer privacy. Ethics in the Digital World, Types of Violations, Computer Security, Computer Privacy.</li> </ul>
<b>Week 7</b>	<ul style="list-style-type: none"> <li>• Training the student on electronic hacking and its types, types and characteristics of viruses, how to create a computer backup for protection. Software Licenses: Types and Importance, Intellectual Property, Cyber Intrusions and Malicious Software, Steps for Protecting Against Hacking, Harmful Effects of Computers on Health.</li> </ul>
<b>Week 8</b>	<ul style="list-style-type: none"> <li>• Training the student on operating systems, configuring, and partitioning the internal and external hard disk. Operating Systems: Definition, Functions, Objectives, Classification, Examples of Different Operating Systems.</li> </ul>
<b>Week 9</b>	<ul style="list-style-type: none"> <li>• Training the student in installing Windows 7. Operating Systems: Windows 11.</li> </ul>
<b>Week 10</b>	<ul style="list-style-type: none"> <li>• Training the student on Start Menu commands, the taskbar, creating a file, and saving it with the student's name on the desktop. Interacting with windows, scrollbars, and using the function keys (F1, F2, ..., F12) on the keyboard. Desktop Components: Start Menu, Taskbar.</li> </ul>
<b>Week 11</b>	<ul style="list-style-type: none"> <li>• Creating a folder with a specific name and training on renaming, hiding, recovering, deleting, and viewing its path. Folders and Files, Icons.</li> </ul>
<b>Week 12</b>	<ul style="list-style-type: none"> <li>• Training the student in performing operations on windows, desktop wallpaper. Performing Operations on Windows, Desktop Wallpapers.</li> </ul>

<b>Week 13</b>	<ul style="list-style-type: none"> <li>Training the student on using the Control Panel. Control Panel: Windows Control Panel, Categories.</li> </ul>
<b>Week 14</b>	<ul style="list-style-type: none"> <li>Training the student on uninstalling and reinstalling a specific program. From Control Panel: Defragmenting Files Inside the Computer, Installing and Uninstalling Programs.</li> </ul>
<b>Week 15</b>	<ul style="list-style-type: none"> <li>Training the student on common computer settings, installing the printer, managing time and date, and maintaining primary disks (Partitions C, D, E, F). Common Computer Settings: Printer Management, Time and Date Settings, Primary Disk Maintenance.</li> </ul>
<b>Week 16</b>	<ul style="list-style-type: none"> <li>Preparatory week before the final Exam</li> </ul>

### Learning and Teaching Resources

#### مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	R. E. Bryant and D. R. O'Hallaron, "Computer Systems: A Programmer's Perspective," 2019.	Yes
<b>Recommended Texts</b>	G. Brookshear and D. Brylow, "Computer Science: An Overview," 2020.	No
<b>Websites</b>	The Collage E-Library	

### Grading Scheme

#### مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F - Fail</b>	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>Democracy and Human Rights</b>		Module Delivery
Module Type	Basic learning activities		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	MTU1006		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	1	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	



## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b></p> <p>أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. التطور التاريخي لحقوق الإنسان: دراسة التطور التاريخي لفهم حقوق الإنسان من الحضارات القديمة إلى العصور الحديثة.</li> <li>2. حقوق الإنسان في الشرائع السماوية: التركيز على حقوق الإنسان في الإسلام وكيف تم تضمينها في الشريعة الإسلامية.</li> <li>3. اعتراف إقليمي بحقوق الإنسان: فحص اعتراف الأقاليم الأوروبي، الأمريكي، الإفريقي، الإسلامي، والعربي بحقوق الإنسان.</li> <li>4. دور المنظمات غير الحكومية: دراسة دور المنظمات مثل اللجنة الدولية للصليب الأحمر ومنظمة العفو الدولية في حماية حقوق الإنسان.</li> <li>5. الإطار القانوني الدولي والإقليمي: التركيز على المواثيق الدولية والإقليمية، مثل الاعلان العالمي لحقوق الإنسان.</li> <li>6. تحليل حقوق الإنسان في التشريعات الوطنية: دراسة كيفية ترجمة حقوق الإنسان في التشريعات الوطنية، مع التركيز على الدستور العراقي.</li> <li>7. تصنيف حقوق الإنسان وضماناتها: فهم مختلف أشكال حقوق الإنسان والضمانات الدستورية والقضائية والسياسية لحمايتها.</li> </ol>
<p><b>Module Learning Outcomes</b></p> <p>مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. القدرة على وصف وتحليل التطور التاريخي لحقوق الإنسان منذ الحضارات القديمة حتى العصور الحديثة.</li> <li>2. القدرة على فحص حقوق الإنسان في حضارة وادي الرافدين وغيرها لفهم التأثير الثقافي على تطورها.</li> <li>3. تفسير حقوق الإنسان في الإسلام وفهم كيف تم تضمينها في الشريعة الإسلامية.</li> <li>4. القدرة على تحليل تطور حقوق الإنسان خلال العصور الوسطى والحديثة.</li> <li>5. الفهم الشامل لاعتراف الأقاليم الأوروبي، الأمريكي، الإفريقي، الإسلامي، والعرب بحقوق الإنسان.</li> <li>6. القدرة على تقييم دور منظمات مثل اللجنة الدولية للصليب الأحمر ومنظمة العفو الدولية في حماية حقوق الإنسان.</li> <li>7. القدرة على دراسة وتحليل المواثيق الدولية والإقليمية، بما في ذلك الاعلان العالمي لحقوق الإنسان.</li> <li>8. القدرة على فحص كيف تم ترجمة حقوق الإنسان في التشريعات الوطنية، مع التركيز على مثال الدستور العراقي.</li> <li>9. القدرة على تصنيف حقوق الإنسان إلى أشكال فردية وجماعية، وأجيال مثل الحقوق المدنية والسياسية والاقتصادية والاجتماعية.</li> <li>10. القدرة على تحليل الضمانات الدستورية والقضائية والسياسية لحقوق الإنسان على الصعيدين الوطني والدولي والإقليمي.</li> </ol>
<p><b>Indicative Contents</b></p> <p>المحتويات الإرشادية</p>	<p>فهم التاريخ التطوري لحقوق الإنسان (3 س)</p> <p>تحليل حقوق الإنسان في الحضارات القديمة (3 س)</p> <p>فهم حقوق الإنسان في الشرائع السماوية (3 س)</p> <p>تحليل حقوق الإنسان في العصور الوسطى والحديثة (3 س)</p> <p>فهم الاعتراف الإقليمي بحقوق الإنسان (3 س)</p> <p>تقدير دور المنظمات غير الحكومية (3 س)</p> <p>فهم الإطار القانوني لحقوق الإنسان (3 س)</p> <p>تحليل حقوق الإنسان في التشريعات الوطنية (3 س)</p> <p>فهم أشكال وأجيال حقوق الإنسان (3 س)</p> <p>تحليل ضمانات حقوق الإنسان (3 س)</p>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p>تشجيع الطلاب على المشاركة في مناقشات تفاعلية حول تطور حقوق الإنسان عبر التاريخ. مشروعات بحثية:</p> <p>توجيه الطلاب في إعداد مشروعات بحثية تستكشف تطور حقوق الإنسان في فترات تاريخية محددة. استخدام التكنولوجيا:</p> <p>تضمين وسائل تكنولوجية لتعزيز تفاعل الطلاب وتقديم المعلومات بشكل أكثر تفاعلية. ورش العمل والتمثيل العملي:</p> <p>إجراء ورش عمل تفاعلية وأنشطة تمثيل لفهم أعمق لمفاهيم حقوق الإنسان. تقديم تقييم مستمر:</p> <p>تقديم تقييم مستمر لفحص تقدم الطلاب وفهمهم لتطور حقوق الإنسان على مر العصور.</p>
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## Student Workload (SWL)

### الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطلاب خلال الفصل	33	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطلاب أسبوعيا	2.2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطلاب خلال الفصل	17	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطلاب أسبوعيا	1.13
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطلاب خلال الفصل	50		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5, 10	LO #1-4 , LO #4-9
	<b>Assignments</b>	2	20%	2, 12	LO # 1-4, LO #1,10
	<b>Projects / Lab.</b>				
	<b>Report</b>	1	10% (10)	14	LO # 1-10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hours	20% (10)	7	LO # 1-7
	<b>Final Exam</b>	3 hours	50% (50)	16	All
<b>Total assessment</b>			<b>100% (100 Marks)</b>		

<b>Delivery Plan (Weekly Syllabus)</b>	
<b>المنهاج الاسبوعي النظري</b>	
التطور التاريخي لحقوق الانسان حقوق الانسان في الحضارات القديمة (حضارة وادي الرافدين، والحضارات القديمة الأخرى)	الأسبوع الأول
حقوق الانسان في الشرائع السماوية مع التركيز على حقوق الانسان في الاسلام. حقوق الانسان في العصور الوسطى والحديثة.	الأسبوع الثاني
الاعتراف الاقليمي بحقوق الانسان على الصعيد الأوربي الأمريكي، الأفريقي، الإسلامي، العربي	الاسبوع الثالث
المنظمات غير الحكومية ودورها في حقوق الانسان اللجنة الدولية للصليب الاحمر، منظمة العفو الدولية، منظمة مراقبة حقوق الانسان المنظمة العربية لحقوق الانسان)	الأسبوع الرابع
حقوق الانسان في المواثيق الدولية والاقليمية والتشريعات الوطنية. حقوق الانسان في المواثيق الدولية (الاعلان العالمي لحقوق الانسان العهدين الدوليين الخاصين بحقوق الانسان)	الأسبوع الخامس
حقوق الانسان في المواثيق الاقليمية (الاتفاقية الأوروبية لحقوق الانسان الاتفاقية الامريكية لحقوق الانسان الميثاق الأفريقي لحقوق الانسان الميثاق العربي لحقوق الانسان)	الأسبوع السادس
<b>امتحان منتصف الفصل الدراسي</b>	الأسبوع السابع
حقوق الانسان في التشريعات الوطنية (الدستور العراقي)	الأسبوع الثامن
اشكال واجيال حقوق الانسان: اشكال حقوق الانسان الفردية، الحقوق الجماعية اجيال حقوق الانسان الجيل الاول الحقوق المدنية والسياسية)، (الجيل الثاني الحقوق الاقتصادية والاجتماعية)، (الجيل الثالث: حقوق الانسان الحديثة، الوعي المائي والبيئي	الأسبوع التاسع
ضمانات حقوق الانسان وحمايتها على الصعيد الوطني الضمانات الدستورية والقضائية والسياسية	الأسبوع العاشر
ضمانات حقوق الإنسان وحمايتها على الصعيد الاقليمي والدولي (دور الامم المتحدة، دور المنظمات الاقليمية جريمة الإبادة الجماعية.	الاسبوع الحادي عشر
تصنيف الحريات العامة الحريات الأساسية والفردية حرية الامن والشعور بالاطمئنان حرية الذهاب والاياب، الحرية الشخصية	الاسبوع الثاني عشر
الحريات الفكرية والثقافية حرية الرأي حرية المعتقد حرية التعليم	الأسبوع الثالث عشر
حرية الصحافة حرية التجمع حرية تشكيل الجمعيات	الأسبوع الرابع عشر
الحريات الاقتصادية والاجتماعية حرية العمل، حرية التملك حرية التجارة والصناعة	الأسبوع الخامس عشر

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
<b>Required Texts</b>	1. "حقوق الإنسان في العالم العربي: القضايا والتحديات"، تأليف: علي حجازي وجمال شعت. الطبعة: الطبعة الثانية، العام: 2017. 2. "مبادئ حقوق الإنسان: المفاهيم والقضايا الحديثة"، تأليف: أحمد المجالي وغان حمدان. الطبعة: الطبعة الأولى، العام: 2019.	Yes
<b>Recommended Texts</b>	1. "حقوق الإنسان والديمقراطية"، تأليف: مصطفى كامل محمود. الطبعة: الطبعة الأولى، العام: 2015. 2. "تاريخ حقوق الإنسان في العصور القديمة والوسطى"، تأليف: نبيل رزق. الطبعة: الطبعة الثالثة، العام: 2012. 3. "حقوق الإنسان في العراق: الواقع والتحديات"، تأليف: سعد الله عباس. الطبعة: الطبعة الأولى، العام: 2014. 4. "حقوق الإنسان في العراق: المفهوم والتطور"، تأليف: عبد الكريم السامرائي. الطبعة: الطبعة الأولى، العام: 2018. 5. "حقوق الإنسان في العراق: بين التحديات والآفاق"، تأليف: محمد السامرائي ولقاء الحربي. الطبعة: الطبعة الأولى، العام: 2020.	No
<b>Websites</b>	The Collage E-Library	

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX - Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F - Fail</b>	راسب	(0-44)	Considerable amount of work required
<p><b>Note:</b> Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				

## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Engineering Mathematics		Module Delivery
Module Type	S		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CET2101		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	2	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader	Ali Ahmed		e-mail
Module Leader's Acad. Title		Module Leader's Qualification	Phd
Module Tutor	Ali Ahmed		e-mail
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	CET1204	Semester	Two
Co-requisites module	None	Semester	

**Module Aims, Learning Outcomes and Indicative Contents**

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. To develop problem solving skills and understanding of probability theory.</li> <li>2. To distinguish aspects of probability terminology.</li> <li>3. This course deals with the basic concept of Statistics.</li> <li>4. To understand graphical representation of data measures.</li> <li>5. To perform Simple Linear Regression.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Recognize Basic terminology.</li> <li>2. Describe Axioms for probability.</li> <li>3. Discuss Conditional probabilities and independent events.</li> <li>4. Explain random variable, Expectation and variance.</li> <li>5. understand Bayes Theorem, PDF and CDF.</li> <li>6. Define Expectation and variance of continuous random variables.</li> <li>7. Identify Binomial, Poisson and Normal Distribution.</li> <li>8. Discuss Joint and Marginal distributions aspects.</li> <li>9. Discuss the Distributions of sums of independent random variables.</li> <li>10. Explain Expectation and variance of sums of random variables, in addition to Covariance and correlation.</li> <li>11. Describe Conditional expectation and Prediction.</li> <li>12. Discuss Graphical Representation of frequency tables and charts, Measures of Central Tendency, and Dispersion.</li> <li>13. Get acquainted with Relationship Modelling, Pearson's Correlation Coefficient.</li> <li>14. Explain Significance of the correlation co-efficient and Simple Linear Regression.</li> <li>15. Describe Chi Square test for association, Chi Square test of goodness of fit.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p><u>Part A - Probability</u> This part includes Sample spaces and events. Axioms for probability and their consequences. Conditional probabilities. Bayes' formula. Independent events. Definition of random variable. Discrete random variables. Expectation and variance. Bayes Theorem, Discrete Probability Distributions, The cumulative distribution function. Probability density function. Expectation and variance of continuous random variables. Binomial Distribution, Poisson Distribution, The Normal Distribution, Joint distribution functions. Marginal distributions. Independent random variables. Distributions of sums of independent random variables. Expectation and variance of sums of random variables. Covariance and correlation. Conditional expectation. Prediction. <b>[33 hrs]</b> + Revision problem classes in weekly tutorials <b>[11 hrs]</b></p> <p><u>Part B - Statistics</u> This part will take in details Graphical Representation - frequency tables and charts, Measures of Central Tendency, and Dispersion. Relationship Modelling, Pearson's Correlation Coefficient Significance of the correlation co-efficient, Simple Linear Regression Chi Square test for association, Chi Square test of goodness of fit <b>[12 hrs]</b></p>

+ Revision problem classes in weekly tutorials [4 hrs]

### Learning and Teaching Strategies

#### استراتيجيات التعلم والتعليم

<b>Strategies</b>	This module will primarily focus on encouraging students to participate in the activities, as well as refining and developing their critical thinking skills. This will be achieved through lectures, tutorials, discussions, and grading activities.
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### Student Workload (SWL)

#### الحمل الدراسي للطالب موزع على (15) اسبوع

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	48	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3.2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	5.13
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	125		

### Module Evaluation

#### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5, 10	LO #1-4 , LO #5-9
	<b>Assignments</b>	2	20% (10)	4, 11	LO # 1-3 , LO # 4- 10
	<b>Projects / Lab.</b>	N/A			
	<b>Report</b>	1	10% (10)	15	LO # 1-14
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr	10% (10)	8	LO # 1-7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b> المنهاج الاسبوعي النظري	
	<b>Material Covered</b>
<b>Week 1</b>	Basic terminology, Populations and Samples.
<b>Week 2</b>	Sample spaces and events. Axioms for probability and their consequences.
<b>Week 3</b>	Conditional probabilities. Bayes' formula. Independent events.
<b>Week 4</b>	Definition of random variable. Discrete random variables. Expectation and variance.
<b>Week 5</b>	Bayes Theorem, Discrete Probability Distributions, The cumulative distribution function.
<b>Week 6</b>	Probability density function. Expectation and variance of continuous random variables.
<b>Week 7</b>	Binomial Distribution, Poisson Distribution, The Normal Distribution
<b>Week 8</b>	<b>Midterm Exam</b>
<b>Week 9</b>	Joint distribution functions. Marginal distributions. Independent random variables. Distributions of sums of independent random variables.
<b>Week 10</b>	Expectation and variance of sums of random variables. Covariance and correlation.
<b>Week 11</b>	Conditional expectation. Prediction.
<b>Week 12</b>	Graphical Representation - frequency tables and charts, Measures of Central Tendency, and Dispersion.
<b>Week 13</b>	Relationship Modelling, Pearson's Correlation Co-efficient
<b>Week 14</b>	Significance of the correlation co-efficient, Simple Linear Regression
<b>Week 15</b>	Chi Square test for association, Chi Square test of goodness of fit
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

<b>Delivery Plan (Weekly Tutorial)</b> المنهاج الاسبوعي الاضافي	
	<b>Material Covered</b>
Each week, a question sheet related to the material presented in the theoretical lecture will be solved and debated.	

<b>Learning and Teaching Resources</b> مصادر التعلم والتدريس		
	<b>Text</b>	<b>Available in the Library?</b>
<b>Required Texts</b>	"Probability & Statistics for Engineers & Scientists", Ronald E. Walpole, Raymond H. Myers, Sharon L. Myers, Keying E. Ye, Pearson Education, 9th edition, (August 19, 2016), ISBN-13:978-1292161365.	Yes
<b>Recommended Texts</b>	"Essential Mathematics and Statistics for Science", Graham Currell, Antony Dowman, Wiley, 2nd edition (June 22, 2009), ISBN-13:978-0470694480.	No
<b>Websites</b>	<a href="https://users.cs.utah.edu/~jeffp/teaching/cs3130.html">https://users.cs.utah.edu/~jeffp/teaching/cs3130.html</a>	



Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
<p><b>Note:</b> Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				

## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Object Oriented Programming		Module Delivery
Module Type	S		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CET2102		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	2	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader	Ban Salman	e-mail	
Module Leader's Acad. Title	lecturer	Module Leader's Qualification	Ph.D.
Module Tutor	Ban Salman	e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Programming Essentials / CET1203	Semester	2
Co-requisites module	None	Semester	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Understand and apply object-oriented programming principles.</li> <li>2. Design and implement object-oriented solutions to programming problems.</li> <li>3. Utilize C++ libraries and frameworks for application development.</li> <li>4. Implement data abstraction and encapsulation for secure and efficient code.</li> <li>5. Plan and execute testing strategies for reliable programs.</li> <li>6. Debug and optimize program performance for efficient execution.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Demonstrate a clear understanding of object-oriented programming principles, including inheritance, polymorphism, and encapsulation.</li> <li>2. Design and implement classes and objects to represent real-world entities, applying appropriate inheritance and encapsulation.</li> <li>3. Utilize C++ libraries and frameworks effectively to develop robust and scalable applications.</li> <li>4. Implement data abstraction and encapsulation techniques to ensure secure and efficient code.</li> <li>5. Plan and execute comprehensive testing strategies to validate the functionality and reliability of object-oriented programs.</li> <li>6. Identify and debug program errors using appropriate tools and techniques, enhancing program robustness.</li> <li>7. Evaluate and optimize program performance through code analysis and profiling, improving execution efficiency.</li> <li>8. Collaborate effectively with peers to develop object-oriented solutions to complex programming challenges.</li> <li>9. Apply exception handling techniques to handle errors and ensure program stability.</li> <li>10. Demonstrate proficiency in utilizing debugging tools to identify and fix program errors.</li> <li>11. Apply object-oriented design patterns and principles to analyze and solve programming problems.</li> <li>12. Evaluate the efficiency and effectiveness of object-oriented solutions through critical analysis and optimization techniques.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A: Introduction to Object-Oriented Programming (8 hours)</u></p> <ul style="list-style-type: none"> <li>- Overview of object-oriented programming principles and concepts</li> <li>- Classes, objects, and their relationships</li> <li>- Inheritance and polymorphism</li> <li>- Encapsulation and data abstraction</li> </ul>

Part B: Designing Object-Oriented Solutions (12 hours)

- Problem analysis and requirements gathering
- Identifying classes and objects
- Object-oriented design principles and patterns
- Designing class hierarchies and relationships
- UML diagrams for visualizing designs

Part C: Implementing Object-Oriented Solutions in C++ (20 hours)

- C++ language essentials for object-oriented programming
- Implementing classes and objects in C++
- Inheritance and polymorphism in C++
- Handling exceptions in C++
- Utilizing C++ libraries and frameworks

Part D: Testing and Debugging Object-Oriented Programs (12 hours)

- Testing methodologies and strategies
- Unit testing and test-driven development
- Integration testing and system testing
- Debugging techniques and tools
- Error handling and exception management

Part E: Optimization and Performance Analysis (8 hours)

- Profiling and performance analysis tools
- Identifying performance bottlenecks
- Optimization techniques for object-oriented programs
- Memory management and resource optimization

Part F: Collaborative Object-Oriented Programming (8 hours)

- Collaborative development environments and version control systems
- Code reviews and best practices
- Pair programming and team collaboration
- Communication and coordination in object-oriented projects

Part G: Project Work and Application Development (20 hours)

- Applying object-oriented principles and techniques in a practical project
- Developing a complete application using C++ and object-oriented design
- Project planning, implementation, and documentation
- Integration of various modules and testing the application

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	The learning and teaching strategies for the Object-Oriented Programming Course include lectures to introduce concepts, practical exercises for hands-on programming, group discussions for collaboration, case studies for real-world application, code reviews for feedback, practical projects to apply knowledge, guest lectures for industry insights, online resources for self-study, assessments to evaluate understanding, and presentations to enhance communication skills. These strategies aim to actively engage students, develop their programming abilities, and foster a deep understanding of object-oriented programming principles.
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## Student Workload (SWL)

### الحمل الدراسي للطالب موزع على (15) اسبوع

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	79	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	5.26
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	71	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.73
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	150		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (5)	5,10	LO #1 – 4, LO #1 – 9
	<b>Assignments</b>	2	10% (10)	4,11	LO #1 – 3, LO #4 – 10
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	LO #1 – 12
	<b>Report</b>	1	10% (10)	11	LO # 1- 10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hrs.	10% (10)	7	LO # 1-6
	<b>Final Exam</b>	4hrs.	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b>	
المنهاج الاسبوعي النظري	
	<b>Material Covered</b>
<b>Week 1</b>	Introduction to Object-Oriented Programming
<b>Week 2</b>	Classes, Objects, and Relationships
<b>Week 3</b>	Inheritance and Polymorphism principles
<b>Week 4</b>	Encapsulation and Data Abstraction
<b>Week 5</b>	Problem Analysis and Requirements Gathering
<b>Week 6</b>	Object-Oriented Design Principles and Patterns
<b>Week 7</b>	<b>Mid-term Exam</b>
<b>Week 8</b>	C++ Language Essentials and Advanced Topics
<b>Week 9</b>	Implementing Classes and Objects in C++
<b>Week 10</b>	Implementing Inheritance and Polymorphism in C++
<b>Week 11</b>	Handling Exceptions in C++
<b>Week 12</b>	Utilizing C++ Libraries and Frameworks
<b>Week 13</b>	Testing Methodologies and Strategies in C++
<b>Week 14</b>	Debugging Techniques and Tools in C++
<b>Week 15</b>	Optimization and Performance Analysis in C++
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

### Delivery Plan (Weekly Lab. Syllabus)

#### المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction to C++ programming environment and basic syntax.
Week 2	Implementing simple classes and objects.
Week 3	Experimenting with inheritance and polymorphism in C++.
Week 4	Implementing data abstraction and encapsulation.
Week 5	Problem-solving exercise using object-oriented design principles and patterns.
Week 6	Utilizing C++ libraries and frameworks for application development.
Week 7	<b>Midterm Exam (No lab session).</b>
Week 8	Implementing exception handling techniques in C++.
Week 9	Testing and debugging strategies for object-oriented programs.
Week 10	Profiling and performance analysis of C++ programs.
Week 11	Code optimization techniques for object-oriented programming.
Week 12	Collaborative programming exercise utilizing version control systems.
Week 13	Implementing advanced data structures using object-oriented techniques.
Week 14	Project work and application development using object-oriented concepts.
Week 15	review and practice exercises, Preparatory for Final Exam.
Week 16	<b>Final Exam (No lab session).</b>

