MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Direct Current Circuit Analysis

Module Information معلومات المادة الدراسية					
Module Title	**Direct Current Circuit Analysis**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☒ **Practical** ☒ **Seminar**	
Module Code	**MIE101**				
ECTS Credits	**8**				
SWL (hr/sem)	**202**				
Module Level	**First**		**Semester of Delivery**	**First**	
Administering Department	**Med. Ins. Tech. Eng.**		**College**	**Technical Engineering College**	
Module Leader	**Nasseer Moyasser Basheer**		**e-mail**	**nmbasheer@ntu.edu.iq**	
Module Leader's Acad. Title	**Assistant Professor**		**Module Leader's Qualification**	**Ph.D.**	
Module Tutor	**Name (if available)**		**e-mail**	**E-mail**	
Peer Reviewer Name	**Mohammed S Jarjees**		**e-mail**	**Mohammed.s.jarjees@ntu.edu.iq**	
Scientific Committee Approval Date	**01/06/2023**		**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	To introduce the student to the D.C. circuits topologies starting from the resistor types and how to read its value, to ohm's law and the circuit analysis theorems and laws. Also, the independent and the dependent sources are given. Node, mesh, Kirchhoff's, Thevenin's and Norton's all defined and used to analyze electrical circuits and networks. The conversion between Delta and Wye is given which is quite necessary when the circuit components cannot be categorized as combinations of series and parallel resistors.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Giving the necessary information about the resistor. 2. Introducing electrical quantities, sources, and Ohm's law. 3. Power terms, resistivity, conductivity, and heat effect on the resistor. 4. Electric circuit definitions then Kirchhoff's voltage and current laws. 5. Loops, nodes, sources connections, and resistors different connections. 6. Voltage and current division. Nodal and mesh analysis. 7. Linearity and superposition theorem. 8. Thevenin's to find the current or voltage in a branch. 9. Norton's to find circuit data. 10. Maximum power transfer in electrical sources.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A – Electrical D.C. circuit elements and definitions</u> Defining resistor types, reading, and characteristics. Introducing voltage, current, and power. Explaining dependent and independent voltage and current sources with its internal equivalents. Ohm's Law. Power calculations, resistivity, conductivity and heat effect. [16 hrs] <u>Part B – Circuit analysis by direct manipulation</u> Defining nodes, paths, loops, branches, and meshes. Kirchhoff's current and voltage laws. Finding equivalent resistance for all resistors connections. Voltage and current divisions. Nodal and mesh analysis. [20 hrs] <u>Part C – Circuit analysis by theorems</u> Discussing circuit analysis theorems. Superposition for multi sources circuits. Norton's and Thevenin's for current in a branch. Maximum power transfer for sources optimization, and delta-wye conversion for complicated connections that cannot be minimized by the previous methods. [24 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The strategies needed in this subject are concentrated on enhancing the students thinking horizons so that they get familiar with it and can feel able to manipulate its problems details. This can be achieved by using real life examples, videos, and schemes with many problems to be solved. Also, the student is requested to solve a lot of problems. When this is accompanied by good utilization of the laboratory, students will be able to go through the course successfully.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	**120**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	**8**
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**82**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	**5.56**
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**202**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	4	10% (10)	3, 6, 9, 13	LO #3, #6, #9, #10
	Assignments	-	-	-	-
	Projects / Lab.	15	20% (20)	Continuous	All
	Report	-	-	-	-
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	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	Symbols and abbreviations. Resistor types, and how to read resistors values. Resistor values according to different series.
Week 2	Voltage, current, charge, and power. Independent voltage and current sources. Dependent four types of voltage and current sources. Network and circuit definitions. Ohm's law.
Week 3, 4	Power absorption. Resistivity and Conductivity. Effect of heat on resistance value.
Week 5, 6	Nodes, Paths, Loops, and Branches. Kirchhoff's current and voltage laws.
Week 7	The single loop circuit and, the single node-pair circuit. Series and parallel connected sources. Resistors in series and parallel.

Week 8, 9	Voltage and current division. Nodal analysis, the super node, mesh analysis, the super mesh and, comparison between nodal and mesh analysis.
Week 10,11	Linearity and superposition and, source transformation.
Week 12	Thevenin's equivalent circuit.
Week 13	Norton's equivalent circuit.
Week 14	Maximum power transfer.
Week 15	Delta-Wye conversion.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Materials Covered
Week 1	Lab 1: Basic Information (types of, and how to use the multi-meters. Method of writing the reports).
Week 2, 3, 4	Lab 2, 3, 4: Reading the resistors by color code. Ohm's law. Series and parallel connection. Effect of temperature on resistor value.
Week 5, 6	Lab 5, 6: Mesh analysis. Nodal analysis.
Week 7	Lab 7: Delta-Wye conversion.
Week 8, 9	Lab 8, 9: Thevinin's theorem, with maximum power transfer. Norton's theorem with maximum power transfer.
Week 10	Lab 10: Super position theorem.
Week 11, 12	Lab 11, 12: Effect of internal resistor for voltage source. Effect of internal resistor for current source.
Week 13, 14, 15	Lab 13, 14, 15: Network topology and experimenting simplifying circuits, then checking the steps practically to make sure of ordinary simplification strategies.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	"Engineering Circuit Analysis"; William H. Hayt, Jack E. Kemmerly, and Steven M. Durbin. Eighth edition, 2012, McGraw Hill.	No
Recommended Texts	"Hughes Electrical and Electronic Technology"; Edward Hughes, 10th edition, 2008, Pearson Education Limited.	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	**Physics**			**Module Delivery**	
Module Type	**Support**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☒ **Practical** ☒ **Seminar**	
Module Code	**MIE102**				
ECTS Credits	**7**				
SWL (hr/sem)	**172**				
Module Level	**First**		**Semester of Delivery**	**First**	
Administering Department	**Med. Ins. Tech. Eng.**		**College**	**Technical Engineering College**	
Module Leader	**Wameedh Baraq Edress**		**e-mail**	**wameedh.adress@ntu.edu.iq**	
Module Leader's Acad. Title	**Lecturer**		**Module Leader's Qualification**	**Ph.D.**	
Module Tutor	**Name (if available)**		**e-mail**	**E-mail**	
Peer Reviewer Name	**Mohammed S Jarjees**		**e-mail**	**Mohammed.s.jarjees@ntu.edu.iq**	
Scientific Committee Approval Date	**01/06/2023**		**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	Studying the physical phenomena of the human body and how to deal with its related medical instruments. Understanding the basic principles and physical laws related to the work and functions of the human body.

