MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Digital Fundamentals**			Module Delivery	
Module Type	**Core**			✓ Theory Lecture ✓ Lab Tutorial Practical Seminar	
Module Code	**CET1101**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	1		Semester of Delivery	1	
Administering Department	CET		College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	*PhD*	
Module Tutor	Amer Sami Wahid		e-mail	aamiersame@alkafeel.edu.iq	
Peer Reviewer Name	Asst. Prof. Alhamzah Taher Mohammed		e-mail	alhamza_tm@mtu.edu.iq	
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	
Module Aims أهداف المادة الدراسية	1. To be able to deal with the number systems and codes. 2. To understand the functionality of logic gates. 3. To have a skill to use the logic gates in designing logic circuit. 4. To have a skill to simplify the digital circuits. 5. To learn the simplification process, Boolean expression, Demorgans law, and Karnaugh map.. 6. To understand the principles for designing logic circuit. 7. To understand adder, subtractor, decoder, incoder, multiplexer, demultipleaer, and comparator circuits.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize each type of number systems. 2. Identify the process of converting between number systems. 3. Summarize the types of logic gates. 4. Discuss the use of each gate. 5. Describe design of logic circuit by using logic gats. 6. Explain the simplification processes. 7. Explain Boolean expression and Demorgan's law. 8. Explain the Karnaugh map for different numbers of bits. 9. Discuss the design of logic circuit before and after simplification. 10. Explain the combinational logic circuit. 11. Identify the adder, subtractor, decoder, encoder, multiplexer, demultiplexer, comparator circuits, and code conversion. 12. Identify the basic circuit elements and their applications
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. --Number systems - decimal, binary, octal, and hexadecimal number system, conversion, operation. [8 hrs] -Codes- excess-3,gray code, conversions, operations, complements [8 hrs] --Logic gates-NOT, AND, OR, NOR, NAND, XOR, XNOR. [5 hrs] --Logic simplification-Boolean theorem and Demorgans law. [10 hrs] --Karnaugh map-SOP, POS, and don't care. [10 hrs] --Arithmetic operations Part A- adder, parallel binary adder, subtractor, adder-subtractor . [10 hrs] --Arithmetic operations Part B- multiplexer, demultiplexer, decoder, encoder, comparator, and code conversion. [10 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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 موزع على 15 اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.26
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	86	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.73
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Number systems (decimal, binary, octal, conversions, operations)
Week 2	Number systems (hexadecimal, BCD, conversions, operations)
Week 3	Number systems (excess-3,gray code, conversions, operations, complements)
Week 4	Logic gates (AND,OR,NOT,NAND,NOR,XOR,XNOR)
Week 5	Logic simplification (Boolean theorem)
Week 6	Logic simplification (Demorgan's theorem)
Week 7	Karnaugh maps(2-variables,3-variables,)
Week 8	Karnaugh maps (4-variables (SOP,POS,don't care))
Week 9	Karnaugh maps (5-variables, (SOP,POS,don't care))
Week 10	Midterm exam
Week 11	Arithmetic operations
Week 12	Arithmetic operations (decoder, encoder)
Week 13	Arithmetic operations (Multiplexer, Demultiplexer)
Week 14	Arithmetic operations (comparators)
Week 15	Arithmetic operations (code conversion)
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	logic gates (NOT, AND,OR)
Week 2	Logic gates (NOR.NAND)
Week 3	Logic gates (XOR,XNOR)
Week 4	Boolean theorem
Week 5	Demorgan's law
Week 6	Karnaugh map
Week 7	SOP
Week 8	POS, don't care
Week 9	Combinational circuit (half adder, full adder)
Week 10	Combinational circuit (Half subtractor, full subtractor)
Week 11	Decoder and Encoder circuits
Week 12	Multiplexer and Demultiplexer circuits
Week 13	Comparator circuit
Week 14	Code conversion circuits

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Digital Fundamentals by Floyed	Yes
Recommended Texts	Digital circuit analysis and design with Simulink modeling by Steven T. Karris	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	Electrical Engineering Fundamentals			Module Delivery	
Module Type	**Core**			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CET1102				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	1		Semester of Delivery	1	
Administering Department	CET		College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	Sajjad Hadi Hassan		e-mail	sajad.hadi@alkafeel.edu.iq	
Peer Reviewer Name	Assist prof. Alhamzah Taher		e-mail	alhamza_tm@mtu.edu.iq	
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	
Module Aims أهداف المادة الدراسية	1. To develop problem solving skills and understanding of circuit theory through the application of techniques. 2. To understand voltage, current and power from a given circuit. 3. This course deals with the basic concept of electrical circuits. 4. This is the basic subject for all electrical and electronic circuits. 5. To understand Kirchhoff's current and voltage Laws problems. 6. To perform Thevenin's Norton's Theorem.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize how electricity works in electrical circuits. 2. List the various terms associated with electrical circuits. 3. Summarize what is meant by a basic electric circuit. 4. Discuss the reaction and involvement of atoms in electric circuits. 5. Describe electrical power, charge, and current. 6. Define Ohm's law. 7. Identify the basic circuit elements and their applications. 8. Discuss the operations of DC circuits in an electric circuit. 9. Discuss the various properties of resistors. 10. Explain the two Kirchhoff's laws used in circuit analysis. 11. Identify the basic circuit elements, Maximum Power Transfer Theorem and Reciprocity Theorem. 12. Describe Thevenin's theorem and Norton's theorem and how they work
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1- Definition: Symbols and Abbreviations, Units, Electric Circuit & It's Element. The Direct Current Network. , Ohms low, Charge, Force, Work, Power**.(20 hr)** 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 **(20 hr)** 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 **(20 hr)**

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.26
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	86	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.733
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	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
Summative assessment	Midterm Exam	2 hr	10% (10)	10	LO # 1-9
	Final Exam	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

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

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	How to use ammeter, voltmeter and ohmmeter.
Week 2	Apply Ohm's Law
Week 3	Apply Kirchhoff's law to *measure* current
Week 4	Apply Kirchhoff's law to *measure* voltages
Week 5	Superposition Method
Week 6	Norton's Theorem.

Week 7	Thévenin's Theorem.
Week 8	*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	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

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	Mathematics I			Module Delivery	
Module Type	Suport or related learning activity			☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CET1103				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	1		Semester of Delivery	1	
Administering Department	CET		College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	Hashem Ali Hashem Al-Awady		e-mail	hashim.ali@alkafeel.edu.iq	
Peer Reviewer Name	Assist prof. Alhamzah Taher		e-mail	alhamza_tm@mtu.edu.iq	
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	
Module Aims أهداف المادة الدراسية	1. This course deals with differential and integral calculus. 2. To develop problem solving skills and understanding of preliminaries to differential calculus. 3. To understand differentiation, and differentiation methods. 4. To perform applications using the derivative. 5. To get a good grasp of Integrals, and Integration methods. 6. To understand the relationship between differentiation and integration.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize Line and Circle Equation and related evaluating formulas. 2. List the various terms associated with Functions and their Types. 3. Discuss the Limit and Continuity of a Function. 4. Describe the Definition of a derivative as a limit, Differentiation Rules, and various types of Function's Derivatives. 5. Identify when to use different Differentiation Methods. 6. Discuss the Curve Sketching process, and the L'Hospital's Rule. 7. Analyze Taylor and Maclaurin Series. 8. Identify the Indefinite Integrals. 9. Explain the Integration Methods u-substitution, By parts. 10. Explain the Integration Methods Involving Trigonometric Functions, Trigonometric substitution. 11. Explain the Integration Method Rational Functions by Partial Fractions. 12. Explain the Integration Methods Functions Involving Roots, and Functions Involving Quadratics. 13. Recognize the Definite Integral and its Application Area Under a Curve. 14. Discuss e the Definite Integral Applications Arc Length, Average Value of a Function. 15. Discuss the Definite Integral Applications Areas Between Two Curves.
Indicative Contents المحتويات الإرشادية	<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. [9 hrs] + Revision problem classes in weekly tutorials [3 hrs] <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. [12 hrs] + Revision problem classes in weekly tutorials [5 hrs]

	Part C – Integral calculus. 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. [22 hrs] + Revision problem classes in weekly tutorials [8 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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.

Student Workload (SWL) الحمل الدراسي للطالب موزع على 15 اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	3.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.13
Total SWL (h/sem) 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 - 9
	Assignments	2	20% (10)	5,10	LO # 1 - 4, LO # 6-9
	Projects / Lab.	N/A			
	Report	1	10% (10)		LO # 1 - 14
Summative assessment	Midterm Exam	2 hr	10% (10)	5	LO # 1-11
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) 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

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?
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,	No

	(January 1, 2008), ISBN-13: 978-0132051569.	
Websites	https://www.khanacademy.org/math/differential-calculus	

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	**Engineering Drawing**			Module Delivery	
Module Type	**Suport or related learning activity**			☐ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**CET1104**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	1		Semester of Delivery	1	
Administering Department	CET		College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	Zainab Sabah Eidans		e-mail	zainabsabah@alkafeel.edu.iq	
Peer Reviewer Name	Dr. Mahmoud Shuker Mahmoud		e-mail	mahmoud.shukur@mtu.edu.iq	
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	
Module Aims أهداف المادة الدراسية	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 2. Learn sketching and taking field dimensions. 3. Take data and transform it into graphic drawings. 4. Learn basic engineering drawing formats. 5. Learn basic AutoCAD skills. 6. Learn who draw 2D drawings in AutoCAD.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Identify the basic of AutoCAD 2. Explain Drawing settings 3. How to drawing: Point, Line, Multiline, P line, Spline, X line, Rectangle. 4. How to drawing: Donut, Polygon, Circle, Arc, Ellipse 5. List Modify Tools Identify: Erase, Undo, Redo, Explode, Move, Copy, Rotate, Mirror, 6. Identify Array, Align, Scale, Stretch, Lengthen, Trim, Extend, Break, Join, Chamfer, Fillet. 7. Explain Zoom, Pan. 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. 9. Dealing with: Text, Style, M text, Scale text, Spell, 10. Knowing the Hatching Objects. 11. Drawing 3d modeling. 12. Drawing the Exercises .
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. --AutoCAD Software, drawing settings, Drawing Tools, Line, Circle, Arc, Ellipse, Donut, Polygon, Rectangle, Point, Multiline, P line, Spline, X line. [20 hrs.] --Modify Tools Erase, Undo, Redo, Explode, Move, Copy, Rotate, Mirror, Array, Align, Scale, Stretch, Lengthen, Trim, Extend, Break, Join, Chamfer, Fillet. [4 hrs.] --Display Control Zoom, Pan, Redraw, Clean Screen. [4 hrs.] --Dimension - Linear, Aligned, Radius, Diameter, Center Mark, Angle, Arc length,

	Continuous, Baseline, Tolerance, Dimension Space, Dimension Break, Jogged radius, Ordinate dimensions. [4 hrs.] --Hatching Objects [4hrs] --Text, Style, M text, Scale text, Spell, [4 hrs.] --3D MODELLING, Convert 2D to 3D, Solid Editing [20 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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.* 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.* 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.* 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.* 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.*

Student Workload (SWL) الحمل الدراسي للطالب موزع على 15 اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	3.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.13
Total SWL (h/sem) 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, 11	LO #1-3, 4 and 11
	Assignments	2	10% (10)	4,11	1-3 , 3-10
	Projects / Lab.	10	20% (20)	Continuous	
	Report				
Summative assessment	Midterm Exam	3 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introducing of Engineering Drawing
Week 2	Drawing settings of AutoCAD
Week 3	Drawing Tools Point, Line ,Multiline, P line, Spline, X line.
Week 4	Rectangle, Donut, Polygon

Week 5	Circle, Arc, Ellipse
Week 6	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.
Week 7	Mid exam
Week 8	Dimension - Linear, Aligned, Radius, Diameter, Center Mark, Angle, Arc length, Continuous, Baseline, Tolerance, Dimension Space, Dimension Break, Jogged radius, Ordinate dimensions
Week 9	Annotation Tools Text, Style, M text, Scale text, Spell
Week 10	Hatching Objects
Week 11,12	3D modeling
Week13	Convert 2D To 3D
Week 14	Solid Editing
Week 15	Exercises drawing
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Introduction to AutoCAD 2010 By Alf Yarwood Copyright 2009	Yes
Recommended Texts	An Introduction to Autodesk Inventor 2010 and AutoCAD 2010 Unbnd Edition by Randy Shih	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	**Engineering Workshops**			Module Delivery	
Module Type	Suport or related learning activity			☐ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**CET1105**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	1		Semester of Delivery	1	
Administering Department	CET		College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Peer Reviewer Name	Dr. Mahmoud Shuker Mahmoud		e-mail	mahmoud.shukur@mtu.edu.iq	
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	
Module Aims أهداف المادة الدراسية	*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.* *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.* 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
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	*The learning outcomes of studying Electrical, Electronic, and Mechanical workshops include:* *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.* *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.* *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.* *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.* *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.* *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. *7. Describe the different tools, machines, and materials used in electrical and mechanical workshops.* *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.* *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.* *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.* *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.* *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.* *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* *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.*
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A – Electronic workshop</u> 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. [14 hrs.] We will also talk about conductors and semiconductors [10 hrs.] <u>Part B – Electrical workshop</u> 1. *Principles of Industrial Safety in Electrical Workshops* [4 hrs.] 2. *Tools Used in Electrical Workshops* [5 hrs.]. 3. *Power Sources and Characteristics* [5 hrs.] 4. *Multimeter and Wire Size Measurement* [5 hrs.] <u>Part C – Mechanical workshop</u> 1. *Different Types of Welding Irons and Spot Welding* [4 hrs.] 2. *Electric Transformers* [5 hrs.] 3. *Electric Circuits and Transformer Operation* [5 hrs.].