### Learning and Teaching Resources

#### مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	"Object-Oriented Programming in C++" by Robert Lafore	
Recommended Texts	"Design Patterns: Elements of Reusable Object-Oriented Software" by Erich Gamma, Richard Helm, Ralph Johnson, and John Vlissides	
Websites	<a href="https://www.w3schools.com/cpp/cpp_oop.asp">https://www.w3schools.com/cpp/cpp_oop.asp</a>	

<b>Grading Scheme</b> مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX – Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	راسب	(0-44)	Considerable amount of work required
<p><b>Note:</b> Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				



## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Computer Organization and Applications		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CET2103		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	2	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader	Jasim Hussain	e-mail	
Module Leader's Acad. Title	Assis. lecturer	Module Leader's Qualification	MSc
Module Tutor	Jasim Hussain	e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Understand the basic components and organization of a computer system.</li> <li>2. Explain the function and operation of the CPU, memory, and I/O devices.</li> <li>3. Analyze and evaluate different computer architectures and their trade-offs.</li> <li>4. Design and implement basic computer systems using appropriate hardware and software components.</li> <li>5. Demonstrate an understanding of the relationship between computer organization and computer performance.</li> <li>6. Apply knowledge of computer organization principles to solve real-world computing problems.</li> <li>7. To develop essential skills in creating, saving, and opening documents in Microsoft Word, including formatting text and paragraphs and working with styles and themes.</li> <li>8. To explore advanced features in Microsoft Word, such as page layout options, working with headers, footers, and page numbers, and incorporating tables, images, and objects.</li> <li>9. To introduce spreadsheets and worksheets in Microsoft Excel, and develop students' skills in data entry, manipulation, and basic formulas and functions.</li> <li>10. To delve into advanced Microsoft Excel features, including working with ranges and cells, sorting and filtering data, and creating charts and graphs.</li> <li>11. To guide students in creating and editing slides in Microsoft PowerPoint, applying themes and templates, and adding text, images, and multimedia elements.</li> <li>12. To explore advanced PowerPoint features, such as slide transitions, animations, using SmartArt and shapes, and utilizing presenter tools and slide show options.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Understand the basic components and organization of a computer system.</li> <li>2. Explain the function and operation of the CPU, memory, and I/O devices.</li> <li>3. Analyze and evaluate different computer architectures and their trade-offs.</li> <li>4. Design and implement basic computer systems using appropriate hardware and software components.</li> <li>5. Demonstrate an understanding of the relationship between computer organization and computer performance.</li> <li>6. Apply knowledge of computer organization principles to solve real-world computing problems.</li> <li>7. demonstrate the ability to evaluate and compare different computer</li> </ol>

	<p>organization techniques, such as memory management strategies and caching optimizations, to improve system performance.</p> <ol style="list-style-type: none"> <li>8. Understand computer architectures, including their performance characteristics, and understand the impact of design choices on computer performance</li> <li>9. Develop practical skills in using simulation tools, emulators, and programming languages to design, implement, and test computer organization concepts.</li> <li>10. Analyze and identify performance bottlenecks in computer systems and propose appropriate optimizations to improve system efficiency.</li> <li>11. Understand the principles and challenges of memory management, including memory allocation, deallocation, and garbage collection.</li> <li>12. Apply knowledge of cache memory organization and mapping techniques to analyze cache behavior and optimize cache utilization.</li> <li>13. Demonstrate a solid understanding of Microsoft Word, Excel, and PowerPoint, including their key features, user interfaces, and common functions.</li> <li>14. Create, format, and manage documents effectively in Microsoft Word, utilizing styles, themes, page layout options, headers, footers, tables, images, and objects.</li> <li>15. Utilize Microsoft Excel for data entry, manipulation, basic calculations using formulas and functions, sorting and filtering data, and creating charts and graphs.</li> <li>16. Develop proficiency in creating and editing slides, applying themes, templates, and multimedia elements, and utilizing advanced features in Microsoft PowerPoint.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p>Introduction to Computer Organization</p> <p>Basic computer architecture and components Von Neumann architecture Instruction execution cycle Memory Organization</p> <p>Memory hierarchy and cache memory Virtual memory and paging techniques Memory management and allocation strategies PU Organization and Instruction Set Architecture (ISA)</p> <p>CPU components: ALU, registers, control unit Instruction formats and addressing modes</p> <p>Input/Output (I/O) Organization</p>

	<p>I/O devices and interfaces</p> <p>Polling, interrupts, and DMA</p> <p>I/O communication and bus architectures</p>
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### Learning and Teaching Strategies

#### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p>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.</p>
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### Student Workload (SWL)

#### الحمل الدراسي للطالب موزع على (15) اسبوع

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	64	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4.26
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.06
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	125		

### Module Evaluation

#### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5, 10	LO #1-4 , LO #4-9
	<b>Assignments</b>	2	10% (10)	4, 12	LO # 1-3, LO #4-11
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	ALL

	<b>Report</b>	1	10% (10)	13	LO # 1-11
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	9	LO # 1-8
	<b>Final Exam</b>	4hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b> المنهاج الاسبوعي النظري	
	<b>Material Covered</b>
<b>Week 1</b>	Introduction to Computer system Organization, Main parts of computer system, Organization and architecture
<b>Week 2</b>	Von Neumann architecture and its components
<b>Week 3</b>	Instruction Set Design in Von Neuman
<b>Week 4</b>	Overview of instruction execution cycle
<b>Week 5</b>	Introduction to Memory unit, Memory Organization & classification
<b>Week 6</b>	Prime Memory :RAM ,ROM ,EPROM ,EEPROM& Storage memory :,Hard disk ,CD ROM
<b>Week 7</b>	<b>Midterm Exam</b>
<b>Week 8</b>	Concepts of Microprocessors &Microcomputer & Microcontroller .Organization of MP base system
<b>Week 9</b>	Machine language & Assembly language and addressing modes
<b>Week 10</b>	Input/Output (I/O) Organization
<b>Week 11</b>	Introduction to Microsoft Office Suite <ul style="list-style-type: none"> <li>• Overview of Microsoft Word, Excel, and PowerPoint</li> <li>• Understanding the user interface and common features</li> </ul>

<b>Week 12</b>	<p>Microsoft Word Basics</p> <ul style="list-style-type: none"> <li>• Creating, saving, and opening documents</li> <li>• Formatting text and paragraphs</li> <li>• Working with styles and themes</li> </ul>
<b>Week 13</b>	<p>Advanced Microsoft Word Features</p> <ul style="list-style-type: none"> <li>• Page layout and formatting options</li> <li>• Working with headers, footers, and page numbers</li> <li>• Using tables, images, and other objects</li> </ul>
<b>Week 14</b>	<p>Microsoft PowerPoint Basics</p> <ul style="list-style-type: none"> <li>• Creating and editing slides</li> <li>• Applying themes and templates</li> <li>• Adding text, images, and multimedia elements</li> </ul>
<b>Week 15</b>	<p>Advanced Microsoft PowerPoint Features</p> <ul style="list-style-type: none"> <li>• Slide transitions and animations</li> <li>• Using SmartArt and shapes</li> <li>• Presenter tools and slide show options</li> </ul>

### Delivery Plan (Weekly Lab. Syllabus)

#### المنهاج الاسبوعي للمختبر

	Material Covered
<b>Week 1</b>	Lab 1: Introduction to Computer Organization ,Familiarization with the lab environment and tools
<b>Week 2</b>	Lab 2: hardware components: CPU, memory, and I/O devices
<b>Week 3</b>	Lab 3: Computer assembly and disassembly
<b>Week 4</b>	Lab 4: Introduction to PC Operating Systems
<b>Week 5</b>	Lab 5: Installation and setup of the chosen PC operating system
<b>Week 6</b>	Lab 6: Assembly Language Programming
<b>Week 7</b>	Lab 7: Writing and executing simple assembly language programs
<b>Week 8</b>	Introduction to Lab Environment and Office Suite - Lab setup and software installation. Overview of Microsoft Office Suite tools and features.
<b>Week 9</b>	Microsoft Word Lab - Creating, editing, and formatting documents. Inserting and formatting images and tables.
<b>Week 10</b>	Microsoft Excel Lab - Creating spreadsheets and entering data. Formulas and functions for

	calculations.
<b>Week 11</b>	Microsoft PowerPoint Lab - Creating, editing, and designing slides. Adding multimedia elements and animations.
<b>Week 12</b>	Word Processing Techniques Lab - Mail merge and document collaboration exercises. Creating professional documents with advanced formatting.
<b>Week 13</b>	Data Analysis Lab with Excel - Advanced formula and function exercises. Sorting, filtering, and analyzing data.
<b>Week 14</b>	Presentation Design Lab with PowerPoint - Applying design principles to create visually appealing slides. Adding interactive elements and customizing slide layouts.

### Learning and Teaching Resources

#### مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	"Computer Organization and Design" by David A. Patterson and John L. Hennessy	Yes
<b>Recommended Texts</b>	Structured Computer Organization" by Andrew S. Tanenbaum	No
<b>Websites</b>	<a href="https://www.tutorialspoint.com/computer_organization/index.asp">https://www.tutorialspoint.com/computer_organization/index.asp</a>	

### Grading Scheme

#### مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX</b> - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F</b> - Fail	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>Electronic Fundamentals</b>		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	<b>CET2104</b>		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	2	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader	Mayameen Salman Kadhim	e-mail	<a href="mailto:mayameen.s@albayan.edu.iq">mayameen.s@albayan.edu.iq</a>
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Phd
Module Tutor	Mayameen Salman Kadhim	e-mail	<a href="mailto:mayameen.s@albayan.edu.iq">mayameen.s@albayan.edu.iq</a>
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	CET1202	Semester	2
Co-requisites module	None	Semester	



## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b></p> <p>أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. To understand materials conductivity, semiconductor materials, and types</li> <li>2. This is the basic subject for all electronic circuits and devices.</li> <li>3. This course deals with first and the simplest semiconductor device, diode, diode physical construction, biasing, characteristics, application circuits and Zener</li> <li>4. Mathematical derivation and implementation of the load line analysis, and Q point with in diode characteristics curve to develop problem solving skills and understanding of diode circuits</li> <li>5. This course deals with second semiconductor device, BJT This course deals with BJT physical construction, biasing, configuration methods, input and output characteristics</li> <li>6. To understand the D.C biasing of BJT and circuit types , analysis and calculations of BJT parameters</li> <li>7. To understand and construct re model for BJT circuits</li> <li>8. To deal with small signal analysis of BJT</li> </ol>
<p><b>Module Learning Outcomes</b></p> <p>مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Recognize classifications of materials according to its conductivity.</li> <li>2. Identify the semiconductor material characteristics and classifications</li> <li>3. Recognize the physical structure and properties of P and N layers</li> <li>4. Identify diode as a first example of semiconductor devices.</li> <li>5. Discuss diode physical construction, biasing, and characteristics</li> <li>6. Identify the variable parameters of diodes, and V threshold</li> <li>7. Summarize what is meant by Load line analysis , and Q point</li> <li>8. Identify the applications of diodes in electrical circuits using AC. And DC. Power supplies</li> <li>9. To understand the concept of Zener region and the differences between zener and original diodes</li> <li>10. To solve zener circuits and calculate its voltage current with different cases</li> <li>11. To understand and discuss the second semiconductor device which is Transistor (Bipolar Junction Transistor)(BJT)</li> <li>12. To discuss BJT physical construction, Operation, and configuration methods</li> <li>13. To understand and implement input and output Characteristics of each configuration method and load line and Q point implementations</li> <li>14. To implement and solve BJT biasing circuit types and calculations of important parameters of BJT in DC. Biasing state</li> <li>15. Design BJT circuit types by using Quesent point parameters</li> <li>16. Understand and construct re model for BJT circuits</li> <li>17. Derive and calculate <math>Z_i</math>, <math>Z_o</math> <math>A_v</math> and <math>A_i</math> from re model of BJT circuits</li> <li>18. Understand and calculate small signal analysis of BJT</li> </ol>

<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p>Semiconductor Materials Energy Levels , n- and p-Type, Semiconductor Diode Construction ,biasing, Characteristics and Zener Diodes, Load-Line Analysis [8 hrs]</p> <p>. Series Diode Configurations with DC Inputs, Parallel and Series-Parallel Configurations Sinusoidal Inputs Half-Wave Rectification, Full-Wave Rectification Clippers ,Clampers , Zener Diodes Voltage-Multiplier Circuit [10hrs]</p> <p>Transistor Construction , Transistor Operation ,Common-Base Configuration Transistor Amplifying Action ,Common-Emitter Configuration ,Common-Collector Configuration ,Limits of Operation [8hrs]</p> <p>Operating Point, Fixed-Bias Circuit , Emitter-Stabilized Bias Circuit , Voltage-Divider Bias , DC Bias with Voltage Feedback , Miscellaneous Bias Configurations, Design Operations Transistor Switching Networks, [[15 hrs]</p> <p>Revision problem classes [12 hrs]</p> <p>BJT Transistor Modeling The Important Parameters: <math>Z_i</math>, <math>Z_o</math>, <math>A_v</math>, <math>A_i</math> The r e Transistor Model The Hybrid Equivalent , small signal analysis Common-Emitter Fixed-Bias Configuration , Voltage-Divider Bias CE Emitter-Bias Configuration Emitter-Follower Configuration Common-Base Configuration[11 hr]</p>