	Understand the basic principles and physical laws related to medical instrumentations. Familiarize students with physical explanations related to the functioning of the human body. Familiarize students with how to conduct physics experiments that simulate the functioning of the human body.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Demonstrate conceptual understanding of fundamental physics. 2. Understanding of the basic workings of physics in human body. 3. Understand the basic principles and physical laws 4. Familiarize students with physical explanations 5. Familiarize students with how to conduct physics experiments that simulate the functioning of the human body.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Irving P. Herman Physics of the Human Body Second Edition John R. Cameron and James G. Skofronick Medical Physics

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 types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	105	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	67	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.46
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**172**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	6	10% (10)	3,8 and 11	LO #1, #3, #5
	Assignments	8	10% (10)	Continuous	All
	Projects / Lab.	15	10% (10)	Continuous	All
	Report	10	10% (10)	Continuous	All
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	All
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
1	Forces on and in the human body.
2	Physics of the skeleton.
3,4	Heat and cold in medicine.
5,6	Energy , work and power.
7	Sound in medicine and physics of hearing.
8	Light in medicine
9	Introduction to physical and engineering optics
10	Laser physics and laser in medicine
11	Physics of vision
12	Physics of x-rays.
13	introduction to nuclear radiation
14,15	Radiation protection

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
1	Forces and Motion
2	The Simple Pendulum
3,4	Hooke's Law
5	Masses and Springs
6	Mechanism of Friction
7	Sound properties
8	Light properties
9,10	Geometric Optics, Converging Lenses
11,12	Geometric Optics, Diverging Lenses
13	Geometric Optics, types of Mirrors
14,15	Geometric Optics, Bending of light

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Irving P. Herman Physics of the Human Body Second Edition	No
Recommended Texts	John R. Cameron and James G. Skofronick Medical Physics	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/physics-and-astronomy	

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**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	**MIE103**				
ECTS Credits	**6**				
SWL (hr/sem)	**152**				
Module Level	**First**		**Semester of Delivery**	**First**	
Administering Department	**Med. Ins. Tech. Eng.**		**College**	**Technical Engineering College**	
Module Leader	**Layth Taha Khudhuir**		**e-mail**	**Layth.t.k@ntu.edu.iq**	
Module Leader's Acad. Title	**Assistant Lecturer**		**Module Leader's Qualification**	**MASTER**	
Module Tutor	**Name (if available)**		**e-mail**	**E-mail**	
Peer Reviewer Name	**Mohammed S Jarjees**		**e-mail**	**Mohammed.s.jarjees@ntu.edu.iq**	
Scientific Committee Approval Date	**01/06/2023**		**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	Introduce students and teach them some basics of mathematics (derivatives, integration, matrices and related topics) in this course. Where these subjects can be taught through advanced subjects in mathematics, as well as these mathematical subjects are related to the study of some engineering subjects that exist in all stages Department of Medical Instrumentation Techniques Engineering.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize how to use mathematics in the educational program.. 2. List the different mathematical symbols associated with the curriculum. 3. Summarize what is meant by the derivative 4. Summarize what is meant by integration 5. Summarize what is meant by matrix 6. Discuss the derivative on how to find it using the definition 7. Describe the integral, the derivative and the matrix. 8. Identify The Trigonometric functions and derivatives of a trigonometric function. 9. Identify The Inverse trigonometric functions and derivatives of inverse functions. 10. Discuss the Matrix properties, and operations 11. Explain Solving linear System equations using the inverse of the coefficient matrix and Cramer's rule.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A -The Theory of Derivative •Limits and Continuous. Derivative by using the definition. Rule of derivative and Higher derivative. Implicit derivative and Chain rule. Transcendental functions. The Trigonometric functions and derivatives of a trigonometric function. The Inverse trigonometric functions and derivatives of inverse functions.[15 hrs] •The logarithms and the exponential functions with derivatives. Application of derivative. Concavity and Curve Sketching. Applied Optimization. Related Rates.[15 hrs] Part B - The Theory of Integration •The definite and indefinite integration. Integral of transcendental functions. Integration of trigonometric Functions. Integration of inverse trigonometric functions.[15 hrs] •Integration of exponential and logarithmic functions. Methods of integration. Integration by parts. Applications of integral : Area. [15 hrs] Part C – The Linear Algebra •Matrix, properties, and operations. Determinants and properties of determinants [10 hrs] •Inverse of square matrix by determinants. Solving linear System equations using the inverse of the coefficient matrix and Cramer's rule[10 hrs] •Eigenvalues . Eigenvectors [10 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy: -cooperative learning

	-Brainstorming -Dialogue and discussion. -Cooperative learning. -Solving mathematical problems 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 types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	90	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.13
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**152**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	6	10% (10)	continuous	LO #1,3, 5, 8,10 ,12
	Assignments	7	10% (10)	2,4,6,8,10,12,14	LO #1,3, 5, 8,10
	Lab	0	0	-	-
	Report	0	0	-	-
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO from #1 to 5
	Final Exam	3hr	60% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered

Week 1
+Week 2
+Week 3
+Week 4
+Week 5
	The Theory of Derivative
	• Limits and Continuous
	• Derivative by using the definition.
	• Rule of derivative and Higher derivative.
	• Implicit derivative and Chain rule.
	• Transcendental functions
	  • The Trigonometric functions and derivatives of a trigonometric function.
	  • The Inverse trigonometric functions and derivatives of inverse functions.
	  • The logarithms and the exponential functions with derivatives.
	• Application of derivative.
	• Concavity and Curve Sketching
	• Applied Optimization.
	• Related Rates.

Week 6 **+Week 7** **+Week 8** **+Week 9** **+Week 10**	The Theory of Integration • The definite and indefinite integration. • Integral of transcendental functions: • Integration of trigonometric Functions. • Integration of inverse trigonometric functions. • Integration of exponential and logarithmic functions. • Methods of integration. • Integration by parts. • Applications of integral: • Area.
Week 11 **+Week 12** **+Week 13** **+Week 14**	The Linear Algebra • Matrix, properties, and operations • Determinants and properties of determinants • Inverse of square matrix by determinants • Solving linear System equations using the inverse of the coefficient matrix and Cramer's rule • Eigenvalues . Eigenvectors
Week 15	• End of course exam.