	4. *Types of Electric Motors* [5 hrs.]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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.

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

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي للمختبر **Electronic, Electrical , Mechanical Workshops**	
	Material Covered
Week 1,2	❖ Use different measuring devices in the workshop ❖ *1- Principles of Industrial Safety in Electrical Workshops.* *2- Different Types of Welding Irons (with different capacities) and Spot Welding*
Week 3,4	❖ How to use irons, types of soldering used, and how to useabsorbent soldering irons ❖ *1- Electric Circuits and Transformer Operation.* *2- Electrical Installations and Types of Wiring (Surface and Concealed)*
Week 5,6,7	❖ Electronic components (resistor , inductors , capacitors) ❖ 1- ONE LAMP CONTROLLED BY ONE SWITCH *2- Parallel Wiring of Two Lamps with a Switch and Socket*
Week 8	❖ Midterm Exam
Week 9 ,10	Electronic components(resistor , inductors , capacitors) Drawing a Staircase Lamp (Two-Way Switch) Circuit
Week 11,12	❖ Electronic components (Battery , jumper, fuse, push button, switch, rotary switch) ❖ *1-Introduction to Workshop Safety* *2- Turning Process and Instrumentation Measures*
Week 13,14	❖ Electronic components (Diode , Transistor, Transformer) ❖ 1- Cutting Tools *2-Practical Exercise - Horizontal Turning*
Week 15	❖ using bread board and Vero board, Building a Circuit on Breadboard, Building a Circuit on Vero board ❖ *1- Turning Different Shapes* 2- Introduction to Filing Process (practical Exercise)

Week 16	Final Exam

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

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	**English Language I**			**Module Delivery**	
Module Type	**Basic learning activities**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**MTU1002**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level		1	**Semester of Delivery**		1
Administering Department		CET	**College**	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		**e-mail**	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title		Asst. Prof	**Module Leader's Qualification**		PhD
Module Tutor	Shaima Khawam Sher Ali		**e-mail**	shaimashearali@alkafeel.edu.iq	
Peer Reviewer Name		Dr. Osama Abbas Hussein	**e-mail**	Osama.abbas@mtu.edu.iq	
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	
Module Objectives أهداف المادة الدراسية	1. know students with essential information in the English language in association with reading, writing and speaking skills, and knowing more English vocabulary. 2. To understand pronouns, questions and short answers, tenses (present, past and future), adjective, adverb, prepositions of place, punctuation marks and practicing writing. 3. This module works towards enhancing students' English language competencies along with their technical or professional knowledge. 4. Enhance students' communication skills in English can result in better job opportunities in the future
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The student will have the ability to: 1. Know the English skills of reading, and writing. 2. Recognize other English language skills such as: grammar, vocabulary. 3. Understand and appreciate the importance of grammar aspects and vocabulary to increase the ability of communicating ideas about the English language. 4. Understand pronouns, questions and short answers. 5. Understand tenses present, past and future. 6. Understand adjectives, adverbs, prepositions of place, and punctuation marks. 7. Practicing reading and writing. 8. Enhance students' communication skills in English.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. **Part A: Parts of Sentence**. Pronoun, question and short answer, adjective, adverb, prepositions of place. [14 hrs] **Part B: Tenses** Past Tense, Present Tense, and Future Tense. [8 hrs] **Part C: Reading and Writing** Punctuation marks, and practicing writing [8 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategies that will be adopted in delivering this module are: - Allow students to actively participate in the learning process with class discussions and exercises that support the initiative. - Use didactic questioning through questions to determine student understanding of the material. - Writing an assignment and report that encourages students to clarify and organize their thinking and independently research and present on a topic.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.13
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**50**		

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

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

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	New Headway Plus/ Beginner, John and Liz Soars, Oxford University Press	No
Recommended Texts	Understanding and Using English Grammar, 5th 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 works 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	**Digital Systems**			Module Delivery	
Module Type	**Core**			✓ Theory Lecture ✓ Lab Tutorial Practical Seminar	
Module Code	**CET1201**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level		1	Semester of Delivery		2
Administering Department		CET	College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title		Asst. Prof	Module Leader's Qualification		PhD
Module Tutor	Amer Sami Wahid		e-mail	aamiersame@alkafeel.edu.iq	
Peer Reviewer Name		Assist prof. Alhamzah Taher	e-mail	alhamza_tm@mtu.edu.iq	
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	
Module Aims أهداف المادة الدراسية	1. To understand the flip flop operation. 2. To understand the latches operation. 3. This course deals with the designing of logic systems. 4. To understand the principles of counter circuits. 5. To understand the shift registers. 6. To have a skill to design ADC and DAC.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Discuss the flip-flops. 2. Recognize the differences between flip-flops and latches. 3. List the applications of flip-flops. 4. Summarize what is meant by the logic systems. 5. Explain the counter circuits and discuss the difference between synchronous and asynchronous counter. 6. Discuss the types of asynchronous counter circuits. 7. Discuss the types of synchronous circuit. 8. Identify the shift registers. 9. Discuss the operations of each types of shift registers. 10. Discuss the shift register counter. 11. Explain the principles of ADC and DAC. 12. Explain the design for each type of ADC and DAC.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. --Flip-Flops – SR latch, T latch, D latch. [10 hrs] --Flip-Flops- JK FF, edge triggered, and conversion from one type to another. [10 hrs] --Counters- Asynchronous, synchronous counters, Decade, up-down counters, and counter decoding. [15 hrs] --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)) [10 hrs] --Multivibrators- definition, astable, bistable, mono-stable, and 555 timer [5 hrs] --A/D convertors modeling -flash ADC, tacking ADC, slope ADC ,successive approximation ADC, digital ramp ADC, delta sigma ADC. [5 hrs] --D/A convertors modeling -R/2R DAC, R/2nR DAC. [5 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.26
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	86	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.73
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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

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

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

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

Learning and Teaching Resources
مصادر التعلم والتدريس

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

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	Electrical Circuits			Module Delivery	
Module Type	**Core**			☒ Theory ☐Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CET1202				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	1		Semester of Delivery	2	
Administering Department	CET		College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	Sajjad Hadi Hassan		e-mail	sajad.hadi@alkafeel.edu.iq	
Peer Reviewer Name	Assist prof. Alhamzah Taher		e-mail	alhamza_tm@yahoo.com	
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	
Module Aims أهداف المادة الدراسية	1. To develop problem solving skills and understanding of circuit theory through the application of techniques Alternating Waveforms (A .C). 2. To understand voltage, current and power from a (A.C) circuit. 3. Deals with the basic concept of electrical (A C) circuits. 4. This is the basic subject for all electrical and electronic circuits. 5. To understand Kirchhoff's current and voltage Laws problems. 6. To perform Thevenin's Norton's Theorem.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize how electricity works in electrical circuits. 2. List the various terms associated with electrical circuits. 3. Summarize what is meant by a basic electric circuit. 4. Discuss the reaction and involvement of atoms in electric circuits. 5. Describe electrical power, charge, and current. 6. Define Ohm's law. 7. Identify the basic circuit elements and their applications. 8. Discuss the operations of AC circuits in an electric circuit. 9. Discuss the various properties of resistors. 10. Explain the two Kirchhoff's laws used in circuit analysis. 11. Identify the basic circuit elements, Maximum Power Transfer Theorem and Superposition's method 12. Describe Thevenin's theorem and Norton's theorem and how they work IN AC Circuits.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Definition: - The Alternating Current Network Types of Alternating Waveforms, Generation of Alternating Current, and Definitions related to Alternating Waveforms The Alternating Current Network. Ohms low, The Mean Values, The Effective Vales, The Vector Diagram **(40 hr)** Circuit Theory in (A.C) 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 **(24 hr)** Fundamentals 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 **(24 hr)**

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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

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

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	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

Summative assessment	Midterm Exam	2 hr	10% (10)	8	LO # 1-9
	Final Exam	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

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

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: How to use measuring devices for alternating circuits (A.C) Osliscope, voltmeter and ammeter
Week 2	Lab 2: how to measure Alternating Waveforms
Week 3	Lab 3: Apply Ohm's Law
Week 4	Lab 4: Series Ac Circuits (R C)
Week 5	Lab 5: Series Ac Circuits (R L)

Week 6	Lab 6: Series Ac Circuits (R L C)
Week 7	Lab 7: Apply Kirchhoff's law to *measure* voltages
Week 8	*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	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

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	**Programming Essentials**			Module Delivery	
Module Type	**Core**			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**CET1203**				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level	1		Semester of Delivery	2	
Administering Department	CET		College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	Dr. Yahya Mahdi Hadi Abbas Al-Mayali		e-mail	yahya.almayali@alkafeel.edu.iq	
Peer Reviewer Name	Dr. Osama Abbas Hussein		e-mail	osama.abbas@mtu.edu.iq	
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	
Module Aims أهداف المادة الدراسية	1. To develop problem solving skills and understanding of programming principles. 2. To understand the logic behind programming. 3. This course include using C++ as a programming language. 4. This course include algorithm design. 5. To understand how a programmer should prepare his work and think logically. 6. To perform programming project using control statements, functions, and to deal with the data stored in an array or file.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Use of algorithms (Flowchart specifically). 2. Explain how the program is written using C++ Programming language. 3. Define and use of variables (Data types, Declaration of variables). 4. Use of operators and its precedence (Assignment, Arithmetic operators, Relational and Logical operators, Bitwise Operators, Increment and decrement, Cast operator, and Conditional operator). 5. Making Decisions (use of: if, if-else, and switch statements) and draw of Flowchart of if-else statement. 6. Use of Loops (for, while, do-while), and use of break and continue statements with loops, and draw of Flowchart of loops. 7. Use of Arrays (one and two dimensional). 8. Use of Functions (Built-in function functions (Library functions), and User-Defined functions). 9. Use of arguments passed by value and by reference, and use of Local and global variables. 10. Use of Character sequences and string handling. 11. Handling and processing text files in C++.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - -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 - . Header files, Standard Input/output instructions, Comments in C++. [15 hrs]

	-- Variables, Data Types, Declaration of variables, Constants, Statements. Operators (Assignment, Arithmetic operators, Relational and Logical operators, Bitwise Operators, Increment and decrement, Cast operator, and Conditional operator), Precedence of operators. [5 hrs] -- 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. [10 hrs] - -Arrays (One dimensional and Two Dimensional) [5 hrs] -- 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. [15 hrs] -- Character sequences and string handling, ASCII table. [5 hrs] - -Handling and processing text files in C++ [5 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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.

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

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

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

Week 6	Making Decisions (switch statement), using break statement with switch statement, flowchart of switch statement.
Week 7	Mid-term Exam
Week 8	Loops (while, do-while), using break and continue statements with loops, flowchart of loops.
Week 9	Arrays (One dimensional)
Week 10	Arrays (Two Dimensional)
Week 11	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.
Week 12	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.
Week 13	Character sequences and string handling, ASCII table.
Week 14	Handling and processing text files in C++
Week 15	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الأسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to C++ with a simple program implementation. Header files, Standard Input/output instructions, Comments in C++.
Week 2	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.
Week 3	Lab 3: Making Decisions (if, if-else).
Week 4	Lab 4: Making Decisions (switch statements).
Week 5	Lab 5: Loops (for)
Week 6	Lab 6: Loops (while, and do-while)
Week 7	Lab 7: Arrays (1D)
Week 8	Lab 8: Arrays (2D)
Week 9	Lab 9: Functions
Week 10	Lab 10: Function types according to whether it take arguments and/or return a value or not.