<p><b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم</p>	
<p><b>Strategies</b></p>	<p>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.</p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب موزع على (15) اسبوع			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	64	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4.26
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.06
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	125		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5, 12	LO #1- 4, LO #5-12
	<b>Assignments</b>	2	10% (5)	4, 11	LO # 1-3, LO #4-10
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	ALL
	<b>Report</b>	1	10% (10)	13	LO # 1-12
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr	10% (10)	6	LO #1-8
	<b>Final Exam</b>	4 hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b>	
المنهاج الاسبوعي النظري	
	<b>Material Covered</b>
<b>Week 1</b>	Introduction, Semiconductor Materials, Energy Levels , Extrinsic Materials—n- and p-Type
<b>Week 2</b>	Semiconductor Diode construction, biasing, characteristics, Zener region
<b>Week 3</b>	Load-Line Analysis, RESISTANCE LEVELS, DIODE EQUIVALENT CIRCUITS
<b>Week 4</b>	Series Diode Configurations with DC Inputs , Parallel and Series- Parallel Configurations
<b>Week 5</b>	Sinusoidal Inputs; Half-Wave Rectification, Full-Wave Rectification
<b>Week 6</b>	<b>Midterm Exam</b>
<b>Week 7</b>	Clipper's series and parallel ,Clampers , Zener Diodes, Introduction , Transistor Construction
<b>Week 8</b>	Transistor Operation, Common-Base Configuration Transistor, Amplifying Action , Common-Emitter Configuration , Limits of Operation
<b>Week 9</b>	Operating Point, Fixed-Bias Circuit ,Emitter-Stabilized Bias Circuit ,
<b>Week 10</b>	Voltage-Divider Bias , DC Bias with Voltage Feedback , Miscellaneous Bias Configurations
<b>Week 11</b>	Design Operations , Transistor Switching Networks
<b>Week 12</b>	Amplification in the AC Domain, BJT Transistor Modeling ,The Important Parameters: $Z_i$ , $Z_o$ , $A_v$ , $A_i$ The re Transistor Model
<b>Week 13</b>	Small signal analysis
<b>Week 14</b>	Common-Emitter Fixed-Bias Configuration Voltage-Divider Bias
<b>Week 15</b>	CE Emitter-Bias Configuration Emitter-Follower Configuration Common-Base Configuration

<b>Delivery Plan (Weekly Lab. Syllabus)</b>	
المنهاج الاسبوعي للمختبر	
	<b>Material Covered</b>
<b>Week 1</b>	Lab 1: Introduction
<b>Week 2</b>	Lab 2: Diode characteristics
<b>Week 3</b>	Lab 3 Zener diode characteristics
<b>Week 4</b>	Lab 4 Half wave rectifier
<b>Week 5</b>	Lab 5: full wave rectifier
<b>Week 6</b>	Half and full wave rectifier with filter
<b>Week 7</b>	Lab 7: clippers

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Electronic devices and circuit theory Poylested	Yes
Recommended Texts	.	No
Websites		

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Communication Fundamentals		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CET2105		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	2	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader	Maryam Qutaiba Abdalrazak	e-mail	<a href="mailto:Mariam.q@albayan.edu.iq">Mariam.q@albayan.edu.iq</a>
Module Leader's Acad. Title	Asst. Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Maryam Qutaiba Abdalrazak	e-mail	<a href="mailto:Mariam.q@albayan.edu.iq">Mariam.q@albayan.edu.iq</a>
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

**Module Aims, Learning Outcomes and Indicative Contents**

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Understanding the communication systems and signals.</li> <li>2. Viewing and knowledge block diagram communication system</li> <li>3. Analyzing the advantage and disadvantage of each type of signals and systems.</li> <li>4. Analyzing signals in Fourier series and Fourier transform.</li> <li>5. To develop problem solving skills and understanding of filters types and design</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Recognize Basic Principles of Communication.</li> <li>2. Explain the Block Diagram of a Communication System.</li> <li>3 Identify essential parts that must be present in communication systems.</li> <li>4. List the different types of media used in a communication system.</li> <li>5. Describe the measured effect of noise on a communication system.</li> <li>6. Define modulation over some carriers to make it suitable for transmission over a long distance.</li> <li>7. Discuss Principles of Signals in Communication and shows examples of signals of various types.</li> <li>8. Identify the difference between Analog and Digital Signals.</li> <li>9. List the various types of continuous-time signals</li> <li>10. Discuss the classification of signals based on their characteristics and nature of availability.</li> <li>11. Define the advantages and disadvantages of each type of signal in communications.</li> <li>12. Explain the two the Fourier Series in the Continuous Domain is associated with the important classes of Fourier series methods and Trigonometric Fourier series.</li> <li>13. Summarize by various magnitudes or coefficients of Exponential Fourier Series on Determination for different harmonic signals.</li> <li>14. Definition A major disadvantage of the Fourier series is on account of its periodicity, by means of the limitation of the Fourier series</li> <li>15. Identify Fourier transform representation for the non-periodic signals</li> <li>16. Describe the Inverse Fourier transform as a mathematical transformation technique that transforms signals from the continuous-frequency domain to the corresponding time domain and vice-versa</li> <li>17. Definition Filters, four basic types of filters: Passive or Active depending on the Construction of filters.</li> <li>18. Describe the filter depending on the design of filters: Low Pass Filter (LPF), High Pass Filter (HPF), Band Pass Filter (BPF) and Band Stop Filter (BSF).</li> <li>19. Summarize the design formula for a passive filter LPF and HPF consisting</li> </ol>

	<p>of coils, capacitors, and resistors.</p> <p>20. Identify the design formula for a passive filter Constant-K: LPF , HPF, and BPF consisting of coils, capacitors, and resistors .</p> <p>21. Definition active filters, listing the advantage of active filter over disadvantage of passive filter.</p> <p>22. Identify the design formula for active filter first order LPF, HPF and BPF used op-Amp as main component.</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><b>Part A</b> -Communication System : Basic Principles of Communication System, types of media used in a communication system, effect of noise on a communication system and modulation in analogue communication (10 hr )</p> <p><b>Part B</b> Signals in Communication: Principles of Signals, examples of signals of various types, difference between Analog and Digital Signals, various types of continuous-time signals, classification of signals based on their characteristics and nature of availability and the advantages and disadvantages of each type of signal in communications.(15 hr)</p> <p><b>Part C- I</b>- Fourier Series in the Continuous Domain: the important classes of Fourier series methods and Trigonometric Fourier series, Exponential Fourier ( 5 hr)</p> <p><b>Part C- II</b>: Fourier transform representation: disadvantage of the Fourier series, Fourier transform for non-periodic signals, Inverse Fourier transform as a mathematical transformation technique.(10 hr)</p> <p><b>Part D</b>- Filters: basic types of filters: Passive and Active , design of filters: Low Pass Filter (LPF), High Pass Filter (HPF), Band Pass Filter (BPF) and Band Stop Filter (BSF),design formula for each type of filters for passive and active.(34 hr)</p>
<p><b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم</p>	
<p><b>Strategies</b></p>	<p>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.</p>



<b>Student Workload (SWL)</b> الحمل الدراسي للطالب موزع على (15) اسبوع			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	64	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4.26
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.06
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	125		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5, 10	LO #1- 4, LO #5- 15
	<b>Assignments</b>	2	10% (10)	2, 12	LO # 1-7, , LO #8- 18
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	
	<b>Report</b>	1	10% (10)	13	LO # 1-17
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr	10% (10)	7	LO # 1-16
	<b>Final Exam</b>	4hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b>	
المنهاج الاسبوعي النظري	
	<b>Material Covered</b>
<b>Week 1</b>	Basic Principles of Communication: Introduction to Communication, The Block Diagram of a Communication System
<b>Week 2</b>	Signals: Principles of Signals & Definition, Difference between Analog and Digital Signals
<b>Week 3</b>	Types of continuous-time signals: (Unit–Step Function, Unit –Ramp Function, Impulse Function, Unit –Parabola Function, Signum Function, Rectangular Function, Triangular Function, Real Exponential Signal, Sinusoidal Function & Sampling Function)
<b>Week 4</b>	Classification of Signals , Continuous –Time Signal, Discrete- Time Signals ,Even Signals, Odd Signals , Deterministic Signals, Random Signals, Sinusoidal Signals, Complex Exponential Signals
<b>Week 5</b>	Solved Problems: Periodic Signals, Aperiodic Signals ,Solved Problems: Energy Signals ,Power Signals
<b>Week 6</b>	Fourier series: The Fourier Series in Continuous Domain, Trigonometric Fourier series and Solved Examples , Exponential Fourier series and Solved Examples . Fourier Transform : Fourier Transform Examples
<b>Week 7</b>	<b>Midterm Exam</b>
<b>Week 8</b>	Inverse Fourier Transform Example: The Inverse Fourier Transform
<b>Week 9</b>	Filters : Types of filters : Classification Based on Construction and Design RC-LPF, RC-HPF BPF (Low Pass Filter Stage and High Pass Filter Stage) (Type 1& Type 2) Band Stop Filter
<b>Week 10</b>	Passive Filters : Formula and Procedure of Design RL-LPF, RL-HPF
<b>Week 11</b>	LC- LPF, Constant-K-(T& $\pi$ Section) LC- HPF, Constant-K-(T& $\pi$ Section) LC- BPF, Constant-K-(T& $\pi$ Section)
<b>Week 12</b>	Band Pass Filter Stage) (Type 1& Type 2)
<b>Week 13</b>	Active Filters Comparison Between Passive & Active Filters
<b>Week 14</b>	First- Order LPF First- Order HPF
<b>Week 15</b>	BPF Active Filter & Band reject or Notch Filter
<b>Week 16</b>	Preparatory week before the final Exam

<b>Delivery Plan (Weekly Lab. Syllabus)</b> المنهاج الاسبوعي للمختبر	
	Material Covered
<b>Week 1</b>	Lab 1: Introduction to Lab Instruments
<b>Week 2</b>	Lab 2: Function Generator and Oscilloscope.
<b>Week 3</b>	Lab 3: Introduction to filters types construction
<b>Week 4</b>	Lab 4: Fourier series and Fourier Transform examples using the Math Function
<b>Week 5</b>	Lab 5: Introduction to filters types design
<b>Week 6</b>	Lab 6: Introduction to Passive filters
<b>Week 7</b>	Lab 7: Introduction to active filters
<b>Week 8</b>	Lab 8: Constant-K-(T& $\pi$ Section) construction
<b>Week 9</b>	Lab 9: Constant-K-(T& $\pi$ Section) design
<b>Week 10</b>	Lab 10: Constant-K-(T& $\pi$ Section) LC- LPF
<b>Week 11</b>	Lab 11: Constant-K-(T& $\pi$ Section) LC-HPF
<b>Week 12</b>	Lab 12: Constant-K-(T& $\pi$ Section)- BPF
<b>Week 13</b>	Lab 13: Constant-K-(T& $\pi$ Section)- BPF – Type-1
<b>Week 14</b>	Lab 14: Constant-K-(T& $\pi$ Section)-BPF –Type-2

<b>Learning and Teaching Resources</b> مصادر التعلم والتدريس		
	Text	Available in the Library?
<b>Required Texts</b>	Principles of Communication Systems By J.S.Chitode, First Edition-2007 Modern Digital and Analog Communication Systems ,By B.P.Lathi OXFORD	Yes
<b>Recommended Texts</b>	Analog and Digital Communications, By Schaum Second Edition Data Communications and Networking, By Behrouz A. Forouzan, Fifth Edition	No
<b>Websites</b>		

<b>Grading Scheme</b> مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX – Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	راسب	(0-44)	Considerable amount of work required
<p><b>Note:</b> Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				

## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Advanced Engineering Mathematics		Module Delivery
Module Type	S		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CET2201		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	2	Semester of Delivery	
Administering Department	CET	College	EECT
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	CET2101	Semester	3
Co-requisites module	None	Semester	