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1.Thomas_Calculus_by_George_B_Thomas, _Joel_R_Hass, _Christopher_Heil.2018. 2.Linear Algebra, Serge Lang, 1987	Yes No
Recommended Texts	Advanced Engineering Mathematics, Erwin Kreyszig. 2010	Yes
Websites	1. https://www.google.iq/books/edition/Thomas_Calculus/U6kZvgAACAAJ?hl=ar 2.https://www.google.iq/books/edition/Linear_Algebra/0DUXym7QWfYC?hl=ar&gbpv=1&dq=linear+algebra&printsec=frontcover	

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	**Supported**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☒ **Practical** ☒ **Seminar**	
Module Code	**MIE104**				
ECTS Credits	**4**				
SWL (hr/sem)	**98**				
Module Level	**First**	**Semester of Delivery**	**First**		
Administering Department	**Med. Ins. Tech. Eng.**	**College**	**Technical Engineering College**		
Module Leader	**Raid Rafi Omar**	**e-mail**	**raidrafi3@ntu.edu.iq**		
Module Leader's Acad. Title	**Assistant Professor**	**Module Leader's Qualification**	**Ph.D.**		
Module Tutor	**Name (if available)**	**e-mail**	**E-mail**		
Peer Reviewer Name	**Mohammed S Jarjees**	**e-mail**	**Mohammed.s.jarjees@ntu.edu.iq**		
Scientific Committee Approval Date	**01/06/2023**	**Version Number**	**1.0**		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	N/A	**Semester**	1
Co-requisites module	N/A	**Semester**	1

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. Studying computer principles. 2. Defining keyboards and mice. 3. Presenting principles of memories. 4. Explaining disc drives. 5. Explaining principles of windows. 6. Illustrating accessories of windows.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Abilities to recognize different computer hardware parts. 2. Defining various types of keyboards and mice. 3. Getting knowledge about computer memories and drives. 4. Getting knowledge about windows. 5. Presenting different windows accessories.
Indicative Contents المحتويات الإرشادية	• Indicative content includes the following. • Computer types of: digital, analogues and hybrid. • Different memory types of: RAM, ROM, PROM, EPROM and EEPROM. • Different drives types of: magnetic and optical. • Windows facilities of: Notepad, Wordpad, Paint, Accessories and others.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Strategies that will be adopted for delivering this module are theoretical lectures, practical experiments, home works and exams. This will be achieved through classes, interactive tutorials and by considering practical experiments.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	38	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.53
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**98**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	N/A	LO #2, #4
	Assignments	8	10% (10)	10	LO #1, #3, #5
	Projects / Lab.	15	10% (10)	Continuous	All
	Report	0	0% (0)	N/A	N/A
Summative assessment	**Midterm Exam**	2hr	20% (20)	10	All
	Final Exam	3hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
1st	**Introducing to the Computer System Including: What is Computer? Computer System, Functions of Computer Input Storage Process & Output, Classification of Computers and Computer Units**
2nd, 3rd, 4th	**Explaining Types of Computer Keyboards and Types of Keyboard Keys**
5th	**Explaining Types of Computer Mice and Mouse Functions**
6th	**Explaining Different Plugs and Ports for Some Computer Parts**
7th	**Illustrating Computer Discs and Drives**
8th	**Illustrating RAM, Non-Volatile and Cache Memories**
9th, 10th, 11th	**Demonstrating Computer Hardware Parts and Definitions**
12th, 13th	**Presenting Windows, Windows Desktop and Windows Taskbar**
14th, 15th	**Illustrating Start Menu and Windows Accessories**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
1st	**Introducing to the Computer System Including: What is Computer?, Computer System, Functions of Computer Input Storage Process & Output, Classification of Computers and Computer Units**
2nd, 3rd, 4th	**Explaining Types of Computer Keyboards and Types of Keyboard Keys**
5th	**Explaining Types of Computer Mice and Mouse Functions**
6th, 7th	**Explaining Different Plugs and Ports for Some Computer Parts, and Illustrating Computer Discs and Drives**
8th	**Illustrating RAM, Non-Volatile and Cache Memories**
9th, 10th, 11th, 12th	**Demonstrating Computer Hardware Parts and Definitions, and Presenting Windows, Windows Desktop and Windows Taskbar**
13th, 14th, 15th	**Illustrating Start Menu and Windows Accessories**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	[1] Umar Farooq, "What is Computer - Definition & Basic Concept of Computer", Study Lecture Notes, 2016. [2] University Information Technology Services, "Microsoft Windows 10, Getting Started Guide", Kennesaw State University – UITS, 2016.	In the internet
Recommended Texts	Cre8te Opportunities, "Introduction to Computers (Windows 10)", Digital Skills Academy, 2016.	In the internet
Websites	[1] http://www.studylecturenotes.com/computer-science/what-is-computer-definition-basic-concept-of-computer [2] http://ergonomictrends.com/different-types-of-computer-keyboards/ [3] UKEssays, "Wireless Mouse: History and Types", 2018. [Online]. Available: https://www.ukessays.com/essays/computer-science/wireless-mouse-history-types-5302.php?vref=1. [4] https://searchstorage.techtarget.com/definition/RAM-random-access-memory [5] https://tldp.org/HOWTO/Network-boot-HOWTO/a610.html#:~:text=PROM%3A%20Pronounced%20prom%2C%20an%20acronym,the%20computer%20is%20turned%20off.	

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 1**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	**MIE105**				
ECTS Credits	**3**				
SWL (hr/sem)	**86**				
Module Level		**First**	**Semester of Delivery**		**First**
Administering Department		**Med. Ins. Tech. Eng.**	**College**	**Technical Engineering College**	
Module Leader	**Marwa Mawfaq Mohamedsheet**		**e-mail**	**Marwa.alhatab@ntu.edu.iq**	
Module Leader's Acad. Title		**Assist. lecturer**	**Module Leader's Qualification**		**Master**
Module Tutor	**Name (if available)**		**e-mail**	**E-mail**	
Peer Reviewer Name		**Mohammed S Jarjees**	**e-mail**	**Mohammed.s.jarjees@ntu.edu.iq**	
Scientific Committee Approval Date		**01/06/2023**	**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	The objectives of this course are to assess language proficiency levels, build foundational grammar and vocabulary, develop speaking and writing skills, expand vocabulary, and consolidate learning and assess progress. Through a diagnostic assessment, students' proficiency levels will be determined, allowing

	for tailored instruction. The course will review and reinforce basic grammar concepts and vocabulary while focusing on developing speaking and writing abilities through various activities. Vocabulary expansion will be achieved by introducing new words and expressions. Finally, the course will consolidate learning through listening tasks, speaking practice, and a final exam to assess students' progress and proficiency.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Gain a solid understanding of basic grammar concepts and tenses, including present simple, past simple, present continuous, future simple, adjectives and adverbs, comparatives and superlatives, present perfect, modal verbs, reported speech, and conditional sentences. 2. Expand vocabulary related to daily routines, past events, future plans, descriptions of people and places, achievements, obligations, and hypothetical situations. 3. Develop effective speaking skills through regular practice in expressing personal experiences, describing routines and habits, discussing future plans, giving advice, and engaging in conversations. 4. Enhance reading comprehension abilities by understanding and interpreting texts on various topics, including personal anecdotes, future technologies, comparisons, and reported speech. 5. Improve writing skills through exercises in narrating memorable experiences, expressing future goals, describing people and places, writing advice letters or emails, and crafting hypothetical scenarios.
Indicative Contents المحتويات الإرشادية	Part A: 1. Introduction to the course and syllabus (2 hour) 2. Diagnostic assessment to determine language proficiency levels (1hours) 3. Review of basic grammar concepts and vocabulary (2 hours) 4. Speaking practice: Introducing oneself and interacting with classmates (1 hour) 5. Grammar focus on various topics(10 hours): a. Present simple tense b. Past simple tense c. Present continuous tense d. Future simple tense e. Adjectives and adverbs f. Comparatives and superlatives g. Present perfect tense h. Modal verbs i. Reported speech j. Conditional sentences 6. Vocabulary expansion related to the grammar topics (2 hours) 7. Listening comprehension exercises to improve listening skills (2 hours)