Week 11	Lab 11: Character sequences and string handling.
Week 12	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	https://www.geeksforgeeks.org/c-plus-plus	

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	Mathematics II			Module Delivery	
Module Type	Suport or related learning activity			☒ Theory ☐Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CET1204				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		1	Semester of Delivery		2
Administering Department		CET	College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title		Asst. Prof	Module Leader's Qualification		PhD
Module Tutor	Hashem Ali Hashem Al-Awady		e-mail	hashim.ali@alkafeel.edu.iq	
Peer Reviewer Name		Assist prof. Alhamzah Taher	e-mail	alhamza_tm@yahoo.com	
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	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To Understand concepts of vectors and vector operations. 2. To Understand concepts of linear algebra. 3. To get a grasp of various methods to solve systems of linear equations. 4. To Compute linear transformations. 5. To be able to determine Eigenvalues and Eigenvectors. 6. To perform matrix diagonalization.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize Vectors concepts, notation and Operations. 2. Discuss dot product, cross product, Orthogonal and orthonormal vectors. 3. Discuss the terms Diagonal, Triangular, Symmetric, Square Matrix, Transpose of a Matrix. 4. Describe the matrix operations {addition, subtraction, scalar multiplication, multiplication}. 5. Identify Determinant and Inverse for Nonsingular matrices. 6. Discuss aspects about System of Linear Equations (Linear Equations, Linear Equations Solution, Matrix equations.). 7. Identify Row operations, row-echelon form “triangular”, Rank of a Matrix, reduced row-echelon form, Augmented Matrix. 8. Discuss Gaussian elimination. 9. Explain Gauss–Jordan elimination and Solving Systems with Inverses. 10. Explain Cramer's Rule. 11. Explain Linear Combinations of Vector, span. 12. Explain Linear Dependence and Independence, Basis and Dimension, Rank of a Matrix. 13. Recognize Linear Transformations. 14. Discuss Polynomials of Matrices, Characteristic Polynomial, Cayley–Hamilton Theorem. 15. Discuss Eigenvalues and Eigenvectors, Diagonalizing Matrices.
Indicative Contents المحتويات الإرشادية	<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. [6 hrs] + Revision problem classes in weekly tutorials [2 hrs] <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). [10 hrs] + Revision problem classes in weekly tutorials [3 hrs]

	Part C – System of Linear Equations. 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. [14 hrs] + Revision problem classes in weekly tutorials [4 hrs] Part D – Vector Spaces and Diagonalization. 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]

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	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.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	3.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.13
Total SWL (h/sem) 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	20%	5,10	LO #1 - 4, LO # 6-9
	Assignments	2	15%	5,10	LO # 1 - 14, LO # 6-9
	Projects / Lab.	N/A			
	Report	5	5%	Cont.	LO # 1-15
Summative assessment	Midterm Exam	2 hr	10% (10)	5	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	Vectors (Definition, notation {Ordered set, Matrix, Unit vector}, Magnitude, Unit, Zero, negative, Direction, Operations on vectors {addition, subtraction, scalar multiplication}.)
Week 2	Vectors (Operations on vectors {dot product, cross product}, Orthogonal, orthonormal vectors.)
Week 3	Matrices (Matrix, Diagonal, Triangular, Symmetric, Square Matrix, Transpose of a Matrix.)
Week 4	Matrices (operations {addition, subtraction, scalar multiplication, multiplication}.). Matrices (Determinant, Inverse (Nonsingular))
Week 5	Midterm Exam
Week 6	System of Linear Equations (Linear Equations, Linear Equations Solution, Matrix equations.)
Week 7	System of Linear Equations (Row operations, row-echelon form “triangular”, Rank of a Matrix, reduced row-echelon form, Augmented Matrix**.)**
Week 8	System of Linear Equations (Gaussian elimination.), System of Linear Equations (Gauss–Jordan elimination, Solving Systems with Inverses.)
Week 9	System of Linear Equations (Cramer's Rule.)
Week 10	Midterm Exam
Week 11	Vector Spaces (Linear Combinations of Vector, span.). Vector Spaces (Linear Transformations.)
Week 12	Midterm Exam
Week 13	Vector Spaces (Linear Dependence and Independence, Basis and Dimension, Rank of a Matrix.)
Week 14	Diagonalization (Polynomials of Matrices, Characteristic Polynomial, Cayley–Hamilton Theorem.)
Week 15	Diagonalization (Eigenvalues and Eigenvectors, Diagonalizing Matrices.)
Week 16	Preparatory week before the final Exam

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?
Required Texts	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
Recommended Texts	Gilbert Strang, " Linear Algebra and Its Applications", Cengage Learning, 4th edition, (January 1, 2006), ISBN-13: 978-0030105678.	No
Websites	https://www.udemy.com/course/linear-algebra-with-applications/	

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	Arabic Language			Module Delivery	
Module Type	Basic learning activities			☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	MTU1001				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level	*1*		Semester of Delivery	*2*	
Administering Department	*CET*		College	*EETC*	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	*Ayad Saheb Hamadi*		e-mail	*dr.ayadtuky@alkafeel.edu.iq*	
Peer Reviewer Name	*Dr. Osama Abbas Hussein*		e-mail	*osama.abbas@mtu.edu.iq*	
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	
Module Aims أهداف المادة الدراسية	أهداف المادة الدراسية هي اني يكون الطالب قادرا على أن : 1. يتعرف على أنواع الأخطاء اللغوية المشتركة وتوضيح أسبابها وكيفية تجنبها. 2. يتعلم القواعد المتعلقة بالتاء المربوطة والطويلة والتاء المفتوحة وكيفية كتابتها بشكل صحيح. 3. يتعلم قواعد كتابة الألف الممدودة والمقصورة واستخدام الحروف الشمسية والقمرية بشكل صحيح. 4. التعرف على الضاد والظاء ومعرفة كيفية التمييز بينهما في الكتابة. 5. يتعلم طرق كتابة الهمزة بشكل صحيح وفقا للقواعد اللغوية. 6. التعرف على علامات الترقيم واستخدامها بشكل صحيح في النصوص. 7. يفهم الفروق بين الاسم والفعل والتمييز بينهما في الجمل. 8. يفهم المفاعيل و كيفية استخدامها بشكل صحيح في النصوص. 9. يتعلم الأرقام والعدد واستخدامها في التعبير عن الكميات. 10. يتجنب الأخطاء اللغوية الشائعة في سياقات عملية لتعزيز فهم القواعد وتحسين المهارات اللغوية. 11. يدرس النون والتنوين وفهم معاني حروف الجر واستخدامها بشكل صحيح في الجمل. 12. يركز على الجوانب الشكلية للخطاب الإداري وكيفية كتابته بأسلوب صحيح ومناسب. 13. التعرف على لغة الخطاب الإداري وفهم استخدامها في التواصل الإداري. 14. يفهم نماذج من المراسلات الإدارية لتطبيق المفاهيم والمهارات المكتسبة في الخطاب الإداري.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	مخرجات التعلم للمادة الدراسية هي: 1. قدرة الطلاب على تحليل وتعريف الأخطاء اللغوية المشتركة وتطبيق القواعد الصحيحة لتجنبها. 2. القدرة على استخدام القواعد اللغوية المتعلقة بالتاء المربوطة والطويلة والتاء المفتوحة بشكل صحيح. 3. قدرة الطلاب على استخدام الألف الممدودة والمقصورة بشكل صحيح واستخدام الحروف الشمسية والقمرية بطريقة صحيحة. 4. تمكين الطلاب من التمييز بين الضاد والظاء وتطبيق القواعد الصحيحة في الكتابة. 5. القدرة على كتابة الهمزة بشكل صحيح وفقا للقواعد اللغوية. 6. استخدام علامات الترقيم بشكل صحيح في النصوص المكتوبة. 7. فهم الطلاب للفروق بين الاسم والفعل وتمكينهم من استخدامهما بشكل صحيح في الجمل. 8. القدرة على استخدام المفاعيل بشكل صحيح في النصوص المكتوبة. 9. استخدام الأرقام والعدد بطريقة صحيحة للتعبير عن الكميات. 10. التمكن من تطبيق الأخطاء اللغوية الشائعة في سياقات عملية وتصحيحها بشكل مناسب. 11. فهم استخدام النون والتنوين ومعاني حروف الجر واستخدامها بشكل صحيح في الجمل. 12. القدرة على كتابة الخطاب الإداري بأسلوب صحيح ومناسب وفهم لغة الخطاب الإداري. 13. تطبيق المفاهيم والمهارات المكتسبة في كتابة المراسلات الإدارية بشكل صحيح وفعال.
Indicative Contents المحتويات الإرشادية	المحتويات الإرشادية في مادة اللغة تشمل مجموعة من المفاهيم والمواضيع التي يتم تغطيتها خلال عملية التعلم. ومن بين المحتويات الإرشادية المهمة: 1. مقدمة عن الأخطاء اللغوية والتعريف بالتاء المربوطة والتاء المطولة والتاء المفتوحة. (4 ساعات) 2. قواعد كتابة الألف الممدودة والمقصورة والتعرف على الحروف الشمسية والقمرية. (4 ساعات) 3. دراسة الضاد والظاء وتعلم طرق كتابتهما بشكل صحيح. (4 ساعات) 4. تعلم كتابة الهمزة بشكل صحيح وفقا للقواعد اللغوية. (4 ساعات) 5. دراسة علامات الترقيم وتعلم استخدامها بشكل صحيح في النصوص اللغوية. (4 ساعات) 6. التعرف على الاسم والفعل والتفريق بينهما وفهم القواعد المتعلقة بهما. (4 ساعات) 7. دراسة المفاعيل وتعلم استخدامها في الجمل اللغوية. (4 ساعات) 8. التعرف على الأعداد واستخدامها بشكل صحيح في العبارات والجمل. (4 ساعات) 9. دراسة الأخطاء اللغوية الشائعة وتطبيقاتها في النصوص اللغوية. (4 ساعات) 10. تعلم استخدام النون والتنوين وفهم معاني حروف الجر واستخدامها بشكل صحيح في الجمل. (3 ساعات) 11. التعرف على الجوانب الشكلية للخطاب الإداري وفهم لغته وقواعده. (3 ساعات) 12. دراسة نماذج من المراسلات الإدارية وتطبيقها في الكتابة. (3 ساعات) توفر هذه المحتويات الإرشادية للطلاب فهما شاملا للمفاهيم اللغوية وتعلم القواعد والتطبيقات العملية التي تساعدهم في تطوير مهاراتهم اللغوية.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	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. التنويع 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 8. تحفيزهم على المشاركة واكتساب المعرفة والمهارات بشكل شامل وشيق.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	*33*	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	*2.2*
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	*17*	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	*1.13*
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	*50*		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	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*
Summative assessment	Midterm Exam	*2 hours*	*20% (10)*	*7*	*LO # 1-7*
	Final Exam	*3 hours*	*50% (50)*	*16*	*All*
Total assessment			*100% (100 Marks)*		

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	• ملزمة اللغة العربية (المعممة من وزارة التعليم العالي والبحث العلمي)	*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*
	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	Computer Principles			Module Delivery	
Module Type	Basic			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	MTU1004				
ECTS Credits	3				
SWL (hr/sem)	75				
Module Level	*1*		Semester of Delivery	*2*	
Administering Department	CET		College	*EETC*	
Module Leader	*Ali Jasim Ramadhan Alaameri*		e-mail	*ali.j.r@alkafeel.edu.iq*	
Module Leader's Acad. Title	*Asst. Prof*		Module Leader's Qualification	*PhD*	
Module Tutor	Ali Fouad Al-Hamami		e-mail	alhammami@alkafeel.edu.iq	
Peer Reviewer Name	*Ahmed J. Abid*		e-mail	*dr.ahmedjabbar@mtu.edu.iq*	
Scientific Committee Approval Date	*25/10/2024*		Version Number	*2.0*	

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

جامعة الكفيل
University of Alkafeel

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The module aims to: 1- *To provide students with a foundational understanding of hardware, software, computing, data, and information.* 2- *To familiarize students with the various components of a computer, including hardware parts, memory types, and input/output units.* 3- *To develop proficiency in using common operating systems and graphical user interfaces, enabling students to navigate and manage files effectively.* 4- *To equip students with the skills necessary for creating, formatting, and managing documents using word processing software.* 5- *To introduce students to basic spreadsheet concepts, including data manipulation, formulas, and functions for data analysis.* 6- *To foster skills in creating and delivering presentations using presentation software, focusing on effective communication and visual design.* 7- *To build an understanding of internet concepts, including networking basics, web browsing, and effective use of search engines.* 8- *To teach students the principles of electronic communication, including email management and document collaboration.* 9- *To provide students with the knowledge and skills to identify and troubleshoot common computer hardware and software problems.* 10- *To encourage the practical application of learned concepts in real-world scenarios, enhancing problem-solving and critical thinking skills.*
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	*By the end of the module, students should be able to:* 1. *Identify and Describe Key Concepts: Students will be able to explain fundamental concepts of hardware, software, computing, data, and information.* 2. *Recognize Computer Components: Students will demonstrate an understanding of the main components of a computer system, including hardware parts, memory types, and I/O units.* 3. *Navigate Operating Systems: Students will proficiently navigate and utilize common operating systems and graphical user interfaces for file management and application usage.* 4. *Create and Format Documents: Students will be able to create, edit, and format text documents using word processing software, employing various tools and features effectively.* 5. *Utilize Spreadsheets for Data Management: Students will demonstrate the ability to manipulate cells, use formulas and functions, and perform basic data analysis using spreadsheet software.* 6. *Develop Effective Presentations: Students will create engaging presentations using presentation software, including designing slides and delivering content clearly.* 7. *Navigate the Internet Effectively: Students will understand and apply concepts related to internet use, including web browsing, search engine utilization, and understanding URLs.* 8. *Manage Electronic Communications: Students will demonstrate proficiency in using email for communication, including sending, receiving, and organizing messages and collaborating on documents.* 9. *Apply Troubleshooting Techniques: Students will identify common hardware and software problems and apply basic troubleshooting techniques to resolve issues.* 10. *Integrate Knowledge into Practical Scenarios: Students will apply their acquired knowledge and skills to real-world scenarios, demonstrating problem-solving and critical thinking abilities.*
Indicative Contents المحتويات الإرشادية	*1. Introduction to Computers: [4 hrs.]* • *Definition of Computers* • *History and Evolution of Computers* • *Types of Computers: Desktops, laptops, tablets, servers.* *2. Hardware and Software Concepts: [4 hrs.]*

- *Hardware Components:*
  - *Central Processing Unit (CPU)*
  - *Memory (RAM, ROM, Cache)*
  - *Storage Devices (HDD, SSD, USB drives)*
  - *Input Devices (keyboard, mouse, scanner)*
  - *Output Devices (monitor, printer, speakers)*
- *Software Components:*
  - *System Software (Operating Systems)*
  - *Application Software (Word processors, spreadsheets, etc.)*

3. Data and Information: [4 hrs.]

- *Definitions of Data and Information*
- *Data Processing Cycle*
- *Types of Data: Structured vs. unstructured data.*

4. Information Electronics and Communication Technology (IECT) : [4 hrs.]

- *Applications of IECT*
- *Impact on Society and Business*

5. Connecting Devices: [4 hrs.]

- *Input/Output Devices: Installation and configuration.*
- *Peripherals: Printers, scanners, external drives.*
- *Computer Ports: USB, HDMI, Ethernet, etc.*