**Module Aims, Learning Outcomes and Indicative Contents**

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. To develop problem solving skills complex analysis.</li> <li>2. To understand power series.</li> <li>3. To the way around Fourier series.</li> <li>4. To get the grip on using Laplace transform.</li> <li>5. To develop a good understanding of ODEs.</li> <li>6. This course deals with Advanced Engineering Mathematics.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Describe Complex environment.</li> <li>2. Discuss derivative of Analytic Function.</li> <li>3. Describe Exponential, Trigonometric and Hyperbolic Functions.</li> <li>4. Explain Line Integral in the Complex Plane and Cauchy's Integral Formula.</li> <li>5. Using power Series and how to expand a function</li> <li>6. Identify elements of Fourier Series.</li> <li>7. Identify elements of Laplace Transform.</li> <li>8. Discuss different aspects of First-Order ODEs.</li> <li>9. Identify Bernoulli Equation and Population Dynamics.</li> <li>10. Discuss different aspects of Second-Order Linear ODEs.</li> <li>11. Using Variation of Parameters.</li> <li>12. Discuss different aspects of Higher Order Linear ODEs.</li> <li>13. Using Power Series to solve ODE.</li> <li>14. Explain Fourier Series solution of ODE.</li> <li>15. Discuss Laplace Transform solution of ODE.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p><u>Part A – Complex Analysis.</u> This part includes Complex Numbers. Polar Form of Complex Numbers. Powers and Roots. Complex variables. Complex Function. Derivative. Analytic Function. Cauchy–Riemann and Laplace's Equation. Exponential, Trigonometric and Hyperbolic Functions. Euler's Formula. Logarithm. Line Integral in the Complex Plane. Cauchy's Integral Formula. Derivatives of Analytic Functions. <b>[12 hrs]</b> + Revision problem classes in weekly tutorials <b>[4 hrs]</b></p>

	<p><u>Part B – Preliminaries to Methods of solving ODE.</u></p> <p>This part includes Power Series. Functions Given by Power Series. Fourier Series. Arbitrary Period. Even and Odd Functions. Fourier Analysis for Periodic Functions. Fourier series Formula of a function. Differentiation and Integration of Fourier Series Laplace Transform. Transforms of Derivatives and Integrals. Table of Laplace Transforms. inverse Laplace transform <b>[9 hrs]</b> + Revision problem classes in weekly tutorials <b>[3 hrs]</b></p> <p><u>Part C – ODE.</u></p> <p>This part includes First-Order ODEs. Separable ODEs. Exact ODEs. Integrating Factors. Linear ODEs. Bernoulli Equation. Population Dynamics. Second-Order Linear ODEs. Homogeneous. Homogeneous with Constant Coefficients. Nonhomogeneous ODEs. Solution by Variation of Parameters. Higher Order Linear ODEs. Homogeneous Linear ODEs. Homogeneous Linear ODEs with Constant Coefficients. Nonhomogeneous Linear ODEs. Power Series solution of ODE. Fourier Series solution of ODE. Laplace Transform solution of ODE. <b>[24 hrs]</b> + Revision problem classes in weekly tutorials <b>[8 hrs]</b></p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	This module will primarily focus on encouraging students to participate in the activities, as well as refining and developing their critical thinking skills. This will be achieved through lectures, tutorials, discussions, and grading activities.

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب موزع على (15) اسبوع			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	48	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3.2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	5.13
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1-4, LO #5-9
	Assignments	2	20% (10)	3, 11	LO # 1,2 , LO# 3-10
	Projects / Lab.	N/A			
	Report	1	10% (10)	Continuous	LO#1-14
Summative assessment	Midterm Exam	2 hr	10% (10)	8	LO # 1-7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Complex Numbers. Polar Form of Complex Numbers. Powers and Roots. Complex variables.
Week 2	Complex Function. Derivative. Analytic Function. Cauchy–Riemann and Laplace’s Equation.
Week 3	Exponential, Trigonometric and Hyperbolic Functions. Euler’s Formula. Logarithm.
Week 4	Line Integral in the Complex Plane. Cauchy’s Integral Formula. Derivatives of Analytic Functions
Week 5	Power Series. Functions Given by Power Series.
Week 6	Fourier Series. Arbitrary Period. Even and Odd Functions. Fourier Analysis for Periodic Functions. Fourier series Formula of a function. Differentiation and Integration of Fourier Series
Week 7	Laplace Transform. Transforms of Derivatives and Integrals. Table of Laplace Transforms. inverse Laplace transform
Week 8	<b>Midterm Exam</b>
Week 9	First-Order ODEs. Separable ODEs. Exact ODEs. Integrating Factors. Linear ODEs. Bernoulli Equation. Population Dynamics.
Week 10	Second-Order Linear ODEs. Homogeneous. Homogeneous with Constant Coefficients.
Week 11	Nonhomogeneous ODEs. Solution by Variation of Parameters.
Week 12	Higher Order Linear ODEs. Homogeneous Linear ODEs. Homogeneous Linear ODEs with Constant Coefficients. Nonhomogeneous Linear ODEs.
Week 13	Power Series solution of ODE.
Week 14	Fourier Series solution of ODE.
Week 15	Laplace Transform solution of ODE.



### Delivery Plan (Weekly Tutorial)

المنهاج الاسبوعي الاضافي

#### Material Covered

Each week, a question sheet related to the material presented in the theoretical lecture will be solved and debated.

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	"Advanced Engineering Mathematics ", Erwin Kreyszig, Wiley, 10th edition (August 16, 2011), ISBN-13: 978-0470458365.	Yes
<b>Recommended Texts</b>	"Differential Equations for Engineers and Scientists", Yunus Cengel, William Palm, McGraw Hill, 1st edition (January 31, 2012), ISBN-13: 978-0073385907.	No
<b>Websites</b>	<a href="https://www.coursera.org/learn/differential-equations-engineers">https://www.coursera.org/learn/differential-equations-engineers</a>	

### Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX</b> – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F</b> – Fail	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Python Programming		Module Delivery
Module Type	S		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CET2202		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	2	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Programming Essentials / CET1203	Semester	2
Co-requisites module	None	Semester	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Introduce students to the fundamental concepts and principles of Python programming language.</li> <li>2. Develop students' proficiency in writing Python code and solving programming problems.</li> <li>3. Familiarize students with essential programming constructs, such as variables, data types, control flow structures, and functions.</li> <li>4. Provide students with a solid foundation in object-oriented programming (OOP) and its application in Python.</li> <li>5. Enable students to work with various data structures and perform operations on them.</li> <li>6. Prepare students for practical application of Python in real-world scenarios, such as data manipulation, web scraping, and GUI development.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Understand the fundamentals of Python programming language, including variables, data types, and basic operators.</li> <li>2. Demonstrate proficiency in control flow structures, such as conditional statements and loops, to control program execution.</li> <li>3. Develop functions and utilize function arguments to enhance code modularity and reusability.</li> <li>4. Utilize exception handling techniques to effectively manage errors and ensure program robustness.</li> <li>5. Gain familiarity with modules and packages to leverage existing code and extend Python's functionality.</li> <li>6. Understand object-oriented programming (OOP) concepts and apply them to create classes, objects, and inheritance hierarchies.</li> <li>7. Manipulate strings, lists, dictionaries, and sets to efficiently store and retrieve data.</li> <li>8. Perform file handling operations, including reading from and writing to files.</li> <li>9. Apply Python to practical tasks, such as web scraping, data manipulation, and analysis.</li> <li>10. Demonstrate proficiency in working with files and directories, including navigating file systems and managing file permissions.</li> <li>11. Develop graphical user interfaces (GUIs) using Python libraries to create interactive applications.</li> <li>12. Prepare for exams by reviewing course materials, practicing exercises, and answering sample questions.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A: Introduction to Python and Basic Concepts (Estimated time: 10 hours)</u></p> <p>Overview of Python programming language</p> <p>Installation and setup</p> <p>Variables and data types</p> <p>Basic operators</p> <p>Input and output operations</p>

	<p><u>Part B: Control Flow and Functions (Estimated time: 16 hours)</u></p> <p>Conditional statements (if, else, elif)          Loops and iterations (for loop, while loop)          Functions and function arguments          Recursion</p> <p><u>Part C: Data Structures and File Handling (Estimated time: 16 hours)</u></p> <p>Strings and string manipulation          Lists and list manipulation          Dictionaries and sets          File handling and input/output operations</p> <p><u>Part D: Advanced Topics (Estimated time: 16 hours)</u></p> <p>Exception handling and error management          Modules and packages          Object-oriented programming (OOP) concepts          Classes, objects, inheritance, and polymorphism</p> <p><u>Part E: Applications and Practical Projects (Estimated time: 16 hours)</u></p> <p>Working with files and directories          GUI programming          Web scraping          Data manipulation and analysis</p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p>Effective learning and teaching strategies involve creating an engaging and interactive learning environment. This can be achieved through a combination of various approaches, such as incorporating active learning techniques like group discussions, problem-solving activities, and hands-on experiments. Additionally, employing visual aids, multimedia resources, and real-world examples can enhance comprehension and retention. Encouraging student participation and providing timely feedback also play vital roles in fostering student engagement and understanding. It is important to promote a growth mindset, encourage critical thinking, and create opportunities for collaboration and peer learning. By employing these strategies, educators can facilitate meaningful learning experiences and empower students to become active participants in their own learning journey.</p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب موزع على ( 15 ) اسبوع			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	64	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4.26
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.06
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	125		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5, 10	LO #1-5, LO #5-8
	<b>Assignments</b>	1	10% (10)	9	LO# 1-8
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	
	<b>Report</b>	1	10% (10)	13	LO # 1-12
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hrs.	10% (10)	7	LO # 1-7
	<b>Final Exam</b>	4hrs.	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

### Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
<b>Week 1</b>	Introduction to Python, Variables, Data Types, and Basic Operators
<b>Week 2</b>	Control Flow and Conditional Statements
<b>Week 3</b>	Loops and Iterations
<b>Week 4</b>	Strings and String Manipulation
<b>Week 5</b>	Lists and List Manipulation
<b>Week 6</b>	Dictionaries and Sets
<b>Week 7</b>	<b>Midterm Exam</b>
<b>Week 8</b>	Functions and Function Arguments
<b>Week 9</b>	File Handling and Input/Output Operations
<b>Week 10</b>	Exception Handling and Error Management
<b>Week 11</b>	Modules and Packages
<b>Week 12</b>	Object-Oriented Programming (OOP) Concepts
<b>Week 13</b>	Classes and Objects
<b>Week 14</b>	Inheritance and Polymorphism
<b>Week 15</b>	Working with Files and Directories

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction to Python, Variables, and Basic Operators
Week 2	Control Flow and Conditional Statements
Week 3	Loops and Iterations
Week 4	Strings and String Manipulation
Week 5	Lists and List Manipulation
Week 6	Dictionaries and Sets
Week 7	<b>Midterm Exam (No lab session).</b>
Week 8	Functions and Function Arguments
Week 9	File Handling and Input/Output Operations
Week 10	Exception Handling and Error Management
Week 11	Modules and Packages
Week 12	Object-Oriented Programming (OOP) Concepts
Week 13	Classes and Objects
Week 14	Inheritance and Polymorphism
Week 15	Working with Files and Directories
Week 16	<b>Final Exam (No lab session).</b>

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Title: "Python Crash Course: A Hands-On, Project-Based Introduction to Programming" Author: Eric Matthes	
Recommended Texts	Title: "Learning Python" Author: Mark Lutz	No
Websites	URL: <a href="https://realpython.com">https://realpython.com</a>	

### Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
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Department of Computer Engineering Techniques

<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX – Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.



## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Microprocessors		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CET2203		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	2	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Computer Organization & Architecture ( CET2103)	Semester	3
Co-requisites module	None	Semester	

**Module Aims, Learning Outcomes and Indicative Contents**

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. To understand the basic operating concept of specific microprocessor.</li> <li>2. To study the hardware architecture of specific microprocessor.</li> <li>3. To encode programs based on the specific processor language.</li> <li>4. To solve problems encountered in the architecture of a specific microprocessor</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Identify the basic characteristic of specific processor</li> <li>2. Define the processor signals and their functions</li> <li>3. Explain the architecture from the hardware point of view</li> <li>4. Identify various machine cycle.</li> <li>5. Explain the memory different interfacing techniques with the microprocessor.</li> <li>6. Explain the input output different interfacing techniques with the microprocessor.</li> <li>7. Explain the concept of Stack memory.</li> <li>8. List the addressing mode of the processor instruction.</li> <li>9. Encode different program based on assembly.</li> <li>10. Perform different arithmetic and logical operations using the processor instruction set.</li> <li>11. Encode different problems associative with branching instructions.</li> <li>12. Solve problem encountered with delay and counter.</li> <li>13. Identify different interrupt procedures.</li> <li>14. Design different interfacing systems due to the problem requirements.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A – Microprocessor H/W architecture</u> --MP signals, MP operations, Machine cycle, memory interfacing, input-output devices interfaces [30hrs]</p> <p><u>Part b – Microprocessor S/W architecture</u> --Instruction set, data transfer, arithmetic, logical. [25 hrs] --Stack register and stack area [15hrs] --Branching instructions and applications [20hrs] --Revision problem classes [10 hrs]</p>

### Learning and Teaching Strategies

#### استراتيجيات التعلم والتعليم

<b>Strategies</b>	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.
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### Student Workload (SWL)

#### الحمل الدراسي للطالب موزع على (15) اسبوع

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	64	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4.26
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.06
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	125		

### Module Evaluation

#### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	7, 10	LO #1- 6, LO #8-11
	<b>Assignments</b>	4	10% (10)	Continuous	
	<b>Projects / Lab.</b>	5	10% (10)	Continuous	
	<b>Report</b>	2	10% (10)	7,10	LO #1- 6, LO # 8-11
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr	10% (10)	6	LO # 1-6
	<b>Final Exam</b>	4hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b> المنهاج الاسبوعي النظري	
	<b>Material Covered</b>
<b>Week 1</b>	Introduction - microprocessor evolution
<b>Week 2</b>	Basics specific microprocessor architecture and its specifications
<b>Week 3</b>	Microprocessor signals and machine cycle
<b>Week 4</b>	Memory organization, interfacing and memory map
<b>Week 5</b>	Input devices interfacing, Output devices interfacing
<b>Week 6</b>	<b>Midterm Exam</b>
<b>Week 7</b>	Introduction to microprocessor assembly language and addressing mode
<b>Week 8</b>	Data transfer instruction
<b>Week 9</b>	Arithmetic instructions
<b>Week 10</b>	logical instruction
<b>Week 11</b>	Stack register , stack area and related instructions
<b>Week 12</b>	Branching instruction
<b>Week 13</b>	Delay and counters
<b>Week 14</b>	Interrupt concept and types
<b>Week 15</b>	<b>Subroutine</b>

<b>Delivery Plan (Weekly Lab. Syllabus)</b> المنهاج الاسبوعي للمختبر	
	<b>Material Covered</b>
<b>Week 1</b>	Lab 1: Introduction to microprocessor kit
<b>Week 2</b>	Lab 2: key function definition, read/write memory location, read/write registers
<b>Week 3</b>	Lab 3: Data transfer instructions
<b>Week 4</b>	Lab 4: Arithmetic instructions
<b>Week 5</b>	Lab 5: logical instruction
<b>Week 6</b>	Lab 6: Stack instructions
<b>Week 7</b>	Lab 7: Branching instruction

**Learning and Teaching Resources**

مصادر التعلم والتدريس		
	Text	Available in the Library?
<b>Required Texts</b>	8085 $\mu$ p architecture and programming_Gonkar	Yes
<b>Recommended Texts</b>	UNDERSTANDING 8085/8086 MICROPROCESSORS and PERIPHERAL ICs	no
<b>Websites</b>	<a href="https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering">https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering</a>	

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX</b> – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F</b> – Fail	راسب	(0-44)	Considerable amount of work required
<p><b>Note:</b> Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				

## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Analog Communications		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CET2204		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	2	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0
Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	CET2105	Semester	3
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Understanding the modulation and de-modulation</li> <li>2. Viewing and knowledge Amplitude modulation and Frequency modulation.</li> <li>3. Analyzing the advantage and disadvantage of AM over FM.</li> <li>4. Analyzing the generation and detection each of AM and FM.</li> <li>5. To develop problem solving skills and understanding of PM equations</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Recognize Basic Principles of modulation and de-modulation</li> <li>2. Explain the Need for Modulation.</li> <li>3. Define a Carrier Wave, Radio Frequency Spectrum, Sound and Radio Broadcasting</li> <li>4. Identify Amplitude Modulation, Percent Modulation, Upper and Lower Sidebands</li> <li>5. Explain Methods of Modulation.</li> <li>6. Mathematical Analysis of a Modulated Carrier Wave</li> <li>7. Discuss forms of Amplitude Modulation and Methods of Amplitude Modulation.</li> <li>8. Describe the Power Relation in an AM Wave.</li> <li>9. Identify modulating Amplifier Circuit: AM- Transmitter &amp; Radio Receiver Essential Parameter</li> <li>10. Explain the AM generation of SSB, DSB-SC balanced modulators (Cowan &amp; Ring).</li> <li>11. Summarize various demodulation type of AM Signal: AM-Detector (Envelope &amp; Synchronous)</li> <li>12. Identify the Frequency Modulation Process: Modulation Index, Deviation Ratio, Percent Modulation and FM Sidebands.</li> <li>13. Discuss the relationship between the modulation index and number of sidebands.</li> <li>14. List the various types of generation of FM (the direct method and indirect method) &amp; demodulation or detection.</li> <li>15. Identify the comparison between AM and FM.</li> <li>16. Discuss Principles of FM Receiver: FM Discriminator (Foster –Seeley &amp; Ratio Detector).</li> <li>17. Explain the Phase modulation (PM) Definition.</li> <li>18. Discuss the PM equation and PM wave forms</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><b>Part A –MODULATION AND DEMODULATION:</b> Need for Modulation,. Define a Carrier Wave, Radio Frequency Spectrum, Sound and Radio</p>

	<p>Broadcasting. (20 hr)</p> <p><b>Part B-</b> Amplitude Modulation: Percent Modulation, Upper and Lower Sidebands, Methods of Modulation, Mathematical Analysis of a Modulated Carrier Wave, forms of Amplitude Modulation and Methods of Amplitude Modulation, Power Relation in an AM Wave,. Identify modulating Amplifier Circuit: AM- Transmitter &amp; Radio Receiver Essential Parameter, The AM generation of SSB, DSB-SC balanced modulators (Cowan &amp; Ring), demodulation type of AM Signal: AM-Detector (Envelope &amp; Synchronous) (30hr)</p> <p><b>Part C</b> Frequency Modulation Process: Modulation Index, Deviation Ratio, Percent Modulation and FM Sidebands, the relationship between the modulation index and number of sidebands, generation of FM (the direct method and indirect method) &amp; demodulation or detection, the comparison between AM and FM, FM Receiver :FM Discriminator (Foster –Seeley &amp; Ratio Detector), the Phase modulation (PM) Definition and the PM equation and PM wave forms.(24 hr)</p>
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### Learning and Teaching Strategies

#### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p>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.</p>
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### Student Workload (SWL)

#### الحمل الدراسي للطالب موزع على (15) اسبوع

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	64	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4.26
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.06
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	125		



<b>Module Evaluation</b>					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5, 10	LO #1-6 , LO #6-11
	<b>Assignments</b>	2	10% (10)	2, 12	LO # 1,2 , LO #3-11
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	
	<b>Report</b>	1	10% (10)	13	LO # 1-14
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr	10% (10)	7	LO # 1-8
	<b>Final Exam</b>	4hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b>	
المنهاج الاسبوعي النظري	
	Material Covered
<b>Week 1</b>	MODULATION AND DEMODULATION: Forms of Amplitude Modulation , Methods of Amplitude Modulation
<b>Week 2</b>	Carrier Wave, Radio Frequency Spectrum, Sound, Radio Broadcasting
<b>Week 3</b>	Need for Modulation,
<b>Week 4</b>	Methods of Modulation:
<b>Week 5</b>	Amplitude Modulation Percent Modulation, Upper and Lower Sidebands,
<b>Week 6</b>	Mathematical Analysis of a Modulated Carrier Wave. Power Relation in an AM Wave,
<b>Week 7</b>	<b>Midterm Exam</b>
<b>Week 8</b>	Modulating Amplifier Circuit: AM- Transmitter
<b>Week 9</b>	Radio Receiver Essential Parameter
<b>Week 10</b>	Generation of SSB, DSB-SC Balanced Modulators :(Cowan & Ring ) Demodulation of AM Signal: AM-Detector (Envelope & Synchronous
<b>Week 11</b>	Frequency Modulation: Modulation Index, Deviation Ratio , Percent Modulation, FM Side bands FM Receiver :FM Discriminator (Foster –Seeley & Ratio Detector),
<b>Week 12</b>	Modulation Index and Number of Side bands, Demodulation or Detection, Comparison between AM and FM, The Four Fields of FM
<b>Week 13</b>	FM Generation (Direct & Indirect Method)
<b>Week 14</b>	Phase modulation (PM) Definition
<b>Week 15</b>	PM equation and PM wave forms

<b>Delivery Plan (Weekly Lab. Syllabus)</b> المنهاج الاسبوعي للمختبر		
	<b>Material Covered</b>	
<b>Week 1</b>	Lab 1: Methods of Modulation Process and why modulation	
<b>Week 2</b>	Lab2: Demodulation methods Process and detection.	
<b>Week 3</b>	Lab 3:Methods of Amplitude Modulation	
<b>Week 4</b>	Lab4: Calculating the time and a frequency of carrier wave	
<b>Week 5</b>	Lab 5: Calculating of Index Modulation AM and Percent Modulation.	
<b>Week 6</b>	Lab 6:Calculating of Upper and Lower Side bands frequencies of AM	
<b>Week 7</b>	Lab 7: Modulation AM wave.	
<b>Week 8</b>	Lab 8:Calculating power content of AM	
<b>Week 9</b>	Lab 9: DE-modulation wave of AM	
<b>Week 10</b>	Lab 10:Frequency modulation Process	
<b>Week 11</b>	Lab 11:Calculating the maximum and minimum frequency	
<b>Week 12</b>	Lab 12: Calculating carrier frequency of FM	
<b>Week 13</b>	Lab 13: Index Modulation and Percent Modulation of FM	
<b>Week 14</b>	Lab 14: Modulation wave of FM	
<b>Week 15</b>	Lab 15: De-Modulation wave of FM	
<b>Learning and Teaching Resources</b> مصادر التعلم والتدريس		
	<b>Text</b>	<b>Available in the Library?</b>
<b>Required Texts</b>	Principles of Communication Systems By J.S.Chitode, First Edition-2007 Modern Digital and Analog Communication Systems ,By B.P.Lathi OXFORD	Yes
<b>Recommended Texts</b>	Analog and Digital Communications, By Schaum Second Edition Data Communications and Networking, By Behrouz A. Forouzan, Fifth Edition	No
<b>Websites</b>		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX – Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	راسب	(0-44)	Considerable amount of work required
<p><b>Note:</b> Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				

## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>Electronic Circuits</b>		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	<b>CET2205</b>		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	2	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	CET2104	Semester	3
Co-requisites module	None	Semester	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. This course deals with Third semiconductor or device, FET physical construction, biasing, configuration s , output and transfer characteristics</li> <li>2. To understand the D.C biasing of BJT and circuit types , analysis and calculations of FET parameters</li> <li>3. To understand and construct re FET modeling, and circuits analysis</li> <li>4. To deal with small signal analysis of FET</li> <li>5. Deals with Depletion-Type MOSFET , and Enhancement-Type MOSFETs and Combination ,and Design</li> <li>6. Deals with Operational amplifiers (OP_AMP) their advantages, classifications and types and application circuits</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. To understand and discuss the third semiconductor device which is Transistor (Field Effect Transistor)(FET), Construction and Characteristics of JFETs</li> <li>2. To Identify and Calculate And implement Transfer Characteristics of FET</li> <li>3. To Identify and discuss Important Relationships 227 5.7 Depletion-Type MOSFET 228 5.8 Enhancement-Type MOSFET , MOSFET Handling , VMOS CMOS</li> <li>4. To implement and solve FET DC biasing and circuits analysis Fixed-Bias Configuration Self-Bias Configuration Voltage-Divider Biasing, implementations</li> <li>5. To understand Depletion-Type MOSFETs Enhancement-Type MOSFETs</li> <li>6. To identify and implement Combination Networks , Design P-Channel FETs Universal JFET Bias Curve .</li> <li>7. To understand FET small signal Model,</li> <li>8. To Identify, Calculate and analyses JFET Fixed-Bias Configuration , JFET Self-Bias Configuration , JFET Voltage-Divider Configuration ,</li> <li>9. To understand JFET Source-Follower (Common-Drain) Configuration , JFET Common-Gate Configuration ,</li> <li>10. To identify Depletion-Type MOSFETs, Enhancement-Type MOSFETs E-MOSFET Drain-Feedback Configuration,</li> <li>11. To Understand and implement E-MOSFET Voltage-Divider Configuration, Designing FET Amplifier Networks.</li> <li>12. To understand and identify Operational amplifiers (Introduction) , Differential and Common-Mode Operation</li> <li>13. To understand Op-Amp, Practical Op-Amp Circuits , and Op-Amp Specifications</li> <li>14. To identify DC Offset Parameters, Op-Amp Specifications and Frequency Parameters</li> <li>15. To understand and identify OP AMP applications circuits.</li> </ol>