	8. Writing practice: Narrating personal experiences and expressing future goals (2 hours) Part B: 9. Reading comprehension exercises with texts relevant to the grammar topics (2 hours) 10. Final exam to assess language proficiency (2 hours) 11. Various speaking practice activities throughout the course (2 hours) 12. Review and consolidation of learned grammar and vocabulary (2 hours)
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Diagnostic Assessment: Conduct an initial assessment to determine the language proficiency levels of students and tailor the instruction accordingly. 2. Review of Basic Grammar and Vocabulary: Begin with a review of fundamental grammar concepts and vocabulary to ensure a strong foundation for further language development. 3. Speaking Practice: Provide opportunities for students to practice speaking by introducing themselves, getting to know classmates, and engaging in discussions on various topics. 4. Grammar Focus: Introduce and practice different grammar tenses and structures, such as present simple, past simple, present continuous, future simple, adjectives, adverbs, comparatives, superlatives, present perfect, modal verbs, reported speech, and conditional sentences. 5. Vocabulary Expansion: Expand students' vocabulary through themed units, such as daily routines, past events, current actions, future plans, describing people and places, comparisons, personal achievements, everyday situations, conversation expressions, and hypothetical scenarios. 6. Listening and Reading Comprehension: Enhance listening and reading skills through exercises and texts that cover a range of topics, including daily life, personal anecdotes, future technologies, comparisons, and reported speech. 7. Writing Practice: Develop writing skills through activities such as narrating memorable experiences, writing about future goals, describing people and places, sharing personal achievements, writing advice letters or emails, and expressing hypothetical scenarios.

	8. Review and Consolidation: Dedicate time for reviewing and consolidating grammar concepts, vocabulary, listening skills, and speaking skills through comprehensive exercises, role plays, and discussions.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	45	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	41	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.73
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**86**		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	10% (10)	continuous	LO #1, 2, 3,
	Assignments	5	10% (10)	2,4,6,8,12	LO #1,2,3,4
	Lab	0	0	-	-
	Report	0	0	-	-
Summative assessment	**Midterm Exam**	2hr	20% (20)	13	LO #1,2,3
	Final Exam	3hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to the course and syllabus ✓ Diagnostic assessment to determine language proficiency levels ✓ Review of basic grammar concepts and vocabulary Speaking practice: Introducing oneself and getting to know classmates
Week 2	Grammar focus: Present simple tense and frequency adverbs ✓ Vocabulary expansion: Daily routines and activities ✓ Listening comprehension: Conversations about daily life ✓ Speaking practice: Describing daily routines and habits
Week 3	Grammar focus: Past simple tense (regular and irregular verbs)

	✓ Vocabulary expansion: Past events and experiences ✓ Reading comprehension: Texts about personal anecdotes ✓ Writing practice: Narrating a memorable experience
Week 4	Grammar focus: Present continuous tense ✓ Vocabulary expansion: Current actions and temporary situations ✓ Speaking practice: Describing ongoing activities and future plans Writing practice: Writing about future goals and aspirations
Week 5	Grammar focus: Future simple tense and expressing future plans ✓ Vocabulary expansion: Future events and predictions ✓ Reading comprehension: Texts about future technologies ✓ Speaking practice: Discussing future plans and aspirations
Week 6	Grammar focus: Adjectives and adverbs ✓ Vocabulary expansion: Describing people, places, and things ✓ Speaking practice: Describing people and objects ✓ Writing practice: Describing a place or person
Week 7	Grammar focus: Comparatives and superlatives ✓ Vocabulary expansion: Describing size, quantity, and quality ✓ Reading comprehension: Texts comparing different products or places Speaking practice: Comparing and contrasting objects or places
Week 8	Grammar focus: Present perfect tense ✓ Vocabulary expansion: Personal achievements and life events ✓ Speaking practice: Sharing personal experiences and achievements Writing practice: Writing about memorable moments
Week 9	Grammar focus: Modal verbs (ability, possibility, necessity) ✓ Vocabulary expansion: Everyday situations and obligations ✓ Speaking practice: Giving advice and suggestions Writing practice: Writing advice letters or emails
Week 10	Grammar focus: Reported speech (statements and questions) ✓ Vocabulary expansion: Conversation and dialogue expressions ✓ Reading comprehension: Texts featuring reported speech ✓ Speaking practice: Practicing reported speech in different contexts
Week 11	Grammar focus: Conditional sentences (zero, first, and second conditionals) ✓ Vocabulary expansion: Hypothetical situations and consequences ✓ Speaking practice: Discussing hypothetical situations and giving advice Writing practice: Writing about hypothetical scenarios
Week 12 **Week 13**	Review of grammar concepts and tenses covered so far ✓ Vocabulary expansion: Review and consolidation of vocabulary ✓ Listening skills: Listening to dialogues and answering comprehension questions ✓ Speaking practice: Reviewing and applying learned language skills
Week 14 **Week 15**	Review and consolidation of grammar and vocabulary ✓ Speaking practice: Role plays and discussions on various topics

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1. "English Grammar in Use" by Raymond Murphy: A comprehensive grammar reference book that covers essential grammar concepts and provides clear explanations and practice exercises. 2. "Oxford Wordpower Dictionary" by Oxford University Press: A reliable dictionary for expanding vocabulary and understanding word meanings in context.	No
Recommended Texts	1. "English Vocabulary in Use" by Michael McCarthy and Felicity O'Dell: A vocabulary resource book that offers a wide range of vocabulary exercises and activities to enhance vocabulary acquisition. 2. "Cambridge IELTS Series" or "Official Guide to the TOEFL Test": Test preparation books that include practice tests and strategies for the IELTS or TOEFL exams, depending on the course focus.	No
Websites	1. Duolingo (www.duolingo.com): A popular language learning platform that offers interactive exercises and gamified lessons for grammar and vocabulary practice. 2. BBC Learning English (www.bbc.co.uk/learningenglish): A website providing a variety of English learning resources, including grammar lessons, vocabulary exercises, and listening practice.	