6. Operating Systems and GUI: [8 hrs.]

- *Operating System Functions: Resource management, user interface.*
- *Common Operating Systems: Windows, macOS, Linux.*
- *Graphical User Interface (GUI):*
  - *Using the mouse and keyboard.*
  - *Common icons and their functions.*
  - *Menus and menu-navigation.*
  - *Managing windows and applications.*

7. Word Processing: [8 hrs.]

- *Creating and Managing Documents*
- *Text Manipulation: Inputting and editing text.*
- *Formatting Techniques: Fonts, sizes, colors, and styles.*
- *Table Creation and Management*
- *Spell Check and Language Tools*
- *Printing Documents*

8. Spreadsheet Basics: [8 hrs.]

- *Introduction to Spreadsheet Software*
- *Cell Manipulation: Entering and editing data.*
- *Formulas and Functions: Basic arithmetic, statistical functions.*
- *Data Analysis Techniques*
- *Printing Spreadsheets*

9. Presentation Software: [8 hrs.]

- *Creating Presentations: Slide design and content organization.*
- *Using Visuals: Images, charts, and graphs.*
- *Presenting Slides: Techniques for effective delivery.*
- *Printing Handouts and Slides*

10. Internet and Web Browsers: [8 hrs.]

- *Introduction to Computer Networks: LAN, WAN.*
- *Understanding the Internet and its Applications*
- *Web Browsing: Using browsers effectively.*
- *Search Engines: Techniques for efficient searching.*

	• *Understanding URLs, Domain Names, and IP Addresses* *11. Communications and Emails: [4 hrs.]* • *Basics of Electronic Mail: Features and protocols.* • *Setting Up an Email Account* • *Sending and Receiving Emails* • *Managing Email Correspondence* • *Document Collaboration Tools* *12. Computer Troubleshooting: [4 hrs.]* • *Common Hardware Problems: Identification and solutions.* • *Common Software Issues: Errors, crashes, and performance issues.* • *Basic Troubleshooting Techniques: Steps and tools for diagnostics.* *13. Review and Assessment: [8 hrs.]* • *Mid-Term Examination: Assessing knowledge and skills acquired.* • *Practical Assignments: Hands-on tasks to reinforce learning.*
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	*The learning and teaching strategies for the module on Computer Principles and operating systems can include:* 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.* 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.* 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.* 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.* 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.*

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	*49*	Structured SWL (h/w) الحمل الدرسي المنتظم للطالب أسبوعيا	*3*
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	26	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	*2*
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	*75*		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Computer: *Concepts of Hardware and Software with their components; Concept of Computing, Data and Information; Applications of Information Electronics and Communication Technology (IECT); Connecting input/output devices, and peripherals to CPU.*
Week 2-3	Computer Components*: Computer Portions, Hardware Parts, I/O Units, Memory Types, Basic CPU Components, Computer Ports, Personal Computer (Features and Types).*
Week 4-5	Operating System and Graphical User Interface (GUI)*: Operating System; Basics of Common Operating Systems; The User Interface, Using Mouse Techniques; Use of Common Icons, Status Bar, Using Menu and Menu-selection, Concept of Folders and Directories, Opening and closing of different Windows; Creating Short cuts.*
Week 6-7	Word Processing*: Word Processing Basics; Opening and Closing of documents; Text creation and Manipulation; Formatting of text; Table handling; Spell check, language setting and thesaurus; Printing of word document.*
Week 8	Review and Mid Exam
Week 9-10	Spread Sheet*: Basics of Spreadsheet; Manipulation of cells, Formulas and Functions; Editing of Spread Sheet, printing of Spread Sheet.*
Week 11-12	Presentation Software*: Basics of presentation software; Creating Presentation; Preparation and Presentation of Slides; Slide Show; taking printouts of presentation / handouts.*
Week 13	Introduction to Internet and Web Browsers*: Computer networks Basic: LAN, WAN; Concept of Internet and its Applications; connecting to internet, World Wide Web; Web Browsing software's, Search Engines; Understanding URL ; Domain name, IP Address.*
Week 14	Communications and Emails*: Basics of electronic mail; Getting an email account; Sending and receiving emails; Accessing sent emails; Using Emails, Document collaboration.*
Week 15	Computer Troubleshooting*: Identifying and solving common hardware and software problems that computer users encounter. Basic troubleshooting techniques and tools for diagnosing and resolving issues.*
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to Computer: • *Concepts of hardware and software components.* • *Fundamentals of computing, data, and information.* • *Applications of information electronics and communication technology (IECT).* • *Connecting input/output devices and peripherals to CPU.*
Week 2-3	Computer Components: • *Exploration of computer portions and hardware parts.* • *Identifying I/O units, memory types, and basic CPU components.* • *Familiarizing with computer ports and personal computer features.*
Week 4-5	Operating System and GUI: • *Basics of common operating systems.* • *Navigating the user interface using mouse techniques.* • *Utilizing common icons, status bar, menus, and directories.* • *Opening, closing, and creating shortcuts for different windows.*
Week 6-7	Word Processing: • *Exploring word processing basics.* • *Opening and closing documents.* • *Text creation, manipulation, and formatting.* • *Handling tables, spell check, language settings, and thesaurus.* • *Printing word documents.*
Week 8	Review and Mid-Exam
Week 9-10	Spreadsheet: • *Spreadsheet software basics.* • *Manipulation of cells, formulas, and functions.* • *Editing and printing spreadsheets.*
Week 11-12	Presentation Software: • *Fundamentals of presentation software.* • *Creating presentations.* • *Preparing and delivering slide shows.* • *Taking printouts of presentations and handouts.*
Week 13	Introduction to Internet and Web Browsers • *Computer networking concepts: LAN, WAN.* • *Concept of the internet and its applications.* • *Connecting to the internet and exploring the World Wide Web.* • *Using web browsing software and search engines.* • *Understanding URLs, domain names, and IP addresses.*
Week 14	Communications and Emails • *Basics of electronic mail.* • *Setting up email accounts.* • *Sending, receiving, and accessing emails.* • *Utilizing email for document collaboration.*
Week 115	Computer Troubleshooting: • *Identifying and solving common hardware issues.* • *Identifying and solving common software problems.* • *Applying basic troubleshooting techniques and tools.*
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	*[1] G. Brown and D. Watson, "Cambridge IGCSE Information and Communication Technology," 3rd ed. Cambridge, U.K.: Cambridge Univ. Press, 2020.* *[2] A. Evans, K. Martin, and M. A. Poatsy, "Technology in Action Complete," 16th ed. Boston, MA, USA: Pearson, 2020.*	*Yes*
Recommended Texts	[3] 2016 ,"أساسيات الحاسوب", بحات, الخضر علي الخضر.	*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*
	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	Democracy and Human Rights			Module Delivery	
Module Type	Basic learning activities			☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	MTU1006				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level	*1*		Semester of Delivery	*2*	
Administering Department	*CET*		College	*EETC*	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	*Ali Thu'ban Abbas*		e-mail	*ali.thuban@alkafeel.edu.iq*	
Peer Reviewer Name	Asst. Prof. Alhamzah Taher Mohammed		e-mail	alhamza_tm@mtu.edu.iq	
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

Module Aims أهداف المادة الدراسية	1. التطور التاريخي لحقوق الإنسان: دراسة التطور التاريخي لفهم حقوق الإنسان من الحضارات القديمة إلى العصور الحديثة. 2. حقوق الإنسان في الشرائع السماوية: التركيز على حقوق الإنسان في الإسلام وكيف تم تضمينها في الشريعة الإسلامية. 3. اعتراف إقليمي بحقوق الإنسان: فحص اعتراف الأقاليم الأوروبي، الأمريكي، الإفريقي، الإسلامي، والعربي بحقوق الإنسان. 4. دور المنظمات غير الحكومية: دراسة دور المنظمات مثل اللجنة الدولية للصليب الأحمر ومنظمة العفو الدولية في حماية حقوق الإنسان. 5. الإطار القانوني الدولي والإقليمي: التركيز على المواثيق الدولية والإقليمية، مثل الاعلان العالمي لحقوق الإنسان. 6. تحليل حقوق الإنسان في التشريعات الوطنية: دراسة كيفية ترجمة حقوق الإنسان في التشريعات الوطنية، مع التركيز على الدستور العراقي. 7. تصنيف حقوق الإنسان وضماناتها: فهم مختلف أشكال حقوق الإنسان والضمانات الدستورية والقضائية والسياسية لحمايتها.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. القدرة على وصف وتحليل التطور التاريخي لحقوق الإنسان منذ الحضارات القديمة حتى العصور الحديثة. 2. القدرة على فحص حقوق الإنسان في حضارة وادي الرافدين وغيرها لفهم التأثير الثقافي على تطورها. 3. تفسير حقوق الإنسان في الإسلام وفهم كيف تم تضمينها في الشريعة الإسلامية. 4. القدرة على تحليل تطور حقوق الإنسان خلال العصور الوسطى والحديثة. 5. الفهم الشامل لاعتراف الأقاليم الأوروبي، الأمريكي، الإفريقي، الإسلامي، والعرب بحقوق الإنسان. 6. القدرة على تقييم دور منظمات مثل اللجنة الدولية للصليب الأحمر ومنظمة العفو الدولية في حماية حقوق الإنسان. 7. القدرة على دراسة وتحليل المواثيق الدولية والإقليمية، بما في ذلك الاعلان العالمي لحقوق الإنسان. 8. القدرة على فحص كيف تم ترجمة حقوق الإنسان في التشريعات الوطنية، مع التركيز على مثال الدستور العراقي. 9. القدرة على تصنيف حقوق الإنسان إلى أشكال فردية وجماعية، وأجيال مثل الحقوق المدنية والسياسية والاقتصادية والاجتماعية. 10. القدرة على تحليل الضمانات الدستورية والقضائية والسياسية لحقوق الإنسان على الصعيدين الوطني والدولي والإقليمي.
Indicative Contents المحتويات الإرشادية	فهم التاريخ التطوري لحقوق الإنسان (3 س) تحليل حقوق الإنسان في الحضارات القديمة (3 س) فهم حقوق الإنسان في الشرائع السماوية (3 س) تحليل حقوق الإنسان في العصور الوسطى والحديثة (3 س) فهم الاعتراف الإقليمي بحقوق الإنسان (3 س) تقدير دور المنظمات غير الحكومية (3 س) فهم الإطار القانوني لحقوق الإنسان (3 س) تحليل حقوق الإنسان في التشريعات الوطنية (3 س) فهم أشكال وأجيال حقوق الإنسان (3 س) تحليل ضمانات حقوق الإنسان (3 س)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	تشجيع الطلاب على المشاركة في مناقشات تفاعلية حول تطور حقوق الإنسان عبر التاريخ. مشروعات بحثية: توجيه الطلاب في إعداد مشروعات بحثية تستكشف تطور حقوق الإنسان في فترات تاريخية محددة. استخدام التكنولوجيا: تضمين وسائل تكنولوجية لتعزيز تفاعل الطلاب وتقديم المعلومات بشكل أكثر تفاعلية. ورش العمل والتمثيل العملي: إجراء ورش عمل تفاعلية وأنشطة تمثيل لفهم أعمق لمفاهيم حقوق الإنسان. تقديم تقييم مستمر: تقديم تقييم مستمر لفحص تقدم الطلاب وفهمهم لتطور حقوق الإنسان على مر العصور.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	*33*	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	*2.2*
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	*17*	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	*1.13*
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	*50*		

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 #4-9*
	Assignments	*2*	*20%*	*2, 12*	*LO # 1-4, LO #1,10*
	Projects / Lab.				
	Report	*1*	*10% (10)*	*14*	*LO # 1-10*
Summative assessment	Midterm Exam	*2 hours*	*20% (10)*	*7*	*LO # 1-7*
	Final Exam	*3 hours*	*50% (50)*	*16*	*All*
Total assessment			*100% (100 Marks)*		

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

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	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 وغسان حمدان. الطبعة: الطبعة الأولى، العام: *2019*.	*Yes*
Recommended Texts	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*
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*
	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	Engineering Mathematics			Module Delivery	
Module Type	S			☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	CET2101				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	2		Semester of Delivery	3	
Administering Department	CET		College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	duea' salim hasan		e-mail	duaa.saleem@alkafeel.edu.iq	
Peer Reviewer Name	Asst. Prof. Alhamzah Taher Mohammed		e-mail	alhamza_tm@mtu.edu.iq	
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	
Module Aims أهداف المادة الدراسية	1. To develop problem solving skills and understanding of probability theory. 2. To distinguish aspects of probability terminology. 3. This course deals with the basic concept of Statistics. 4. To understand graphical representation of data measures. 5. To perform Simple Linear Regression.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize Basic terminology. 2. Describe Axioms for probability. 3. Discuss Conditional probabilities and independent events. 4. Explain random variable, Expectation and variance. 5. understand Bayes Theorem, PDF and CDF. 6. Define Expectation and variance of continuous random variables. 7. Identify Binomial, Poisson and Normal Distribution. 8. Discuss Joint and Marginal distributions aspects. 9. Discuss the Distributions of sums of independent random variables. 10. Explain Expectation and variance of sums of random variables, in addition to Covariance and correlation. 11. Describe Conditional expectation and Prediction. 12. Discuss Graphical Representation of frequency tables and charts, Measures of Central Tendency, and Dispersion. 13. Get acquainted with Relationship Modelling, Pearson's Correlation Coefficient. 14. Explain Significance of the correlation co-efficient and Simple Linear Regression. 15. Describe Chi Square test for association, Chi Square test of goodness of fit.
Indicative Contents المحتويات الإرشادية	Part A - Probabilty 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. [33 hrs] + Revision problem classes in weekly tutorials [11 hrs] Part B - Statistics 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 [12 hrs] + Revision problem classes in weekly tutorials [4 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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.