	<p>16. To Analyze, calculate and implement Constant-Gain Multiplier, Voltage Summing , Voltage Buffer, Controller Sources Instrumentation Circuits ,and Active Filters</p>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p>1. FET (Field Effect Transistor) (FET), Construction and Characteristics of JFETs, Transfer_Characteristics of FET , Important Relationships Depletion-Type MOSFET Enhancement-Type MOSFET , MOSFET Handling , VMOS CMOS [8hrs] .</p> <p>FET D.C. biasing and circuits analysis Fixed-Bias Configuration, Self-Bias Configuration , and Voltage-Divider Biasing, implementations [8 hrs]</p> <p>Depletion-Type MOSFETs Enhancement-Type MOSFETs, Combination Networks , Design, and P-Channel FETs Universal JFET Bias Curve [10hrs].</p> <p>FET small signal Model, JFET Fixed-Bias Configuration , JFET Self-Bias Configuration , JFET Voltage-Divider Configuration [8hrs].</p> <p>JFET Source-Follower (Common-Drain) Configuration , JFET Common-Gate Configuration , Depletion-Type MOSFETs , Enhancement-Type MOSFETs E-MOSFET Drain-Feedback Configuration, Voltage-Divider Configuration ,and Designing FET Amplifier Networks . [12hrs]</p> <p>2. Operational amplifiers (OP_AMPS)</p> <p>Operational amplifiers (Introduction) , Differential and Common-Mode Operation Op-Amp introduction , Practical Op-Amp Circuits , and Op-Amp Specifications DC Offset Parameters , Op-Amp Specifications and Frequency Parameters [8 hrs]</p> <p>OP AMP applications circuits Constant-Gain Multiplier , Voltage Summing , Voltage Buffer, Controller Sources Instrumentation Circuits ,and Active Filters[6 hrs]</p>

<p style="text-align: center;"><b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم</p>	
<p><b>Strategies</b></p>	<p>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.</p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب موزع على (15) اسبوع			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	64	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4.26
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.06
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	125		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5, 10,	LO # 1-6 , LO # 6-11
	<b>Assignments</b>	2	10% (10)	5, 10	LO # 1-4, LO # 5-9
	<b>Projects / Lab.</b>	1	10% (10)	Continuous	
	<b>Report</b>	1	10% (10)	13	LO # 1-12
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr	10% (10)	9	LO #1-10
	<b>Final Exam</b>	4hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		



<b>Delivery Plan (Weekly Syllabus)</b>	
المنهاج الاسبوعي النظري	
	<b>Material Covered</b>
<b>Week 1</b>	Introduction ,Field effect transistor FET, Introduction , CONSTRUCTION AND CHARACTERISTICS
<b>Week 2</b>	TRANSFER CHARACTERISTICS, Applying Shockley's Equation, and short hand method
<b>Week 3</b>	DEPLETION-TYPE MOSFET, Basic Construction, c Operation and Characteristics
<b>Week 4</b>	p-Channel Depletion-Type MOSFET, ENHANCEMENT-TYPE MOSFET, Basic construction
<b>Week 5</b>	Enhancement MOSEFET Basic Operation and Characteristics, MOSFET HANDLING
<b>Week 6</b>	FET DC. Biasing , FIXED-BIAS CONFIGURATION,
<b>Week 7</b>	FET SELF-BIAS CONFIGURATION, VOLTAGE-DIVIDER BIASING
<b>Week 8</b>	DEPLETION-TYPE MOSFETs, ENHANCEMENT-TYPE MOSFETs. DESIGN
<b>Week 9</b>	<b>Midterm Exam</b>
<b>Week 10</b>	FET SMALL-SIGNAL MODEL, Graphical Determination of gm, Mathematical Definition of gm
<b>Week 11</b>	FET AC Equivalent Circuit, JFET VOLTAGE-DIVIDER CONFIGURATION, JFET SOURCE-FOLLOWER (COMMON-DRAIN) CONFIGURATION,
<b>Week 12</b>	JFET COMMON-GATE CONFIGURATION, DEPLETION-TYPE MOSFETs, ENHANCEMENT-TYPE MOSFETs
<b>Week 13</b>	Operational amplifier, DIFFERENTIAL AND COMMONMODE OPERATIO, OP-AMP BASICS
<b>Week 14</b>	Operational amplifier applications
<b>Week 15</b>	Operational amplifier applications
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

<b>Delivery Plan (Weekly Lab. Syllabus)</b>	
المنهاج الاسبوعي للمختبر	
	<b>Material Covered</b>
<b>Week 1</b>	Lab 1: Introduction
<b>Week 2</b>	Lab 2: Clampers
<b>Week 3</b>	Lab 3 Input characteristic of CBC BJT
<b>Week 4</b>	Lab 4 output characteristic of CBC BJT
<b>Week 5</b>	Lab 5: Input characteristic of CEC BJT
<b>Week 6</b>	Lab 6: output characteristic of CEC BJT
<b>Week 7</b>	Lab 7:review

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Electronic devices and circuit theory Poylested	Yes
Recommended Texts		No
Websites		

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

## MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Instrumentation and Measurement		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CET2206		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	2	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

**Module Aims, Learning Outcomes and Indicative Contents**

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Identify and analyze factors affecting the performance of measuring systems and errors types and cause</li> <li>2. Understand voltage and current measurements from a given circuit.</li> <li>3. Choose appropriate instruments for the measurement of voltage, and current in ac and dc measurements</li> <li>4. Describe the operating principle of DC and AC bridges</li> <li>5. Identify Oscilloscopes, signal generators, and transducers</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Explain the static characteristics of measuring systems.</li> <li>2. Discuss problems related to measurement errors.</li> <li>3. Explain the construction and working indicating Instruments.</li> <li>4. Explain the principle of operation of the galvanometer.</li> <li>5. Discuss the DC bridges- Wheatstone Bridge, Kelvin Bridge</li> <li>6. Discuss the AC bridges, Capacitance Comparison Bridges, Maxwell's Bridge, Wein's bridge</li> <li>7. Explain the Design of DC voltmeter and ammeter.</li> <li>8. Describe Cathode Ray Tube Oscilloscope.</li> <li>9. Identify High Bandwidth Digital Storage Oscilloscope.</li> <li>10. Identify Spectrum Analyzer and BER Tester</li> <li>11. Discuss Signal Generator.</li> <li>12. Identify Arbitrary Waveform Generator</li> <li>13. Explain Transducers.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A – Measurement and Error Analysis</u></p> <p>Basics of Measurements, Accuracy, Precision, Resolution, Gross errors and systematic errors, Absolute and relative errors, Accuracy, Precision, Resolution, and significant figures, standard of measurements [24 hrs.]</p> <p><u>Part B – Measuring Instruments</u></p> <p>Measurement of resistance, inductance, and capacitance Whetstone's Bridge, Kelvin Bridge; AC bridges, Capacitance Comparison Bridge, Maxwell's Bridge, Wein's Bridge, [9 hrs].</p> <p><b>Voltmeters and Ammeters Introduction</b>, voltmeter, Multirange voltmeter, ammeter, Multirange ammeter Extending voltmeter and ammeter ranges [11hrs]</p>

	<p>Introduction Oscilloscopes, Basic principles, CRT features, Block diagram and working of each block High Bandwidth Digital Storage Oscilloscope- Spectrum Analyzer -BER Tester [8 hrs]</p> <p>Introduction Signal Generators, Fixed and variable AF oscillator, Standard signal generator Arbitrary Waveform Generator. [4 hrs]</p> <p>Introduction Transducers, Electrical transducers, Selecting a transducer, Resistive transducer [2 hrs]</p>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p>lecture and seminars will be used to explain the theory and principles of the module. Also, laboratory reports and mini-projects will be used. Quantitative instruments such as pre-test and post-test will be used to check students' conceptual knowledge of electrical measurement after the theory lecture or laboratories work. Video will be used to explain the electrical measurement instruments. Observation form and laboratory rubric will be used to analyze the skills of the students. The observer comments from the laboratory staff on student skills will be classified according to thematic analysis to evaluate students learned skills.</p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب موزع على (15) اسبوع			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	64	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4.26
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.06
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	125		

<b>Module Evaluation</b>					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (5)	3, 12	LO #1, 2, LO # 3-11
	Assignments	2	10% (5)	5, 10	LO # 1-4, LO # 5-9
	Project / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 1- 12
Summative assessment	Midterm Exam	2 hr	10% (20)	9	LO # 1-7
	Final Exam	4 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b>	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction - System of Units- Basics of Measurements
Week 2	Accuracy, Precision, Resolution
Week 3	Reliability, Repeatability, Validity
Week 4	Types of Errors
Week 5	Errors analysis
Week 6	Standard of Measurements
Week 7	Bridge Measurement .DC bridges- Wheatstone Bridge, Kelvin Bridge
Week 8	AC bridges, Capacitance Comparison Bridges, Maxwell's Bridge, Wein's bridge
Week 9	Midterm Exam
Week 10	Measuring of Basic Electrical Parameters- DC Voltmeter
Week 11	DC Ammeter- Extension of DC Voltmeter and Ammeter Range
Week 12	Cathode Ray Tube Oscilloscope
Week 13	High Bandwidth Digital Storage Oscilloscope- Spectrum Analyzer -BER Tester
Week 14	Signal Generator - Arbitrary Waveform Generator
Week 15	Transducers

<b>Delivery Plan (Weekly Lab. Syllabus)</b> المنهاج الاسبوعي للمختبر	
	<b>Material Covered</b>
<b>Week 1</b>	Lab 1: Introduction to Galvanometer – sensitivity of Galvanometer
<b>Week 2</b>	Lab 2: measurement of DC current
<b>Week 3</b>	Lab 3: measurement of DC voltage
<b>Week 4</b>	Lab 4: measurement of AC current
<b>Week 5</b>	Lab 5: measurement of AC Voltage
<b>Week 6</b>	Lab 6: loading effect on the voltmeter
<b>Week 7</b>	Lab 7: Wheatstone Bridge
<b>Week 8</b>	Lab 8: Maxwell’s Bridge
<b>Week 9</b>	Lab 9: <b>Mid-term Exam</b>
<b>Week 10</b>	Lab 10: DC Voltmeter Design
<b>Week 11</b>	Lab 11: DC Ammeter Design
<b>Week 12</b>	Lab 12: Oscilloscope and frequency measurement
<b>Week 13</b>	Lab 13: Project Discussion
<b>Week 14</b>	Lab 14: A preparatory week before the Final Exam
<b>Week 15</b>	Lab 15: <b>Final Exam</b>

<b>Learning and Teaching Resources</b> مصادر التعلم والتدريس		
	<b>Text</b>	<b>Available in the Library?</b>
<b>Required Texts</b>	<b>Electronic Instrumentation and Measurements</b> , David A Bell, PHI / Pearson Education.	Yes
<b>Recommended Texts</b>	“ <b>Principles of measurement systems</b> ”, John P. Beately, Pearson Education. <b>Modern electronic instrumentation and measuring techniques</b> ”, Cooper D & A D Helfrick, PHI	No
<b>Websites</b>		

<b>Grading Scheme</b> مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX – Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	راسب	(0-44)	Considerable amount of work required
<p><b>Note:</b> Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				



# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	English Language II		Module Delivery
Module Type	B		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	MTU1003		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	1	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		Semester	
Co-requisites module	None	Semester	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	<ol style="list-style-type: none"><li>1. Provide students with essential information in the English language in association with reading, writing and speaking skills, and knowing more English vocabulary.</li><li>2. To understand sentences, tenses, and practicing writing.</li><li>3. This module works towards enhancing students' English language competencies along with their technical or professional knowledge.</li><li>4. Enhancing students' communication skills in English can result in better job opportunities in the future</li></ol>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<p>The student will have the ability to:</p> <ol style="list-style-type: none"><li>1. Know the English skills of reading, and writing.</li><li>2. Recognize other English language skills such as: grammar, vocabulary.</li><li>3. Understand and appreciate the importance of grammar aspects and vocabulary to increase the ability of communicating ideas about the English language.</li><li>4. Understand sentences with multiple clauses, and comparative and superlative.</li><li>5. Understand time expression in tenses, and active and passive voice.</li><li>6. Discuss distinguish words such as do and make, like and alike, and other and another.</li><li>7. Discuss the various skills of writing such as writing essays, developing supporting ideas, and writing a paragraph.</li><li>8. Enhance students' communication skills in English.</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p>Indicative content includes the following.</p> <p><b><u>Part A: Sentences and Tenses.</u></b> an overview of verb tenses, comparatives and superlatives, time expression in tenses, active and passive voice, distinguish words, Verb Patterns, Quantity, Time and Conditional Clauses, and articles. [15 hrs]</p> <p><b><u>Part B: Reading and Writing Skills</u></b> Writing essays, expressing yourself, common expressions, developing supporting ideas, types of writing, and how to write a paragraph. [15 hrs]</p>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p>The main strategies that will be adopted in delivering this module are:</p> <ul style="list-style-type: none"><li>- Allow students to actively participate in the learning process with class discussions and exercises that support the initiative.</li><li>- Use didactic questioning through questions to determine student</li></ul>
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	<p>understanding of the material.</p> <ul style="list-style-type: none"> <li>- Writing an assignment and report that encourages students to clarify and organize their thinking and independently research and present on a topic.</li> </ul>
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<b>Student Workload (SWL)</b> الحمل الدراسي للطلاب محسوب ل ١٥ اسبوعا			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطلاب خلال الفصل	33	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطلاب أسبوعيا	2.2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطلاب خلال الفصل	17	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطلاب أسبوعيا	1.13
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطلاب خلال الفصل	<b>50</b>		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	3 , 10	LO# 1-2, LO# 3-9
	<b>Assignments</b>	2	20% (10)	4, 12	LO# 1-3, LO# 3-11
	<b>Projects / Lab.</b>	NA			
	<b>Report</b>	1	10% (10)	Continuous	
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	5	LO# 1-4
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b> المنهاج الاسبوعي النظري	
	Material Covered
<b>Week 1</b>	<p><b>Unit 1:</b> Grammar: Tenses (Present, Past, and Future), Questions, Questions word Vocabulary: Parts of speech, adjective, preposition, word with more than one meaning Reading and writing Skill, Everyday English (Social Expression)</p>
<b>Week 2</b>	<p><b>Unit 2:</b> Grammar: Present Tenses (Present Simple, Present Continuous) Tens, have/have got Vocabulary: Description countries, Collection</p>