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**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	**MIE106**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	**First**		**Semester of Delivery**	**First**	
Administering Department	**Med. Ins. Tech. Eng.**		**College**	**Technical Engineering College**	
Module Leader	**Eesha Ibrahim Mohammed**		**e-mail**	**aysha.ibrahim@ntu.edu.iq**	
Module Leader's Acad. Title	**Assistant Professor**		**Module Leader's Qualification**	**PHD**	
Module Tutor	**Name (if available)**		**e-mail**	**E-mail**	
Peer Reviewer Name	**Mohammed S Jarjees**		**e-mail**	**Mohammed.s.jarjees@ntu.edu.iq**	
Scientific Committee Approval Date	**01/06/2023**		**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	تهدف الديمقراطية وحقوق الانسان للحفاظ على كرامة الفرد وحقوقه الأساسية وتعزيزها كما تحقيق العدالة الاجتماعية وتشجيع التنمية الاقتصادية والاجتماعية للمجتمع وتماسكه فضلا عن توطيد الأمان الوطني وإرساء مناخ مؤات للسلام الدولي وذلك لان حقوق الانسان والديمقراطية مرجعاً أساسياً للجميع لحماية حقوق الإنسان؛ وهي توفر بيئة لحماية حقوق الإنسان وإعمالها إعمالاً فعلياً. واليوم، بعد مضي فترة على تحقيق الديمقراطية في مختلف أنحاء العالم، يبدو أن العديد من النظم الديمقراطية تتراجع. ويظهر أن بعض الحكومات تتعمد إضعاف إجراء عمليات تحقق مستقلة بشأن سلطاتها، والقضاء على أي نقد، وتفكيك الرقابة الديمقراطية وضمان حكمها لمدة طويلة، مع أثر سلبي على حقوق الشعب.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1 - فهم ومعرفة وأدراك حقوقه التي اقرها الله له وللبشر جميعاً وبالتالي فهي هبه وليس مكسب من أحد ولا يحق لأي شخص انتزاعها. 2- يعبر الطالب بأسلوبه الخاص عن هذه الحقوق ويدافع عنها. 3- تعليل الظواهر واعطاء التفسيرات لما يحدث امامه من انتهاك لحقوق الانسان وحرياته من خلال تحديد اوجه النقص او الثغرات الموجودة في ضوء المعلومات المتوفرة لديه

	4- فهم اهم النظم السياسية والتي تعد ضمانه لحقوق الانسان وحرياته السياسية ومحاولة تطبيقه على ارض الواقع الا وهو النظام الديمقراطي.
Indicative Contents المحتويات الإرشادية	حقوق الانسان في التاريخ المعاصر والحديث: الاعتراف الدولي بحقوق الانسان منذ الحرب العالمية الأولى وعصبة الامم المتحدة حقوق الانسان، تعريفها، اهدافها وحقوق الانسان في الحضارات القديمة وخصوصا حضارة وادي الرافدين ضمانات واحترام وحماية حقوق الانسان على الصعيد الدولي: دور الأمم المتحدة ووكالاتها المتخصصة في توفير الضمانات دور المنظمات الاقليمية (الجامعة العربية، الاتحاد الأوربي، الاتحاد الافريقي، منظمة الدول الأمريكية، منظمة آسيان) دور المنظمات الدولية الاقليمية غير الحكومية والرأي العام في احترام وحماية حقوق الانسان المشاكل والمعوقات ونقاشات الطلبة

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	1-استراتيجية المناقشة 2-استراتيجية مهارة التفكير العالية 3-استراتيجية التفكير الناقد في التعلم 4-العصف الذهني

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	30	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	20	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.33
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, 2, 10 and 11
	Assignments	0	0	-	-
	Projects / Lab.	0	0	-	-
	Report	0	0	-	-
Summative assessment	**Midterm Exam**	1 hr	30% (20)	7	LO # 1-7
	Final Exam	3 hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	حقوق الانسان، تعريفها، اهدافها حقوق الانسان في الحضارات القديمة وخصوصا حضارة وادي الرافدين
Week 2	حقوق الانسان في الشرائع السماوية مع التركيز على حقوق الانسان في الإسلام
Week 3	حقوق الانسان في التاريخ المعاصر والحديث : الاعتراف الدولي بحقوق الانسان منذ الحرب العالمية الأولى وعصبة الامم المتحدة

Week 4	الاعتراف الاقليمي بحقوق الانسان : الاتفاقية الاوربية لحقوق الانسان 1950 ، الاتفاقية الامريكية لحقوق الانسان 1969 ، الميثاق الافريقي لحقوق الانسان 1981 ، الميثاق العربي لحقوق الانسان 1994
Week 5	حقوق الانسان في التاريخ المعاصر والحديث : الاعتراف الدولي بحقوق الانسان منذ الحرب العالمية الأولى وعصبة الامم المتحدة
Week 6	حقوق الانسان في الدساتير العراقية بين النظرية والواقع
Week 7	حقوق الانسان الاقتصادية والاجتماعية والثقافية و حقوق الانسان المدنية والسياسية
Week 8	حقوق الانسان الحديثة : الحقائق في التنمية ، الحق في البيئة النظيفة ، الحق في التضامن ، الحق في الدين
Week 9	ضمانات احترام وحماية حقوق الانسان على الصعيد الوطني ، الضمانات في الدستور والقوانين الضمانات في الرقابة الدستورية ، الضمانات في حرية الصحافة والرأي العام ، دور المنظمات غير الحكومية في احترام وحماية حقوق الانسان
Week 10	ضمانات واحترام وحماية حقوق الانسان على الصعيد الدولي : دور الأمم المتحدة ووكالاتها المتخصصة في توفير الضمانات دور المنظمات الاقليمية (الجامعة العربية ، الاتحاد الأوربي ، الاتحاد الافريقي ، منظمة الدول الأمريكية ، منظمة آسيان) دور المنظمات الدولية الاقليمية غير الحكومية والرأي العام في احترام وحماية حقوق الانسان
Week 11	مصطلح الديمقراطية ، نشأته، دلالته، تاريخ الديمقراطية.
Week 12	الاسلام والديمقراطية ومساوئ الحكم الاستبدادي .
Week 13	الانتقادات الموجهة للديمقراطية، ومحاسن النظام الديمقراطي.
Week 14, 15	الأنظمة الديمقراطية في العالم/الديمقراطية في العالم الثالث/ المشاكل التي تواجه البلدان العربية في التحول الديمقراطي

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	حقوق الانسان والديمقراطية – المفاهيم والمرتكزات للدكتور سماح مهدي العلياوي والدكتور سلمان كاظم البهادلي	Yes
Recommended Texts	الديمقراطية وحقوق الانسان في الاسلام للدكتور راشد الغنوشي	No
Websites	https://www.neelwafurat.com https://studies.aljazeera.ne	

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	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB 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