Student Workload (SWL) الحمل الدراسي للطالب موزع على (15) اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	3.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.13
Total SWL (h/sem) 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)	4, 11	LO # 1-3 , LO # 4- 10
	Projects / Lab.	N/A			
	Report	1	10% (10)	15	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	Basic terminology, Populations and Samples.
Week 2	Sample spaces and events. Axioms for probability and their consequences.
Week 3	Conditional probabilities. Bayes' formula. Independent events.
Week 4	Definition of random variable. Discrete random variables. Expectation and variance.
Week 5	Bayes Theorem, Discrete Probability Distributions, The cumulative distribution function.
Week 6	Probability density function. Expectation and variance of continuous random variables.
Week 7	Binomial Distribution, Poisson Distribution, The Normal Distribution
Week 8	Midterm Exam
Week 9	Joint distribution functions. Marginal distributions. Independent random variables. Distributions of sums of independent random variables.
Week 10	Expectation and variance of sums of random variables. Covariance and correlation.
Week 11	Conditional expectation. Prediction.
Week 12	Graphical Representation - frequency tables and charts, Measures of Central Tendency, and Dispersion.
Week 13	Relationship Modelling, Pearson's Correlation Co-efficient
Week 14	Significance of the correlation co-efficient, Simple Linear Regression
Week 15	Chi Square test for association, Chi Square test of goodness of fit
Week 16	Preparatory week before the final Exam

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?
Required Texts	"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
Recommended Texts	"Essential Mathematics and Statistics for Science", Graham Currell, Antony Dowman, Wiley, 2nd edition (June 22, 2009),	No

	ISBN-13:978-0470694480.	
Websites	https://users.cs.utah.edu/~jeffp/teaching/cs3130.html	

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	**Object Oriented Programming**			Module Delivery	
Module Type	**S**			☒ Theory ☐ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	**CET2102**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	2		Semester of Delivery	3	
Administering Department	CET		College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	Ali Fouad Al-Hamami		e-mail	alhammami@alkafeel.edu.iq	
Peer Reviewer Name	Dr. Osama Abbas Hussein		e-mail	osama.abbas@mtu.edu.iq	
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	
Module Aims أهداف المادة الدراسية	1. Understand and apply object-oriented programming principles. 2. Design and implement object-oriented solutions to programming problems. 3. Utilize C++ libraries and frameworks for application development. 4. Implement data abstraction and encapsulation for secure and efficient code. 5. Plan and execute testing strategies for reliable programs. 6. Debug and optimize program performance for efficient execution.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Demonstrate a clear understanding of object-oriented programming principles, including inheritance, polymorphism, and encapsulation. 2. Design and implement classes and objects to represent real-world entities, applying appropriate inheritance and encapsulation. 3. Utilize C++ libraries and frameworks effectively to develop robust and scalable applications. 4. Implement data abstraction and encapsulation techniques to ensure secure and efficient code. 5. Plan and execute comprehensive testing strategies to validate the functionality and reliability of object-oriented programs. 6. Identify and debug program errors using appropriate tools and techniques, enhancing program robustness. 7. Evaluate and optimize program performance through code analysis and profiling, improving execution efficiency. 8. Collaborate effectively with peers to develop object-oriented solutions to complex programming challenges. 9. Apply exception handling techniques to handle errors and ensure program stability. 10. Demonstrate proficiency in utilizing debugging tools to identify and fix program errors. 11. Apply object-oriented design patterns and principles to analyze and solve programming problems. 12. Evaluate the efficiency and effectiveness of object-oriented solutions through critical analysis and optimization techniques.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A: Introduction to Object-Oriented Programming (8 hours) - Overview of object-oriented programming principles and concepts - Classes, objects, and their relationships - Inheritance and polymorphism

	- Encapsulation and data abstraction 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	
Strategies	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.

Student Workload (SWL) الحمل الدراسي للطالب موزع على (15) اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5.26
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	71	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.73
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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

Total assessment	100% (100 Marks)		

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

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	Midterm Exam (No lab session).
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	Final Exam (No lab session).

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	https://www.w3schools.com/cpp/cpp_oop.asp	

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	Computer Organization and Applications			Module Delivery	
Module Type	core			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CET2103				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	2		Semester of Delivery	3	
Administering Department	CET		College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	Shahad Ahmed Mohamed Hassan		e-mail	shahad.ahmed@alkafeel.edu.iq	
Peer Reviewer Name	Dr. Mahmoud Shuker Mahmoud		e-mail	mahmoud.shukur@mtu.edu.iq	
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	
Module Aims أهداف المادة الدراسية	1. Understand the basic components and organization of a computer system. 2. Explain the function and operation of the CPU, memory, and I/O devices. 3. Analyze and evaluate different computer architectures and their trade-offs. 4. Design and implement basic computer systems using appropriate hardware and software components. 5. Demonstrate an understanding of the relationship between computer organization and computer performance. 6. Apply knowledge of computer organization principles to solve real-world computing problems. *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.* *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.* *9. To introduce spreadsheets and worksheets in Microsoft Excel, and develop students' skills in data entry, manipulation, and basic formulas and functions.* *10. To delve into advanced Microsoft Excel features, including working with ranges and cells, sorting and filtering data, and creating charts and graphs.* *11. To guide students in creating and editing slides in Microsoft PowerPoint, applying themes and templates, and adding text, images, and multimedia elements.* *12. To explore advanced PowerPoint features, such as slide transitions, animations, using SmartArt and shapes, and utilizing presenter tools and slide show options.*
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understand the basic components and organization of a computer system. 2. Explain the function and operation of the CPU, memory, and I/O devices. 3. Analyze and evaluate different computer architectures and their trade-offs. 4. Design and implement basic computer systems using appropriate hardware and software components. 5. Demonstrate an understanding of the relationship between computer organization and computer performance. 6. Apply knowledge of computer organization principles to solve real-world

	computing problems. 7. demonstrate the ability to evaluate and compare different computer organization techniques, such as memory management strategies and caching optimizations, to improve system performance. 8. Understand computer architectures, including their performance characteristics, and understand the impact of design choices on computer performance 9. Develop practical skills in using simulation tools, emulators, and programming languages to design, implement, and test computer organization concepts. 10. Analyze and identify performance bottlenecks in computer systems and propose appropriate optimizations to improve system efficiency. 11. Understand the principles and challenges of memory management, including memory allocation, deallocation, and garbage collection. 12. Apply knowledge of cache memory organization and mapping techniques to analyze cache behavior and optimize cache utilization. 13. Demonstrate a solid understanding of Microsoft Word, Excel, and PowerPoint, including their key features, user interfaces, and common functions. 14. Create, format, and manage documents effectively in Microsoft Word, utilizing styles, themes, page layout options, headers, footers, tables, images, and objects. 15. Utilize Microsoft Excel for data entry, manipulation, basic calculations using formulas and functions, sorting and filtering data, and creating charts and graphs. 16. Develop proficiency in creating and editing slides, applying themes, templates, and multimedia elements, and utilizing advanced features in Microsoft PowerPoint.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Introduction to Computer Organization Basic computer architecture and components Von Neumann architecture Instruction execution cycle Memory Organization Memory hierarchy and cache memory Virtual memory and paging techniques Memory management and allocation strategies PU Organization and Instruction Set Architecture (ISA) CPU components: ALU, registers, control unit Instruction formats and addressing modes

	Input/Output (I/O) Organization I/O devices and interfaces Polling, interrupts, and DMA I/O communication and bus architectures

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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 موزع على (15) اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.26
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.06
Total SWL (h/sem) 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 #4-9
	Assignments	2	10% (10)	4, 12	LO # 1-3, LO #4-11
	Projects / Lab.	1	10% (10)	Continuous	ALL
	Report	1	10% (10)	13	LO # 1-11
Summative assessment	Midterm Exam	2hr	10% (10)	9	LO # 1-8
	Final Exam	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Computer system organization and architecture.
Week 2	Von Neumann architecture and its components
Week 3	Interfacing devices and system buses • Tristate buffer • Decoder • Multiplexer • Address bus, data bus and control bus (specifications, function and interfacing)
Week 4	Memory hierarchy • Review of memory classification • Cache memory levels, Replacement Techniques, effective access time, read and write protocol
Week 5-6	Memory organization

	• Memory requirements and memory expansion • Memory addresses and memory map
Week 7	Midterm Exam
Week 8	Basic computer microoperations • Registers types, registers interconnection and data transfer • Arithmetic microoperation • Logical microoperation
Week 9	Computer instructions • instruction type and format • instruction addressing mode
Week 10	Control and timing unit • decoding and executing instruction • instruction cycle
Week 11-12	Instruction Set • register reference instruction • memory reference instruction • I/O reference instruction
Week 13	Stack memory
Week 14	Input/output (I/O) Organization
Week 15	Interrupt and subroutines

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to Computer Organization ,Familiarization with the lab environment and tools

Week 2	hardware components: CPU, memory, and I/O devices
Week 3	Introduction to Assembly Language Programming, microprocessor instruction set
Week 4	register and memory transfer instructions
Week 5	Arithmetic instructions
Week 6	Logical Instructions
Week 7	Stack instructions
Week 8	Loop and Subroutine programs
Week 9	*Writing and executing simple assembly language programs*
Week 10	*Introduction to Lab Environment and Office Suite: Microsoft Word Lab - Creating, editing, and formatting documents. Inserting and formatting images and tables.*
Week 11	*Microsoft Excel Lab - Creating spreadsheets and entering data. Formulas and functions for calculations.*
Week 12	*Data Analysis Lab with Excel - Advanced formula and function exercises. Sorting, filtering, and analyzing data.*
Week 13	Microsoft PowerPoint Lab - Creating, editing, and designing slides. Adding multimedia elements and animations.
Week 14	*Dealing with google form, customized the design, control the access, presents answers.*

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	"Computer Architecture and Organization " by Moris Mano	no
Recommended Texts	“8085 Microprocessor and Programming “by Ramesh S. Gaonkar	yes
Websites	https://www.tutorialspoint.com/computer_organization/index.asp	

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	**Electronic Fundamentals**			Module Delivery	
Module Type	**Core**			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**CET2104**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	2		Semester of Delivery	3	
Administering Department	CET		College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	Mohsen Muhammad Mahdi Muhammad		e-mail	muhsen.mohammad@alkafeel.iq	
Peer Reviewer Name	Dr. Osama Abbas Hussein		e-mail	osama.abbas@mtu.edu.iq	
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	
Module Aims أهداف المادة الدراسية	1. To understand materials conductivity, semiconductor materials, and types 2. This is the basic subject for all electronic circuits and devices. 3. This course deals with first and the simplest semiconductor device, diode, diode physical construction, biasing, characteristics, application circuits and Zener 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 5. This course deals with second semiconductor device, BJT This course deals with BJT physical construction, biasing, configuration methods, input and output characteristics 6. To understand the D.C biasing of BJT and circuit types , analysis and calculations of BJT parameters 7. To understand and construct re model for BJT circuits 8. To deal with small signal analysis of BJT
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize classifications of materials according to its conductivity. 2. Identify the semiconductor material characteristics and classifications 3. Recognize the physical structure and properties of P and N layers 4. Identify diode as a first example of semiconductor devices. 5. Discuss diode physical construction, biasing, and characteristics 6. Identify the variable parameters of diodes, and V threshold 7. Summarize what is meant by Load line analysis , and Q point 8. Identify the applications of diodes in electrical circuits using AC. And DC. Power supplies 9. To understand the concept of Zener region and the differences between zener and original diodes 10. To solve zener circuits and calculate its voltage current with different cases 11. To understand and discuss the second semiconductor device which is Transistor (Bipolar Junction Transistor)(BJT) 12. To discuss BJT physical construction, Operation, and configuration methods 13. To understand and implement input and output Characteristics of each configuration method and load line and Q point implementations 14. To implement and solve BJT biasing circuit types and calculations of important parameters of BJT in DC. Biasing state 15. Design BJT circuit types by using Quesent point parameters 16. Understand and construct re model for BJT circuits 17. Derive and calculate Zi, Zo Av and AI from re model of BJT circuits

	18. Understand and calculate small signal analysis of BJT .
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Semiconductor Materials Energy Levels , n- and p-Type, Semiconductor Diode Construction ,biasing, Characteristics and Zener Diodes, Load-Line Analysis [8 hrs] . 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] Transistor Construction , Transistor Operation ,Common-Base Configuration Transistor Amplifying Action ,Common-Emitter Configuration ,Common-Collector Configuration ,Limits of Operation [8hrs] 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] Revision problem classes [12 hrs] BJT Transistor Modeling The Important Parameters: Zi, Zo, A v, A i 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]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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 موزع على(15) اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.26
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.06
Total SWL (h/sem) 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, 12	LO #1- 4, LO #5-12
	Assignments	2	10% (5)	4, 11	LO # 1-3, LO #4-10
	Projects / Lab.	1	10% (10)	Continuous	ALL
	Report	1	10% (10)	13	LO # 1-12
Summative assessment	Midterm Exam	2 hr	10% (10)	6	LO #1-8
	Final Exam	4 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