	Reading and writing Skill, make conversation, Asking question
<b>Week 3</b>	<b>Unit 3:</b> Grammar: Past Tenses (Past Simple, Past Continuous) Vocabulary: Irregular verbs, making connections, nouns, verbs, and adjectives, Making negatives Reading and writing Skill, Everyday English (Time Expression)
<b>Week 4</b>	<b>Unit 4:</b> Grammar: Quantity, Articles, and some and Any Vocabulary: Buying Things Reading and writing Skill, Everyday English (Prices and shopping)
<b>Week 5</b>	<b>Midterm Exam</b>
<b>Week 6</b>	<b>Unit 5:</b> Grammar: Verb Patterns 1, Future intentions Vocabulary: Hot verbs Reading and writing skills, Everyday English (How do you feel?) <b>Unit 6:</b> Grammar: What's it like?, Comparative and superlative adjectives. Vocabulary: Talking about towns, Money, Synonyms and antonyms Reading and writing Skill, Everyday English (Directions)
<b>Week 7</b>	<b>Unit 7:</b> Grammar: Present Perfect and Past Simple, for and since, Tense revision Vocabulary: Past participles, Adverbs, Word pairs. Reading and writing Skill, Everyday English (short answers)
<b>Week 8</b>	<b>Unit 8:</b> Grammar: Have (got) to, Should, Must Vocabulary: Jobs, Traveling abroad, Words that go together, Compound nouns Reading and writing Skill, Everyday English (At the doctor's)
<b>Week 9</b>	<b>Unit 9:</b> Grammar: Time and Conditional Clauses, What if? Vocabulary: Hot verbs, Hotels Reading and writing Skill, Everyday English (In a hotel)
<b>Week 10</b>	<b>Unit 10:</b> Grammar: Verb Patterns 2, Infinitives, Purpose, (What, etc.+ infinitive), (something, etc.+ infinitive) Vocabulary: Shops, describe feelings and situations. Reading and writing Skill, Everyday English (Exclamations)
<b>Week 11</b>	<b>Unit 11:</b> Grammar: Active and Passive Voice Vocabulary: Verbs and past participles, verbs and nouns that go together Reading and writing Skill, Everyday English (Notices)
<b>Week 12</b>	<b>Unit 12:</b> Grammar: Second conditional, might Vocabulary: Phrasal verbs Reading and writing Skill, Everyday English (Social expression 2)
<b>Week 13</b>	<b>Unit 13:</b> Grammar: Present Perfect Continuous, Present Perfect Simple versus Continuous Vocabulary: Job and the alphabet game, Word formation, Adverb Reading and writing Skill, Everyday English (Telephoning)
<b>Week 14</b>	<b>Unit 14:</b> Grammar: Past Perfect, Reported statements Vocabulary: Word in context Reading and writing Skill, Everyday English (Saying goodbye)
<b>Week 15</b>	Grammar: Distinguish make and do, will and would, like, alike, unlike, and dislike, and other, another, and others Vocabulary Reading and writing Skill

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	New Headway Plus/ Pre-Intermediate, John and Liz Soars, Oxford University Press	NO
Recommended Texts	Understanding and Using English Grammar, 5 <sup>th</sup> Edition, Betty S. Azar Stacy A. Hagen.	NO
Websites		

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	The crimes of the Ba'ath regime		Module Delivery
Module Type	B		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	MTU1007		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	2	Semester of Delivery	
Administering Department	CET	College	EETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	29/10/2023	Version Number	1.0

Relation with other Modules				
العلاقة مع المواد الدراسية الأخرى				
Prerequisite module	None		Semester	
Co-requisites module	None		Semester	

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b></p> <p>أهداف المادة الدراسية</p>	<p>يهدف هذا المقرر الدراسي إلى تعزيز فهم الطلاب للجرائم والانتهاكات التي وقعت خلال فترة نظام البعث في العراق وتأثيرها على الأفراد والمجتمع، وتشجيع التحليل والنقاش حول هذه القضايا المهمة. ومن أبرز الأهداف للمادة الدراسية هي اني يكون الطالب قادراً على أن :</p> <ol style="list-style-type: none"><li>1. فهم مفهوم الجرائم وأقسامها.</li><li>2. دراسة جرائم نظام البعث والقوانين المتعلقة بها.</li><li>3. التعرف على الجرائم النفسية والاجتماعية وآثارها على الفرد والمجتمع.</li><li>4. تحليل الانتهاكات القانونية في العراق، بما في ذلك الانتهاكات لحقوق الإنسان والجرائم ذات الصلة.</li><li>5. فهم الجرائم البيئية وآثارها، بما في ذلك التلوث وتدمير المدن والقرى وتجفيف الأهوار.</li><li>6. دراسة جرائم المقابر الجماعية وفهم أحداث المقابر والتصنيف الزمني لها في العراق.</li></ol>
<p><b>Module Learning Outcomes</b></p> <p>مخرجات التعلم للمادة الدراسية</p>	<p>مخرجات التعلم للمادة الدراسية هي:</p> <ol style="list-style-type: none"><li>1. فهم مفهوم الجرائم وقدرة الطلاب على تصنيف الجرائم وفقاً لأقسامها.</li><li>2. تحليل جرائم نظام البعث وفهم القوانين المتعلقة بها، بما في ذلك الجرائم الدولية.</li><li>3. القدرة على التعرف على الجرائم النفسية لنظام البعث وفهم الآثار النفسية لجرائم نظام البعث على الأفراد والمجتمع.</li><li>4. القدرة على التعرف على الجرائم الاجتماعية لنظام البعث الآثار الاجتماعية لجرائم نظام البعث على الأفراد والمجتمع.</li><li>5. التعرف على الانتهاكات القانونية لنظام البعث في العراق وفهم أنواع الانتهاكات ومكان احتجاز الأفراد.</li><li>6. التعرف على صور انتهاكات حقوق الإنسان وجرائم السلطة التي وقعت خلال فترة نظام البعث</li><li>7. التعرف على الانتهاكات السياسية والعسكرية لنظام البعث</li><li>8. فهم الجرائم البيئية لنظام البعث والقدرة على تحليل تأثيرها على البيئة والمجتمع.</li><li>9. دراسة جرائم المقابر الجماعية لنظام البعث</li><li>10. فهم الأحداث المرتبطة بجرائم المقابر الجماعية وتصنيفها زمنياً.</li></ol>
<p><b>Indicative Contents</b></p> <p>المحتويات الإرشادية</p>	<p>المحتويات الإرشادية في مادة اللغة تشمل مجموعة من المفاهيم والمواضيع التي يتم تغطيتها خلال عملية التعلم. ومن بين المحتويات الإرشادية المهمة:</p> <ol style="list-style-type: none"><li>1. تعريف الجريمة لغة واصطلاحاً، مفهوم الجريمة، اقسام الجريمة</li><li>2. جرائم نظام البعث وفق توثيق قانون المحكمة الجنائية العراقية العليا عام 2005</li><li>3. الجرائم النفسية والاجتماعية وآثارها</li><li>4. عسكرة المجتمع، موقف النظام البعثي من الدين</li><li>5. انتهاكات القوانين العراقية، صور انتهاكات حقوق الإنسان وجرائم السلطة</li><li>6. بعض قرارات الانتهاكات السياسية والعسكرية لنظام البعث</li><li>7. أماكن السجون والاحتجاز لنظام البعث</li><li>8. الجرائم البيئية لنظام البعث في العراق</li><li>9. جرائم المقابر الجماعية</li><li>10. أحداث مقابر الإبادة الجماعية المرتكبة من النظام البعثي في العراق</li><li>11. التصنيف الزمني لمقابر الإبادة الجماعية في العراق للمدة 1963 م - 2003 م</li></ol>

## Learning and Teaching Strategies

## استراتيجيات التعلم والتعليم

<b>Strategies</b>	استراتيجيات التعلم والتعليم المستخدمة في مادة جرائم حزب البعث البائد تشمل مجموعة متنوعة من النهج والتقنيات التي تعزز عملية التعلم للطلاب. من بين هذه الاستراتيجيات:
	1. التفاعل النشط: يتم تشجيع الطلاب على المشاركة والمشاركة الفعالة في الدروس من خلال المناقشات الجماعية والأنشطة التفاعلية.
	2. التعلم التعاوني: يشجع التعاون والتعاون بين الطلاب من خلال العمل الجماعي والمشاريع الجماعية، حيث يتعاون الطلاب مع بعضهم البعض لتحقيق أهداف التعلم المحددة.
	3. استخدام التقنيات الحديثة: يستفيد الطلاب من استخدام التكنولوجيا في عملية التعلم، مثل استخدام الحواسيب والإنترنت للبحث والتعلم الذاتي.
	4. توفير ردود فعل فورية: يتم توفير ردود فعل فورية وتقييم مستمر للطلاب، سواء عن طريق التقييمات الشفهية أو الكتابية، مما يساعدهم على تحسين أدائهم وتطوير مهاراتهم.
	5. التنوع في وسائل التواصل: يتم استخدام مجموعة متنوعة من وسائل التواصل والتعليم، مثل المحاضرات التوضيحية، والمناقشات الجماعية، والأنشطة العملية، والعروض التقديمية، لتلبية احتياجات وأساليب التعلم المختلفة للطلاب.

## Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطلاب خلال الفصل	33	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطلاب أسبوعيا	2.2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطلاب خلال الفصل	17	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطلاب أسبوعيا	1.13
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطلاب خلال الفصل	50		

## Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

تعريف الجريمة لغة واصطلاحًا، مفهوم الجريمة، اقسام الجريمة	الأسبوع الأول
جرائم نظام البعث وفق توثيق قانون المحكمة الجنائية العراقية العليا عام 2005	الأسبوع الثاني
الجرائم النفسية لنظام البعث وفهم الآثار النفسية لجرائم نظام البعث على الأفراد والمجتمع.	الاسبوع الثالث
الجرائم الاجتماعية لنظام البعث وفهم الآثار الاجتماعية لجرائم نظام البعث على الأفراد والمجتمع.	الأسبوع الرابع
انتهاكات القوانين العراقية	الأسبوع الخامس
بعض قرارات الانتهاكات السياسية والعسكرية لنظام البعث	الأسبوع السادس
امتحان نصف الفصل	الأسبوع السابع
الجرائم البيئية لنظام البعث في العراق (التلوث الحربي وسياسة الأرض المحروقة)	الأسبوع الثامن
تجفيف الاهوار و تجريف بساتين النخيل والأشجار والمزروعات	الأسبوع التاسع والعاشر
جرائم المقابر الجماعية واحداث مقابر الإبادة الجماعية المرتكبة من النظام البعث في العراق	الاسبوع الحادي عشر و الاسبوع الثاني عشر
التصنيف الزمني لمقابر الإبادة الجماعية في العراق للمدة من (1963-2003) م	الأسبوع الثالث عشر والرابع عشر والخامس عشر
التهينة لامتحان النهائي	الأسبوع السادس عشر



Module Evaluation					
تقييم المادة الدراسية					
		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (5)	3, 11	LO #1, 2, LO #3- 10
	Assignments	3	20% (10)	6, 13	LO # 1-4, LO #5-10
	Projects / Lab.				
	Report	1	10% (10)	14	LO # 1-10
Summative assessment	Midterm Exam	2 hours	10% (20)	7	LO # 1-5
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 Marks)		

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	منهاج وزارة التعليم العالي والبحث العلمي العراقية - جرائم نظام البعث في العراق 2023	Yes
Recommended Texts		No
Websites	The Collage E-Library	

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
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Fail Group (0 - 49)	FX - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F - Fail	راسب	(0-44)	Considerable amount of work required
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