Alternating Current Circuit Analysis

Module Information معلومات المادة الدراسية					
Module Title	**Alternating Current Circuit Analysis**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☒ **Practical** ☒ **Seminar**	
Module Code	**MIE107**				
ECTS Credits	**8**				
SWL (hr/sem)	**202**				
Module Level	**First**		**Semester of Delivery**	**Second**	
Administering Department	**Med. Ins. Tech. Eng.**		**College**	**Technical Engineering College**	
Module Leader	**Nasseer Moyasser Basheer**		**e-mail**	**nmbasheer@ntu.edu.iq**	
Module Leader's Acad. Title	**Assistant Professor**		**Module Leader's Qualification**	**Ph.D.**	
Module Tutor	**Name (if available)**		**e-mail**	**E-mail**	
Peer Reviewer Name	**Mohammed S Jarjees**		**e-mail**	**Mohammed.s.jarjees@ntu.edu.iq**	
Scientific Committee Approval Date	**01/06/2023**		**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	This course aims to introduce the electrical components other than the resistor to the student. Starting by knowing their structure and how they respond to the electrical or magnetic fields, then establishing their current voltage relationships, and time constants. Also introducing the principle of Alternating Current (A.C.) generating, wave characteristics and the components response to the sine wave. The power triangle is of great importance in such circuits so it should be

	considered also. Also studying the three phase systems being with wide range of applications, with balanced and un-balanced loads.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Introduction to capacitors and inductors with integral v or I relationships. 2. Connections combinations of capacitors and inductors. 3. Unit-step and rectangular pulse functions, with natural and forced responses. 4. The laws needed to analyze RLC circuits. 5. An introduction to Electromagnetics. 6. Duality between magnetic circuit and Electric circuit. 7. Generating sine waves, generator principles. 8. The mean, and RMS of different signals. 9. The power considerations in A.C. circuits. 10. The poly-phase circuits. 11. Balanced and Unbalanced three phase loads with power considerations.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A - AC circuits components and sine waves</u> This part shows the AC circuit components, the capacitor and the inductor regarding their construction and their behavior in response to the AC signal, the voltage and current integral relationships and their physical meanings. Introducing the unit-step function and the rectangular pulse function. The combinations include RC, RL, and RLC. [20 hrs] Electromagnetics and sine waves: Principles of electromagnetics and sine wave generation. Comparison with electrical circuits, mean and RMS calculation. [20 hrs] <u>Part B-Power calculations and poly-phase circuits</u> Instantaneous power calculation, active power, apparent power …etc. Single phase, Poly phase, and three phase systems. Balanced and unbalanced three phase systems. [20 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The strategies needed in this subject are concentrated on enhancing the students thinking horizons so that they get familiar with it and can feel able to manipulate its problems details. This can be achieved by using real life examples, videos, and schemes with many problems to be solved. Also, the student is requested to solve a lot of problems. When this is accompanied by good utilization of the laboratory, students will be able to go through the course successfully.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	**120**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	**8**
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**82**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	**5.56**
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**202**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	4	5% (5)	3, 6, 9, 13	LO #3, #6, #9, #11
	Assignments	5	5% (5)	2, 5, 7, 11	LO #2, #5, #7
	Projects / Lab.	15	10% (10)	Continuous	All
	Report	15	10% (10)	Continuous	All
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	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	Capacitors, integral voltage current relationships, energy storage.
Week 2	Inductors, integral voltage current relationships, energy storage.
Week 3	Inductors and capacitors combinations (series and, parallel), linearity and duality.
Week 4	The unit-step function, physical sources and the unit-step, the rectangular pulse function, driven RL circuits, driven RC circuits. Natural and forced responses.
Week 5	The RLC circuit.
Week 6	Electromagnetics.
Week 7, 8	Similarity in principles in simplifying magnetic circuits, with electric circuits.
Week 9	Generation of alternating current. The sinusoidal current.
Week 10	The mean and effective values of current and voltage.
Week 11	The instantaneous power and, mean power of AC relatives. Apparent power.
Week 12	Poly-phase and three phase systems.
Week 13	The power in balanced phase circuits.
Week 14, 15	Unbalanced Wye and Delta loads, the rotating magnetic field.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1, 2	Lab 1, 2: Principles and block diagram of the oscilloscope. Operating the Oscilloscope.
Week 3	Lab 3: Using the oscilloscope to measure DC, AC sine wave, average, and root mean square values.
Week 4, 5	Lab 4, 5: RC circuit time constant. RL circuit time constant.
Week 6	Lab 6: RLC circuits.
Week 7, 8	Lab 7, 8: RC circuit response to sine waves. RL circuits response to sine waves. (Phasor diagram, etc)
Week 9, 10	Lab 9, 10: RLC response to sine waves (Phasor diagram and power triangle).
Week 11, 12	Lab 11, 12: Balanced three phase loads with different loads, pure resistive, capacitive, and inductive. Then combination of loads. Giving all power considerations.
Week 13, 14, 15	Lab 13, 14, 15: Un-balanced three phase loads, with different pure loads and combinations of them. Giving load measurements and neutral current measurement.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	"Engineering Circuit Analysis"; William H. Hayt, Jack E. Kemmerly, and Steven M. Durbin. Eighth edition, 2012, McGraw Hill.	No
Recommended Texts	"Hughes Electrical and Electronic Technology"; Edward Hughes, 10th edition, 2008, Pearson Education Limited.	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

Mechanics

Module Information معلومات المادة الدراسية					
Module Title	**Mechanics**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	**MIE108**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	**First**		**Semester of Delivery**	**Second**	
Administering Department	**Med. Ins. Tech. Eng.**		**College**	**Technical Engineering College**	
Module Leader	**Layth Taha Khudhuir**		**e-mail**	**layth.t.k@ntu.edu.iq**	
Module Leader's Acad. Title	**Assistant Lecturer**		**Module Leader's Qualification**	**MASTER**	
Module Tutor	**Name (if available)**		**e-mail**	**E-mail**	
Peer Reviewer Name	**Mohammed S Jarjees**		**e-mail**	**Mohammed.s.jarjees@ntu.edu.iq**	
Scientific Committee Approval Date	**01/06/2023**		**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	Module Objectives for Engineering Mechanics/Statics: 1. Understand the fundamental concepts and principles of Statics, including motion, forces, and acceleration. 2. Apply kinematic equations to analyze the motion of particles and rigid bodies in various scenarios. 3. Determine the relationship between forces, mass, and acceleration using Newton's laws of motion. 4. Apply the principles of work and energy to analyze and solve dynamic problems. 5. Analyze and calculate linear and angular momentum, and apply the principle of impulse and momentum to dynamic systems. 6. Understand and apply the principles of vibrations and oscillations in mechanical systems.