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

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction
Week 2	Lab 2: Diode characteristics
Week 3	Lab 3 Zener diode characteristics
Week 4	Lab 4 Half wave rectifier
Week 5	Lab 5: full wave rectifier
Week 6	Half anf full wave rectifire with filter
Week 7	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**			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**CET2105**				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	2		Semester of Delivery	**3**	
Administering Department	CET		College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	Dr. Ahmed Ali Taleeb		e-mail	ahmed.ali@alkafeel.edu.iq	
Peer Reviewer Name	Alhamzah taher mohammed		e-mail	alhamza_tm@mtu.edu.iq	
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	
Module Aims أهداف المادة الدراسية	1. Understanding the communication systems and signals. 2. Viewing and knowledge block diagram communication system 3. Analyzing the advantage and disadvantage of each type of signals and systems. 4. Analyzing signals in Fourier series and Fourier transform. 5. To develop problem solving skills and understanding of filters types and design
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize Basic Principles of Communication. 2. Explain the Block Diagram of a Communication System. 3 Identify essential parts that must be present in communication systems. 4. List the different types of media used in a communication system. 5. Describe the measured effect of noise on a communication system. 6. Define modulation over some carriers to make it suitable for transmission over a long distance. 7. Discuss Principles of Signals in Communication and shows examples of signals of various types. 8. Identify the difference between Analog and Digital Signals. 9. List the various types of continuous-time signals 10. Discuss the classification of signals based on their characteristics and nature of availability. 11. Define the advantages and disadvantages of each type of signal in communications. 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. 13. Summarize by various magnitudes or coefficients of Exponential Fourier Series on Determination for different harmonic signals. 14.Definition A major disadvantage of the Fourier series is on account of its periodicity, by means of the limitation of the Fourier series 15. Identify Fourier transform representation for the non-periodic signals 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 17. Definition Filters, four basic types of filters: Passive or Active depending on the Construction of filters. 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). 19. Summarize the design formula for a passive filter LPF and HPF consisting of coils, capacitors, and resistors. 20. Identify the design formula for a passive filter Constant-K: LPF , HPF, and BPF consisting of coils, capacitors, and resistors . 21. Definition active filters, listing the advantage of active filter over disadvantage of passive filter. 22. Identify the design formula for active filter first order LPF, HPF and BPF used op-Amp as main component.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A -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) Part 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) Part C- I- Fourier Series in the Continuous Domain: the important classes of Fourier series methods and Trigonometric Fourier series, Exponential Fourier (5 hr) Part C- II: Fourier transform representation: disadvantage of the Fourier series, Fourier transform for non-periodic signals, Inverse Fourier transform as a mathematical transformation technique.(10 hr) Part D- 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)
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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 موزع على(15) اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.26
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.06
Total SWL (h/sem) 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- 15
	Assignments	2	10% (10)	2, 12	LO # 1-7, , LO #8- 18
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 1-17
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-16
	Final Exam	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Basic Principles of Communication: Introduction to Communication, The Block Diagram of a Communication System
Week 2	Signals: Principles of Signals & Definition, Difference between Analog and Digital Signals
Week 3	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)
Week 4	Classification of Signals , Continuous –Time Signal, Discrete- Time Signals ,Even Signals, Odd Signals , Deterministic Signals, Random Signals, Sinusoidal Signals, Complex Exponential Signals
Week 5	Solved Problems: Periodic Signals, Aperiodic Signals ,Solved Problems: Energy Signals ,Power Signals
Week 6	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
Week 7	Midterm Exam
Week 8	Inverse Fourier Transform Example: The Inverse Fourier Transform
Week 9	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
Week 10	Passive Filters : Formula and Procedure of Design RL-LPF, RL-HPF
Week 11	LC- LPF, Constant-K-(T& π Section) LC- HPF, Constant-K-(T& π Section) LC- BPF, Constant-K-(T& π Section)
Week 12	Band Pass Filter Stage) (Type 1& Type 2)
Week 13	Active Filters Comparison Between Passive & Active Filters
Week 14	First- Order LPF First- Order HPF
Week 15	BPF Active Filter & Band reject or Notch Filter
Week 16	Preparatory week before the final Exam

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Principles of Communication Systems By J.S.Chitode, First Edition-2007 Modern Digital and Analog Communication Systems ,By B.P.Lathi OXFORD	Yes
Recommended Texts	Analog and Digital Communications, By Schaum Second Edition Data Communications and Networking, By Behrouz A. Forouzan, Fifth Edition	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	English Language II			Module Delivery	
Module Type	B			☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	MTU1003				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level	*1*		Semester of Delivery	*1*	
Administering Department	*CET*		College	*EETC*	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	Shaima Khawam Sher Ali		e-mail	shaimashearali@alkafeel.edu.iq	
Peer Reviewer Name	*Dr. Osama Abbas Hussein*		e-mail	*Osama.abbas@mtu.edu.iq*	
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	
Module Objectives أهداف المادة الدراسية	1. Provide students with essential information in the English language in association with reading, writing and speaking skills, and knowing more English vocabulary. 2. To understand sentences, tenses, and practicing writing. 3. This module works towards enhancing students' English language competencies along with their technical or professional knowledge. 4. Enhancing students' communication skills in English can result in better job opportunities in the future
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The student will have the ability to: 1. Know the English skills of reading, and writing. 2. Recognize other English language skills such as: grammar, vocabulary. 3. Understand and appreciate the importance of grammar aspects and vocabulary to increase the ability of communicating ideas about the English language. 4. Understand sentences with multiple clauses, and comparative and superlative. 5. Understand time expression in tenses, and active and passive voice. 6. Discuss distinguish words such as do and make, like and alike, and other and another. 7. Discuss the various skills of writing such as writing essays, developing supporting ideas, and writing a paragraph. 8. Enhance students' communication skills in English.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A: Sentences and Tenses. 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] Part B: Reading and Writing Skills Writing essays, expressing yourself, common expressions, developing supporting ideas, types of writing, and how to write a paragraph. [15 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	

	The main strategies that will be adopted in delivering this module are: - Allow students to actively participate in the learning process with class discussions and exercises that support the initiative. - Use didactic questioning through questions to determine student understanding of the material. - Writing an assignment and report that encourages students to clarify and organize their thinking and independently research and present on a topic.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.13
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Unit 1: 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)
Week 2	Unit 2: Grammar: Present Tenses (Present Simple, Present Continuous) Tens, have/have got Vocabulary: Description countries, Collection Reading and writing Skill, make conversation, Asking question
Week 3	Unit 3: 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)
Week 4	Unit 4: Grammar: Quantity, Articles, and some and Any Vocabulary: Buying Things Reading and writing Skill, Everyday English (Prices and shopping)
Week 5	Midterm Exam
Week 6	Unit 5: Grammar: Verb Patterns 1, Future intentions Vocabulary: Hot verbs Reading and writing skills, Everyday English (How do you feel?) Unit 6: Grammar: What's it like?, Comparative and superlative adjectives. Vocabulary: Talking about towns, Money, Synonyms and antonyms Reading and writing Skill, Everyday English (Directions)
Week 7	Unit 7: 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)
Week 8	Unit 8: 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)
Week 9	Unit 9: Grammar: Time and Conditional Clauses, What if? Vocabulary: Hot verbs, Hotels Reading and writing Skill, Everyday English (In a hotel)
Week 10	Unit 10: 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)
Week 11	Unit 11: Grammar: Active and Passive Voice Vocabulary: Verbs and past participles, verbs and nouns that go together Reading and writing Skill, Everyday English (Notices)
Week 12	Unit 12: Grammar: Second conditional, might Vocabulary: Phrasal verbs Reading and writing Skill, Everyday English (Social expression 2)
Week 13	Unit 13: 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)
Week 14	Unit 14: Grammar: Past Perfect, Reported statements Vocabulary: Word in context Reading and writing Skill, Everyday English (Saying goodbye)
Week 15	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, 5th 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			☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	MTU1007				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level	*2*		Semester of Delivery	*3*	
Administering Department	*CET*		College	*EETC*	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	*Dr. Ayad Saheb Hamadi*		e-mail	*dr.ayadtuky@alkafeel.edu.iq*	
Peer Reviewer Name	Asst. Prof. Alhamzah Taher Mohammed		e-mail	alhamza_tm@mtu.edu.iq	
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

Module Aims أهداف المادة الدراسية	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 ابرز الأهداف للمادة الدراسية هي اني يكون الطالب قادرا على أن : 1. فهم مفهوم الجرائم وأقسامها. 2. دراسة جرائم نظام البعث والقوانين المتعلقة بها. 3. التعرف على الجرائم النفسية والاجتماعية وآثارها على الفرد والمجتمع. 4. تحليل الانتهاكات القانونية في العراق، بما في ذلك الانتهاكات لحقوق الإنسان والجرائم ذات الصلة. 5. فهم الجرائم البيئية وآثارها، بما في ذلك التلوث وتدمير المدن والقرى وتجفيف الأهوار. 6. دراسة جرائم المقابر الجماعية وفهم أحداث المقابر والتصنيف الزمني لها في العراق.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	مخرجات التعلم للمادة الدراسية هي: 1. فهم مفهوم الجرائم وقدرة الطلاب على تصنيف الجرائم وفقا لأقسامها. 2. تحليل جرائم نظام البعث وفهم القوانين المتعلقة بها، بما في ذلك الجرائم الدولية. 3. القدرة على التعرف على الجرائم النفسية لنظام البعث وفهم الآثار النفسية لجرائم نظام البعث على الأفراد والمجتمع. 4. القدرة على التعرف على الجرائم الاجتماعية لنظام البعث الآثار الاجتماعية لجرائم نظام البعث على الأفراد والمجتمع. 5. التعرف على الانتهاكات القانونية لنظام البعث في العراق وفهم أنواع الانتهاكات ومكان احتجاز الأفراد. 6. التعرف على صور انتهاكات حقوق الإنسان وجرائم السلطة التي وقعت خلال فترة نظام البعث 7. التعرف على الانتهاكات السياسية والعسكرية لنظام البعث 8. فهم الجرائم البيئية لنظام البعث والقدرة على تحليل تأثيرها على البيئة والمجتمع. 9. دراسة جرائم المقابر الجماعية لنظام البعث 10. فهم الأحداث المرتبطة بجرائم المقابر الجماعية وتصنيفها زمنيا.
Indicative Contents المحتويات الإرشادية	المحتويات الإرشادية في مادة اللغة تشمل مجموعة من المفاهيم والمواضيع التي يتم تغطيتها خلال عملية التعلم. ومن بين المحتويات الإرشادية المهمة: 1. تعريف الجريمة لغة واصطلاحا، مفهوم الجريمة، اقسام الجريمة 2. جرائم نظام البعث وفق توثيق قانون المحكمة الجنائية العراقية العليا عام 2005 3. الجرائم النفسية والاجتماعية وأثارها 4. عسكرة المجتمع، موقف النظام البعثي من الدين 5. انتهاكات القوانين العراقية، صور انتهاكات حقوق الإنسان وجرائم السلطة 6. بعض قرارات الانتهاكات السياسية والعسكرية لنظام البعث 7. أماكن السجون والاحتجاز لنظام البعث 8. الجرائم البيئية لنظام البعث في العراق 9. جرائم المقابر الجماعية 10. أحداث مقابر الإبادة الجماعية المرتكبة من النظام البعثي في العراق 11. التصنيف الزمني لمقابر الإبادة الجماعية في العراق للمدة 1963م - 2003م

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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. التنويع 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 للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.13
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري		
الأسبوع الأول	تعريف الجريمة لغة واصطلاحًا، مفهوم الجريمة، اقسام الجريمة	
الأسبوع الثـــاني	جرائم نظام البعث وفق توثيق قانون المحكمة الجنائية العراقية العليا عام 2005	
الاسبوع الثـــالث	الجرائم النفسية لنظام البعث وفهم الآثار النفسية لجرائم نظام البعث على الأفراد والمجتمع.	
الأسبوع الـــرابـع	الجرائم الاجتماعية لنظام البعث وفهم الآثار الاجتماعية لجرائم نظام البعث على الأفراد والمجتمع.	
الأسبوع الخـــامس	انتهاكات القوانين العراقية	
الأسبوع الســـادس	بعض قرارات الانتهاكات السياسية والعسكرية لنظام البعث	
الأسبوع الســـابع	امتحان نصف الفصل	
الأسبوع الثـــامن	الجرائم البيئية لنظام البعث في العراق (التلوث الحربي وسياسة الأرض المحروقة)	
الأسبوع التاسع والعاشر	تجفيف الاهوار و تجريف بساتين النخيل والأشجار والمزروعات	
الاسبوع الحادي عشر و الاسبوع الثاني عشر	جرائم المقابر الجماعة واحداث مقابر الإبادة الجماعية المرتكبة من النظام البعث في العراق	
الأسبوع الثالث عشر والرابـــع عشرو الخامس عشر	التصنيف الزمني لمقابر الإبادة الجماعية في العراق للمدة من (1963-2003) م	

الأسبوع السادس عشر	التهيئة للامتحان النهائي	

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*
	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	Advanced Engineering Mathematics			Module Delivery	
Module Type	S			☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐Seminar	
Module Code	CET2201				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	2		Semester of Delivery	Four	
Administering Department	CET		College	EECT	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	duea' salim hasan		e-mail	duaa.saleem@alkafeel.edu.iq	
Peer Reviewer Name	Asst. Prof. Alhamzah Taher Mohammed		e-mail	alhamza_tm@mtu.edu.iq	
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	
Module Aims أهداف المادة الدراسية	1. To develop problem solving skills complex analysis. 2. To understand power series. 3. To the way around Fourier series. 4. To get the grip on using Laplace transform. 5. To develop a good understanding of ODEs. 6. This course deals with Advanced Engineering Mathematics.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Describe Complex environment. 2. Discuss derivative of Analytic Function. 3. Describe Exponential, Trigonometric and Hyperbolic Functions. 4. Explain Line Integral in the Complex Plane and Cauchy's Integral Formula. 5. Using power Series and how to expand a function 6. Identify elements of Fourier Series. 7. Identify elements of Laplace Transform. 8. Discuss different aspects of First-Order ODEs. 9. Identify Bernoulli Equation and Population Dynamics. 10. Discuss different aspects of Second-Order Linear ODEs. 11. Using Variation of Parameters. 12. Discuss different aspects of Higher Order Linear ODEs. 13. Using Power Series to solve ODE. 14. Explain Fourier Series solution of ODE. 15. Discuss Laplace Transform solution of ODE.
Indicative Contents المحتويات الإرشادية	Part A – Complex Analysis. 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. [12 hrs] + Revision problem classes in weekly tutorials [4 hrs]

	Part B – Preliminaries to Methods of solving ODE. 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 [9 hrs] + Revision problem classes in weekly tutorials [3 hrs] Part C – ODE. 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. [24 hrs] + Revision problem classes in weekly tutorials [8 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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.

Student Workload (SWL) الحمل الدراسي للطالب موزع على (15) اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	3.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.13
Total SWL (h/sem) 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	Midterm Exam
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?
Required Texts	"Advanced Engineering Mathematics ", Erwin Kreyszig, Wiley, 10th edition (August 16, 2011), ISBN-13: 978-0470458365.	Yes
Recommended Texts	"Differential Equations for Engineers and Scientists", Yunus Cengel, William Palm, McGraw Hill, 1st edition (January 31, 2012), ISBN-13: 978-0073385907.	No
Websites	https://www.coursera.org/learn/differential-equations-engineers	

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	**Python Programming**			Module Delivery	
Module Type	**S**			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**CET2202**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	2		Semester of Delivery	4	
Administering Department	CET		College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	Ali Fouad Al-Hamami		e-mail	alhammami@alkafeel.edu.iq	
Peer Reviewer Name	Dr. Osama abbas hussein		e-mail	Osama.abbas@mtu.edu.iq	
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	
Module Aims أهداف المادة الدراسية	1. Introduce students to the fundamental concepts and principles of Python programming language. 2. Develop students' proficiency in writing Python code and solving programming problems. 3. Familiarize students with essential programming constructs, such as variables, data types, control flow structures, and functions. 4. Provide students with a solid foundation in object-oriented programming (OOP) and its application in Python. 5. Enable students to work with various data structures and perform operations on them. 6. Prepare students for practical application of Python in real-world scenarios, such as data manipulation, web scraping, and GUI development.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understand the fundamentals of Python programming language, including variables, data types, and basic operators. 2. Demonstrate proficiency in control flow structures, such as conditional statements and loops, to control program execution. 3. Develop functions and utilize function arguments to enhance code modularity and reusability. 4. Utilize exception handling techniques to effectively manage errors and ensure program robustness. 5. Gain familiarity with modules and packages to leverage existing code and extend Python's functionality. 6. Understand object-oriented programming (OOP) concepts and apply them to create classes, objects, and inheritance hierarchies. 7. Manipulate strings, lists, dictionaries, and sets to efficiently store and retrieve data. 8. Perform file handling operations, including reading from and writing to files. 9. Apply Python to practical tasks, such as web scraping, data manipulation, and analysis. 10. Demonstrate proficiency in working with files and directories, including navigating file systems and managing file permissions. 11. Develop graphical user interfaces (GUIs) using Python libraries to create interactive applications. 12. Prepare for exams by reviewing course materials, practicing exercises, and answering sample questions.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A: Introduction to Python and Basic Concepts (Estimated time: 10 hours) Overview of Python programming language Installation and setup Variables and data types

	Basic operators Input and output operations Part B: Control Flow and Functions (Estimated time: 16 hours) Conditional statements (if, else, elif) Loops and iterations (for loop, while loop) Functions and function arguments Recursion Part C: Data Structures and File Handling (Estimated time: 16 hours) Strings and string manipulation Lists and list manipulation Dictionaries and sets File handling and input/output operations Part D: Advanced Topics (Estimated time: 16 hours) Exception handling and error management Modules and packages Object-oriented programming (OOP) concepts Classes, objects, inheritance, and polymorphism Part E: Applications and Practical Projects (Estimated time: 16 hours) Working with files and directories GUI programming Web scraping Data manipulation and analysis

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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.

Student Workload (SWL) الحمل الدراسي للطالب موزع على (15) اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.26
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	36	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Python, Variables, Data Types, 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	Midterm Exam
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

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	Midterm Exam (No lab session).
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	Final Exam (No lab session).

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: https://realpython.com	

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	**Microprocessors**			Module Delivery	
Module Type	**Core**			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**CET2203**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	2		Semester of Delivery	4	
Administering Department	CET		College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	Shahad Ahmed Mohamed Hassan		e-mail	shahad.ahmed@alkafeel.edu.iq	
Peer Reviewer Name	Dr. Mahmoud Shuker Mahmoud		e-mail	mahmoud.shukur@mtu.edu.iq	
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	
Module Aims أهداف المادة الدراسية	1. To understand the basic operating concept of specific microprocessor. 2. To study the hardware architecture of specific microprocessor. 3. To encode programs based on the specific processor language. 4. To solve problems encountered in the architecture of a specific microprocessor
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Identify the basic characteristic of specific processor 2. Define the processor signals and their functions 3. Explain the architecture from the hardware point of view 4. Identify various machine cycle. 5. Explain the memory different interfacing techniques with the microprocessor. 6. Explain the input output different interfacing techniques with the microprocessor. 7. Explain the concept of Stack memory. 8. List the addressing mode of the processor instruction. 9. Encode different program based on assembly. 10. Perform different arithmetic and logical operations using the processor instruction set. 11. Encode different problems associative with branching instructions. 12. Solve problem encountered with delay and counter. 13. Identify different interrupt procedures. 14. Design different interfacing systems due to the problem requirements.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A – Microprocessor H/W architecture</u> --MP signals, MP operations, Machine cycle, memory interfacing, input-output devices interfaces [30hrs] <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]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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 موزع على (15) اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.26
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.06
Total SWL (h/sem) 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)	7, 10	LO #1- 6, LO #8-11
	Assignments	4	10% (10)	Continuous	
	Projects / Lab.	5	10% (10)	Continuous	
	Report	2	10% (10)	7,10	LO #1- 6, LO # 8-11
Summative assessment	Midterm Exam	2 hr	10% (10)	6	LO # 1-6
	Final Exam	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

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

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	8085 µp architecture and programming_Gonkar	Yes
Recommended Texts	UNDERSTANDING 8085/8086 MICROPROCESSORS and PERIPHERAL ICs	no
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

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	**Analog Communications**			Module Delivery	
Module Type	**Core**			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**CET2204**				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	2		Semester of Delivery	**4**	
Administering Department	CET		College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	Dr. Ahmed Ali Taleeb		e-mail	ahmed.ali@alkafeel.edu.iq	
Peer Reviewer Name	Alhamzah Taher Mohammed		e-mail	alhamza_tm@mtu.edu.iq	
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	
Module Aims أهداف المادة الدراسية	1. Understanding the modulation and de-modulation 2. Viewing and knowledge Amplitude modulation and Frequency modulation. 3. Analyzing the advantage and disadvantage of AM over FM. 4. Analyzing the generation and detection each of AM and FM. 5. To develop problem solving skills and understanding of PM equations
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize Basic Principles of modulation and de-modulation 2. Explain the Need for Modulation. 3. Define a Carrier Wave, Radio Frequency Spectrum, Sound and Radio Broadcasting 4. Identify Amplitude Modulation, Percent Modulation, Upper and Lower Sidebands 5. Explain Methods of Modulation. 6. Mathematical Analysis of a Modulated Carrier Wave 7. Discuss forms of Amplitude Modulation and Methods of Amplitude Modulation. 8. Describe the Power Relation in an AM Wave. 9. Identify modulating Amplifier Circuit: AM- Transmitter & Radio Receiver Essential Parameter 10. Explain the AM generation of SSB, DSB-SC balanced modulators (Cowan &Ring). 11. Summarize various demodulation type of AM Signal: AM-Detector (Envelope & Synchronous) 12. Identify the Frequency Modulation Process: Modulation Index, Deviation Ratio, Percent Modulation and FM Sidebands. 13. Discuss the relationship between the modulation index and number of sidebands. 14. List the various types of generation of FM (the direct method and indirect method) & demodulation or detection. 15. Identify the comparison between AM and FM. 16. Discuss Principles of FM Receiver: FM Discriminator (Foster –Seeley &Ratio Detector). 17. Explain the Phase modulation (PM) Definition. 18.Discus the PM equation and PM wave forms
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A –MODULATION AND DEMODULATION: Need for Modulation,. Define a Carrier Wave, Radio Frequency Spectrum, Sound and Radio

	Broadcasting. (20 hr) **Part 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 & Radio Receiver Essential Parameter, The AM generation of SSB, DSB-SC balanced modulators (Cowan &Ring), demodulation type of AM Signal: AM-Detector (Envelope & Synchronous) (30hr) **Part C** 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) & demodulation or detection, the comparison between AM and FM, FM Receiver :FM Discriminator (Foster –Seeley &Ratio Detector), the Phase modulation (PM) Definition and the PM equation and PM wave forms.(24 hr)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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 موزع على (15) اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.26
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.06
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

جامعة الكفيل
University of Alkafeel

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

جامعة الكفيل
University of Alkafeel

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

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Methods of Modulation Process and why modulation
Week 2	Lab2: Demodulation methods Process and detection.
Week 3	Lab 3:Methods of Amplitude Modulation
Week 4	Lab4: Calculating the time and a frequency of carrier wave
Week 5	Lab 5: Calculating of Index Modulation AM and Percent Modulation.
Week 6	Lab 6:Calculating of Upper and Lower Side bands frequencies of AM
Week 7	Lab 7: Modulation AM wave.
Week 8	Lab 8:Calculating power content of AM
Week 9	Lab 9: DE-modulation wave of AM
Week 10	Lab 10:Frequency modulation Process
Week 11	Lab 11:Calculating the maximum and minimum frequency
Week 12	Lab 12: Calculating carrier frequency of FM
Week 13	Lab 13: Index Modulation and Percent Modulation of FM
Week 14	Lab 14: Modulation wave of FM
Week 15	Lab 15: De-Modulation wave of FM

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Principles of Communication Systems By J.S.Chitode, First Edition-2007 Modern Digital and Analog Communication Systems ,By B.P.Lathi OXFORD	Yes
Recommended Texts	Analog and Digital Communications, By Schaum Second Edition Data Communications and Networking, By Behrouz A. Forouzan, Fifth Edition	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	**Electronic Circuits**			Module Delivery	
Module Type	**Core**			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**CET2205**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	2		Semester of Delivery	4	
Administering Department	CET		College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	Mohsen Muhammad Mahdi Muhammad		e-mail	muhsen.mohammad@alkafeel.iq	
Peer Reviewer Name	Dr. Osama Abbas Hussein		e-mail	osama.abbas@mtu.edu.iq	
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	

جامعة الكفيل
University of Alkafeel

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. This course deals with Third semiconductor or device, FET physical construction, biasing, configuration s , output and transfer characteristics 2. To understand the D.C biasing of BJT and circuit types , analysis and calculations of FET parameters 3. To understand and construct re FET modeling, and circuits analysis 4. To deal with small signal analysis of FET 5. Deals with Depletion-Type MOSFET , and Enhancement-Type MOSFETs and Combination ,and Design 6. Deals with Operational amplifiers (OP_AMP) their advantages, classifications and types and application circuits
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. To understand and discuss the third semiconductor device which is Transistor (Field Effect Transistor)(FET), Construction and Characteristics of JFETs 2. To Identify and Calculate And implement Transfer Characteristics of FET 3. To Identify and discuss Important Relationships 227 5.7 Depletion-Type MOSFET 228 5.8 Enhancement-Type MOSFET , MOSFET Handling , VMOS CMOS 4. To implement and solve FET DC biasing and circuits analysis Fixed-Bias Configuration Self-Bias Configuration Voltage-Divider Biasing, implementations 5. To understand Depletion-Type MOSFETs Enhancement-Type MOSFETs 6. To identify and implement Combination Networks , Design P-Channel FETs Universal JFET Bias Curve . 7. To understand FET small signal Model, 8. To Identify, Calculate and analyses JFET Fixed-Bias Configuration , JFET Self-Bias Configuration , JFET Voltage-Divider Configuration , 9. To understand JFET Source-Follower (Common-Drain) Configuration , JFET Common-Gate Configuration , 10. To identify Depletion-Type MOSFETs, Enhancement-Type MOSFETs E-MOSFET Drain-Feedback Configuration, 11. To Understand and implement E-MOSFET Voltage-Divider Configuration, Designing FET Amplifier Networks. 12. To understand and identify Operational amplifiers (Introduction) , Differential and Common-Mode Operation 13. To understand Op-Amp, Practical Op-Amp Circuits , and Op-Amp Specifications 14. To identify DC Offset Parameters, Op-Amp Specifications and Frequency