	7. Apply principles of balancing rotating masses and vibrations to ensure smooth operation of machinery. 8. Analyze multi-degree of freedom systems and determine their natural frequencies and mode shapes. 9. Apply dynamic principles to real-world engineering problems and systems. 10. Develop critical thinking and problem-solving skills in the context of engineering Statics. 11. Communicate effectively, both orally and in writing, to present and explain the analysis, results, and solutions of dynamic problems. By achieving these module objectives, students will gain a comprehensive understanding of the principles and applications of engineering Statics. They will be able to analyze and solve problems related to motion, forces, and vibrations in mechanical systems, and apply their knowledge to real-world engineering scenarios. They will also develop skills in critical thinking, problem-solving, and effective communication, which are valuable in the field of engineering.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Apply fundamental concepts of engineering mechanics/statics to analyze and solve problems related to the equilibrium of rigid bodies. 2. Demonstrate a deep understanding of vector mathematics and its application in statics, including vector addition, subtraction, dot product, and cross product. 3. Apply the principles of static equilibrium to solve problems involving forces and moments acting on rigid bodies in two and three dimensions. 4. Analyze and calculate the internal forces, such as axial forces, shear forces, and bending moments, in statically determinate structures using methods such as the method of sections and the method of joints. 5. Utilize free-body diagrams to model and analyze the forces acting on a structure or a rigid body, and determine the resultant forces and moments at specific points. 6. Analyze and calculate the centroid and moment of inertia of various two-dimensional shapes, including rectangles, triangles, and circles, and apply these concepts to determine the stability and strength of structures. 7. Apply the concepts of friction and its effects on the equilibrium of bodies in statics, including calculating static and kinetic friction forces and determining the angle of friction. 8. Analyze and calculate the forces in trusses and frames, including the method of joints and the method of sections, and determine the stability and structural integrity of these systems. 9. Apply the principles of equilibrium to solve real-world engineering problems, such as determining the stability of structures, calculating the forces on supports and connections, and analyzing the behavior of mechanical systems. 10. Communicate effectively, both orally and in writing, to present and explain the analysis, results, and solutions of engineering mechanics/statics problems. By achieving these module learning outcomes, students will develop a strong foundation in engineering mechanics/statics and be equipped with the necessary knowledge and skills to analyze and solve a wide range of engineering problems involving static equilibrium and structural stability.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Introduction to Statics ● Definition and scope of statics ● Fundamental concepts and principles ● Importance of statics in engineering 2. Vectors and Vector Analysis ● Vector representation and operations ● Vector components and coordinate systems ● Vector addition, subtraction, and scalar multiplication

	3. Forces and Moments • Forces and their characteristics • Resultant and equilibrium of forces • Moment of a force and its properties • Couples and their effects 4. Equilibrium of Rigid Bodies • Free body diagrams and force analysis • Equations of equilibrium in two and three dimensions • Solving equilibrium problems using scalar and vector approaches • Applications to simple systems and structures 5. Truss Structures • Introduction to truss analysis • Method of joints and method of sections • Determination of member forces and support reactions 6. Friction • Laws of friction and frictional forces • Types of friction and their characteristics • Calculation of frictional forces and moments • Applications to inclined planes, wedges, and screws 7. Center of Gravity and Centroids • Definitions and properties of center of gravity and centroids • Determination of center of gravity and centroids of simple shapes • Composite bodies and distributed loads 8. Moments of Inertia • Moment of inertia and its physical significance • Calculating moments of inertia for simple shapes • Parallel-axis and perpendicular-axis theorems • Application of moments of inertia in engineering analysis

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 types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	40	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.66
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**	4	5% (5)	5, 7, 9, 13	LO #2, #3, #5, #8
	Assignments	5	10% (10)	2, 6, 8, 10, 14	LO #1, #4, #6, #7, #9
	Projects / Lab.	-	-	-	-
	Report	1	5% (5)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO #1 - #5
	Final Exam	3hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction, Fundamental Concepts, Units Conversion, Scalar and Vector Quantities.
Week 2-4	Resultant force Resolution & Composition of Forces. Triangle & parallelogram law
Week 5	Addition of a System of Coplanar Forces: Scalar Notation, Cartesian Vector Notation
Week 6-7	Equilibrium of a Particle
Week 8	Moment of a Force, Varignon Theorem.
Week 9	Moment of a Couple
Week 10-11	Equilibrium of a Rigid Body
Week 12	Distributed loads.
Week 13, 14	Friction, Centroid,
Week 15	First moment of area. Area moment of inertia, Second moment of area.

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Engineering Mechanics/ Statics, Fourteen Edition	yes
Recommended Texts	1- Engineering Mechanics , Ferdinand L. Singer 2- Engineering Mechanics/ Statics, Arthur P. Boresi & Richard J. Schmidt	No

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	**Medical Physics**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☒ **Practical** ☒ **Seminar**	
Module Code	**MIE109**				
ECTS Credits	**7**				
SWL (hr/sem)	**172**				
Module Level	**First**	**Semester of Delivery**	**First**		
Administering Department	**Med. Ins. Tech. Eng.**	**College**	**Technical Engineering College**		
Module Leader	**Wameedh Baraq Edress**	**e-mail**	**wameedh.adress@ntu.edu.iq**		
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**Ph.D.**		
Module Tutor	**Name (if available)**	**e-mail**	**E-mail**		
Peer Reviewer Name	**Mohammed S Jarjees**	**e-mail**	**Mohammed.s.jarjees@ntu.edu.iq**		
Scientific Committee Approval Date	**01/06/2023**	**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	Studying the physical phenomena of the human body and how to deal with its related medical instruments. Understanding the basic principles and physical laws related to the work and functions of the human body. Understand the basic principles and physical laws related to medical instrumentations. Familiarize students with physical explanations related to the functioning of the human body. Familiarize students with how to conduct physics experiments that simulate the functioning of the human body.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Demonstrate conceptual understanding of fundamental physics and medical physics principles. 2. Study of physics promotes understanding of the basic workings of physics in human body. 3. Understanding of the basic workings of physics in human body. 4. Familiarize students with how to conduct physics experiments that simulate the functioning of the human body.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Irving P. Herman Physics of the Human Body Second Edition John R. Cameron and James G. Skofronick Medical Physics

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 types of simple experiments involving some sampling activities that are interesting to the students.

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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	105	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	67	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.46
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**172**		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	6	5% (5)	3,8 and 11	LO #2,#3 and, #4
	Assignments	8	10% (10)	3,4,6, 11	LO #3, #4
	Projects / Lab.	1	10% (10)	7	LO #3

	Report	10	5% (5)	Continuous	All
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
1	Forces on and in the human body.
2	Physics of the skeleton.
3,4	Heat and cold in medicine.
5,6	Energy , work and power.
7	Sound in medicine and physics of hearing.
8	Light in medicine
9	Introduction to physical and engineering optics
10	Laser physics and laser in medicine
11	Physics of vision
12	Physics of x-rays.
13	introduction to nuclear radiation
14,15	Radiation protection

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
1	Forces and Motion
2	The Simple Pendulum
3,4	Hooke's Law
5	Masses and Springs
6	Mechanism of Friction
7	Sound properties
8	Light properties
9,10	Geometric Optics, Converging Lenses
11,12	Geometric Optics, Diverging Lenses
13	Geometric Optics, types of Mirrors
14,15	Geometric Optics, Bending of light

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Irving P. Herman	No

	Physics of the Human Body Second Edition	
Recommended Texts	John R. Cameron and James G. Skofronick Medical Physics	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/physics-and-astronomy	