	Parameters 15. To understand and identify OP AMP applications circuits. 16. To Analyze, calculate and implement Constant-Gain Multiplier, Voltage Summing , Voltage Buffer, Controller Sources Instrumentation Circuits ,and Active Filters
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 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] . FET D.C. biasing and circuits analysis Fixed-Bias Configuration, Self-Bias Configuration , and Voltage-Divider Biasing, implementations [8 hrs] Depletion-Type MOSFETs Enhancement-Type MOSFETs, Combination Networks , Design, and P-Channel FETs Universal JFET Bias Curve [10hrs]. FET small signal Model, JFET Fixed-Bias Configuration , JFET Self-Bias Configuration , JFET Voltage-Divider Configuration [8hrs]. 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] 2. Operational amplifiers (OP_AMPS) 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] OP AMP applications circuits Constant-Gain Multiplier , Voltage Summing , Voltage Buffer, Controller Sources Instrumentation Circuits ,and Active Filters[6 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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 موزع على (15) اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.26
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.06
Total SWL (h/sem) 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 # 1-6 , LO # 6-11
	Assignments	2	10% (10)	5, 10	LO # 1-4, LO # 5-9
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 1-12
Summative assessment	Midterm Exam	2 hr	10% (10)	9	LO #1-10
	Final Exam	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

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

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction
Week 2	Lab 2: Clampers
Week 3	Lab 3 Input characteristic of CBC BJT
Week 4	Lab 4 output characteristic of CBC BJT
Week 5	Lab 5: Input characteristic of CEC BJT
Week 6	Lab 6: output characteristic of CEC BJT
Week 7	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**			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CET2206				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	2		Semester of Delivery	4	
Administering Department	CET		College	EETC	
Module Leader	Ali Jasim Ramadhan Alaameri		e-mail	ali.j.r@alkafeel.edu.iq	
Module Leader's Acad. Title	Asst. Prof		Module Leader's Qualification	PhD	
Module Tutor	Zainab Sabah Eidans		e-mail	zainabsabah@alkafeel.edu.iq	
Peer Reviewer Name	Alhamzah Taher Mohammed		e-mail	alhamza_tm@mtu.edu.iq	
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	
Module Aims أهداف المادة الدراسية	1. Identify and analyze factors affecting the performance of measuring systems and errors types and cause 2. Understand voltage and current measurements from a given circuit. 3. Choose appropriate instruments for the measurement of voltage, and current in ac and dc measurements 4. Describe the operating principle of DC and AC bridges 5. Identify Oscilloscopes, signal generators, and transducers
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Explain the static characteristics of measuring systems. 2. Discuss problems related to measurement errors. 3. Explain the construction and working indicating Instruments. 4. Explain the principle of operation of the galvanometer. 5. Discuss the DC bridges- Wheatstone Bridge, Kelvin Bridge 6. Discuss the AC bridges, Capacitance Comparison Bridges, Maxwell's Bridge, Wein's bridge 7. Explain the Design of DC voltmeter and ammeter. 8. Describe Cathode Ray Tube Oscilloscope. 9. Identify High Bandwidth Digital Storage Oscilloscope. 10. Identify Spectrum Analyzer and BER Tester 11. Discuss Signal Generator. 12. Identify Arbitrary Waveform Generator 13. Explain Transducers.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A – Measurement and Error Analysis 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.] Part B – Measuring Instruments Measurement of resistance, inductance, and capacitance Whetstone's Bridge, Kelvin Bridge; AC bridges, Capacitance Comparison Bridge, Maxwell's Bridge, Wein's Bridge, [9 hrs]. **Voltmeters and Ammeters Introduction**, voltmeter, Multirange voltmeter,

	ammeter, Multirange ammeter Extending voltmeter and ammeter ranges [11hrs] Introduction Oscilloscopes, Basic principles, CRT features, Block diagram and working of each block High Bandwidth Digital Storage Oscilloscope-Spectrum Analyzer -BER Tester [8 hrs] Introduction Signal Generators, Fixed and variable AF oscillator, Standard signal generator Arbitrary Waveform Generator. [4 hrs] Introduction Transducers, Electrical transducers, Selecting a transducer, Resistive transducer [2 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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.

Student Workload (SWL) الحمل الدراسي للطالب موزع على (15) اسبوع			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.26
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	36	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation 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)		

Delivery Plan (Weekly Syllabus) 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

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

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	**Electronic Instrumentation and Measurements,** David A Bell, PHI / Pearson Education.	Yes
Recommended Texts	**"Principles of measurement systems",** John P. Beately, Pearson Education. **Modern electronic instrumentation and measuring techniques",** Cooper D & A D Helfrick, PHI	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	Arabic Language (2)	Module Delivery	
Module Type	Basic	☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	MTU1009		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	2	Semester of Delivery	2
Administering Department	CET	College	EETC
Module Leader	Ali Jasim Ramadhan Alaameri	e-mail	ali.j.r@alkafeel.edu.iq
Module Leader's Acad. Title	Asst. Prof	Module Leader's Qualification	PhD
Module Tutor	Dr. Ayad Saheb Hamadi	e-mail	dr.ayadtuky@alkafeel.edu.iq
Peer Reviewer Name	Ahmed J. Abid	e-mail	dr.ahmedjabbar@mtu.edu.iq
Scientific Committee Approval Date	15/10/2024	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	
Module Aims أهداف المادة الدراسية	أهداف المادة الدراسية هي اني يكون الطالب قادرا على أن : 1. يتعرف على ماهية التعبير القرآني. 2. يتعلم القواعد النحوية المستعملة في التعبير القرآني، والأثر البلاغي والفني الذي يترتب على كيفية التعبير القرآني، وأن يفهم الطالب كيفية التحليل للنصوص القرآنية. 3. يتعرف على شخصية من أهم شخصيات الأدب والشعر العربي والعراقي، بدر شاكر السياب ، ومعرفة شعره. 4. يتعرف على علامات الإعراب الأصلية والفرعية ، ويتعلم استعملها في اللغة العربية ، ويفهم الفرق بين علامات الإعراب الفرعية والاصلية. 5. يتعلم الفرق بين الجمل الأسمية والفعلية ، ويتعرف على أنواع المبتدأ، وأنواع الخبر، ويفهم الفرق بينهما . 6. يتعرف عل إن واخواتها ، ويتعلم القواعد الخاصة بها. 7. يفهم الفرق بين إن و أن، وأنو أن ، ويطبق ذلك عند استعمال كل منها في النصوص. 8. .يتعرف عل كان وأخواتها ، ويتعلم عمل كل منها في اللغة ، ويتمكن من استعمالها الصحيح في اللغة . 9. يتعرف على عمل الأفعال الخمسة ، وعلامات إعرابها ، ويستطيع استعمالها بشكل صحيح في الخطاب ، أو النص. 10. يتعرف على الأخطاء اللغوية ، ويتعلم تجنبها أثناء الكتابة. 11. يدرس معلومات لغوية : الأضداد والمرادفات ، والفرق اللغوية ، والمعاملات النحوية ، ويفهم الفرق بينها ، ويتمكن من تحليلها . 12. يتعلم إعراب المثنى . 13. يتعرف على أنواع الجموع، ويتعلم التفريق بينها ، ويفهم كيفية إعرابها. 14. يتعلم كيفية كتابة قواعد اللغة العربية في لوحة بيانية ، ويتمكن من تصويب الأخطاء اللغوية .
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**مخرجات التعلم للمادة الدراسية هي:** 1. قدرة الطالب على فهم التعبير القرآني ، وتحليل النصوص. 2. القدرة على استخدام القواعد النحوية ، وفهم الأساليب البلاغية والقدرة على استعمالها. 3. معرفة الطالب لشخصية الشاعر والأديب بدر شاكر السياب ، وأهم أشعاره وآثاره. 4. القدرة على التمييز بين علامات الإعراب الأصلية والفرعية ، والقدرة على استعمالها في الخطاب ، أو النص. 5. قدرة الطالب على التمييز بين الجمل الأسمية والفعلية ، وقدرته على التمييز بين أنواع المبتدأ، والخبر ، وكيفية استعمال الجمل وإعرابها. 6. فهم الطالب لعمل إن وأخواتها ، وقدرته على استعمالها بشكل صحيح في الجمل. 7. القدرة على التفريق بين أن وإن وإن وأن، واستعمالها في مواضعها الصحيحة في النصوص. 8. القدرة على فهم عمل كان وأخواتها ، واستعمالها بشكل صحيح. 9. التمكن من معرفة و أعراب الأفعال الخمسة ، وكيفية استعمالها في الجمل. 10. القدرة على معرفة وتجنب الأخطاء اللغوية عند الكتابة. 11. معرفة إعراب المثنى . 12. القدرة على التمييز بين الجموع ، وكيفية إعرابها ، واستعمالها في الجمل. 13. معرفة الطالب لمعلومات لغوية : المرادفات. والأضداد ، والفرق اللغوية ، والمعادلات النحوية ، والقدرة على استخراجها ، أو استعمالها في الجمل.
Indicative Contents	**المحتويات الإرشادية في مادة اللغة تشمل مجموعة من المفاهيم والمواضيع التي يتم تغطيتها خلال عملية التعلم. ومن بين المحتويات الإرشادية المهمة:**

المحتويات الإرشادية	1. مقدمة عن التعبير القرآني، وتعريف بالإعجاز اللغوي في آيات القرآن الكريم وجمالية اللغة العربية وبلاغتها. (4 ساعات) 2. التعريف بشخصية الشاعر الكبير بدر شاكر السياب ، وأهمية شعره في الأدب العربي والعراقي. (4 ساعات) 3. دراسة علامات الإعراب ، بنوعيها ، وكيفية الأعراب . (4 ساعات) 4. دراسة الجمل الأسمية والفعلية ، وتعلم التفريق بين الأنواع المبتدأ ، وأنواع الخبر. (4 ساعات) 5. دراسة إن وأخواتها ، وكيفية عملها وأعرابها . (4 ساعات) 6. دراسة الفرق بين إن وأن، وإن وأن، وكيفية عملها وأعرابها. (4 ساعات) 7. دراسة كان وأخواتها ، وكيفية عملها وإعرابها. (4 ساعات) 8. التعريف بالأفعال الخمسة ، وعملها وإعرابها.. (4 ساعات) 9. دراسة الأخطاء اللغوية الشائعة وتطبيقاتها في النصوص. (4 ساعات) 10. تعلم المعلومات اللغوية : الأضداد والمترادفات، والفروق اللغوية ، والمعادلات النحوية. (3 ساعات) 11. دراسة المثنى وأعرابه .(٣ساعات) 12. دراسة الجموع ، وأنواعها وإعرابها. (٣ ساعات) 13. دراسة القواعد النحوية وكتابتها في رسم بياني ، وتصويب الأخطاء اللغوية. (3 ساعات)
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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. التنويع 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 8. تحفيزهم على المشاركة واكتساب المعرفة والمهارات بشكل شامل وشيق.

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا **Student Workload (SWL)**			
Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2	**Structured SWL (h/sem)** الحمل الدراسي المنتظم للطالب خلال الفصل	*33*
Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1	**Unstructured SWL (h/sem)** الحمل الدراسي غير المنتظم للطالب خلال الفصل	*17*
		Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50

Module Evaluation تقييم المادة الدراسية					
		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative Assessment	Quizzes	*3*	*15% (15)*	*5, 10, 13*	*LO #1, 5, and 11*
	Assignments	*3*	*15% (15)*	*2, 11, 14*	*LO # 3, 6 and 12*
	Projects / Lab.				
	Report	*1*	*10% (10)*	*14*	*LO # 1-13*
Summative Assessment	Midterm Exam	*2 hours*	*10% (10)*	*7*	*LO # 1-7*
	Final Exam	*3 hours*	*50% (50)*	*16*	*All*
Total assessment			*100% (100 Marks)*		

المنهاج الاسبوعي النظري Delivery Plan (Weekly Syllabus)	
الأسبوع الأول ، والثاني	التعبير القرآني، نحويا من حيث تركيب الجملة والنص. بلاغيا من حيث التأثير الفني، والرجوع إلى المصدر (كتاب التعبير القرآني) للدكتور فاضل السامرائي .
الاسبوع الثالث	الشاعر بدر شاكر السياب.
الأسبوع الرابع	علامات الإعراب الأصلية:(الفتحة والضمة، والكسرة)، وعلامات الإعراب الفرعية :(الألف ، والواو، والياء).
الأسبوع الخامس	الجمل الأسمية – المبتدأ والخبر ، وانواع المبتدأ ، وأنواع الخبر.
الأسبوع السادس	أن وأخواتها
الأسبوع السابع	الفرق بين إن وأن ، وأن وإن
الأسبوع الثامن	كان وأخواتها.
الأسبوع التاسع والعاشر	الأفعال الخمسة .
الاسبوع الحادي عشر	الأخطاء اللغوية الجزء (2)
الاسبوع الثاني عشر	معلومات لغوية : المرادفات والاضداد، وفروق لغوية. ومعادلات نحوية.
الأسبوع الثالث عشر والرابع عشر	المثنى وإعرابه.
الأسبوع الخامس عشر	أنواع الجموع : جمع المذكر السالم- جمع المؤنث السالم- جمع التكسير .
الأسبوع السادس عشر	هندسة النحو: قواعد اللغة العربية في لوحة تعليمية ، وتصويبات لغوية

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	• ملزمة اللغة العربية (المعممة من وزارة التعليم العالي والبحث العلمي)	Yes
Recommended Texts	• التعبير القرآني للدكتور فاضل السامرائي.	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*
	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.*