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	**Support**			☐**Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	**MIE110**				
ECTS Credits	**4**				
SWL (hr/sem)	**102**				
Module Level	**First**		**Semester of Delivery**		**Second**
Administering Department	**Med. Ins. Tech. Eng.**		**College**	**Technical Engineering College**	
Module Leader	**Enas Ali Ahmed**		**e-mail**	**enasali@ntu.edu.iq**	
Module Leader's Acad. Title	**Assistant Lecturer**		**Module Leader's Qualification**		**Master**
Module Tutor	**Name (if available)**		**e-mail**	**E-mail**	
Peer Reviewer Name	**Mohammed S Jarjees**		**e-mail**	**Mohammed.s.jarjees@ntu.edu.iq**	
Scientific Committee Approval Date	**01/06/2023**		**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. Learn how to use the AutoCAD program. 2. Learn to draw 2D drawings using basic elements (line, circle, rectangular…etc.). 3. Learn to modify, edit the 2D drawing (move, copy, mirror…etc.). 4. Learn to add dimensions to the 2D drawings. 5. Learn to add text to the 2D drawings. 6. Identify, formulate and solve engineering problems

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the completion of the course, students will be able to 1. Understand fundamental of the AutoCAD drawings, engineering drawings. 2. Analyze and draw any engineering drawing using the facilities that the 2010 AutoCAD program produces such as using basic elements (line, circle, rectangular…etc.). 3. Modify any drawing using the tools (move, copy, mirror, offset, array,…etc.) 4. After complete the 2D drawing the student could add the dimensions to the drawing. 5. Design and draw any engineering drawing using any AutoCAD Program Version. 6. Draw any drawing using different methods, techniques and facilities submitted by the AutoCAD program.
Indicative Contents المحتويات الإرشادية	**Getting started with AutoCAD** Opening and creating drawings Exploring the AutoCAD interface Zooming and panning [4 hr] **Basic Draw Commands** Lines, Circles, Rectangles ..ect [12 hr] **Drawing Precision in AutoCAD** Polar and Ortho Tracking Entering Coordinates and Angles Object Snaps and Tracking [4 hr] **Modify commands** Move, Copy, Rotate, Mirror...ect [4 hr] **Advanced Draw Commands** Polylines, Arcs, Polygons, Ellipses...ect [12 hr] **Advanced Modify Commands** Trim , Extend, Fillet, Chamfer, Polyline Edit , Spline, Offset , Explode, Join...ect [8 hr] **Creating More Complex Objects [4 hr]** **Adding Dimensions** Using Dimensioning Tools Dimension Styles Editing Dimensions [4 hr] **Hatching / Text** The Hatch Command The Multiline Text Tool The Single Line Text Tool Editing Text [4 hr] **Setting Up a Layout** Using Layouts and Viewports, Scaling Viewports [4 hr]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	• A lecturer explains the proper commands needed to create a simple drawing. • A lecturer uses the data projector to show the students the various commands needed to draw a simple drawing. • A lecturer uses active learning to help the students completing their assignments. • A lecturer uses Problem-Based Learning method that challenges students to "learn to learn" by working in groups to seek solutions to problems. The students will work in groups to complete the drawings assigned.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**102**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	5% (5)	5 and 9	LO #1, #2, #8, #9
	Assignments	0	0		
	Projects / Lab.	15	10% (10)	Continuous	All
	Report	5	5% (5)	4, 6, 8, 10,13	All
Summative assessment	**Midterm Exam**	1hr	20% (20)	7	LO #1 - #7
	Final Exam	3hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Getting Started with AutoCAD
Week 2,3 ,4	Lab 2,3 ,4: Basic Draw Commands

Week 5	Lab5: Drawing Precision in AutoCAD
Week 6	Lab 6: Modify commands
Week 8,9,7	Lab 8,9,7: Advanced Draw Commands
Week 10,11	Lab 10,11: Advanced Modify Commands
Week 12	Lab 12: Creating More Complex Objects
Week 13	Lab 13: Adding Dimensions
Week 14	Lab 14: Hatching / Text
Week 15	Lab 15: Setting Up a Layout

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Textbook of Engineering Drawing	no
Recommended Texts	Introduction To AutoCAD	No
Websites	https://www.unm.edu/~bgreen/autocad/AutoCAD%201.pdf	

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	**Chemistry**			**Module Delivery**	
Module Type	**Support**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	**MIE111**				
ECTS Credits	**5**				
SWL (hr/sem)	**126**				
Module Level		**First**	**Semester of Delivery**		**Second**
Administering Department	**Med. Ins. Tech. Eng.**		**College**	**Technical Engineering College**	
Module Leader	**Shatha Sabeeh Othman**		**e-mail**	**shathasabeeh@ntu.edu.iq**	
Module Leader's Acad. Title		**Assist. Professor**	**Module Leader's Qualification**		**Ph.D.**
Module Tutor	**Name (if available)**		**e-mail**	**E-mail**	
Peer Reviewer Name	**Mohammed S Jarjees**		**e-mail**	**Mohammed.s.jarjees@ntu.edu.iq**	
Scientific Committee Approval Date	**01/06/2023**		**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. the module helps the students to learn the core concepts of chemistry and understand how those concepts apply to their lives and the world around them. 2. This course deals with the basic concept of analytical chemistry ,qualitative and quantitative analysis and steps that make up for analysis..

	3. This is the basic subject for solution and all methods expressing for analytical concentration (molarity ,formality, normality, mole fraction,pH function) ,dilution law of solution . 4. To understand electrolytes, types, physiological importance ,dissociation of water and slight solid salt . 5. In this course students get the knowledge for volumetric analysis,types,standard solution and its types, end and equivalence point and the methods to detect end point, buffer solution. 6. To understand gravimetric analysis principles,types,steps of precipitation, application. 7. To understand statistical analysis rules for analytical data. 8. To understand thermodynamic science, types of process and systems. First and second law of thermodynamic law. 9. To understand electrochemistry definition , and various types of cells, electrochemical techniques and various types of electrodes and batteries. 10. To understand photochemistry concept and Beer lambert laws and its application.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Identify the basic types of traditional and instrumental of analytical techniques. 2. Use molarity and other types of concentrations to calculate the concentration of solution and perform dilution calculations 3. Describe the behavior of Brønsted-Lowry acids and bases. 4. Discuss the various properties of primary and secondary solution. 5. Recognize how buffer solution works in human body. 6. List the various types of sources of errors for analytical data. . 7. Apply thermodynamic equations to calculate,work,enthalpy,internal energy . 8. Explain spontaneous and entropy concept. 9. Identify the basic types of conductance and Nernst equation. 10. Identify forms of electromagnetic radiation and how they are related to the electronic structure
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A – Analytical chemistry</u> Qualitative analytical chemistry, Quantitative analytical chemistry, Applications of quantitative analysis. Traditional and instrumental of analytical techniques. First steps in making analysis. Methods of Expressing analytical concentrations: Normality, Formality, Molarity .p-function,Mole fraction , Mill equivalent . Electrolytes. Acid and base theory.Equilibrium Constant Volumetric analysis : principles , standard solution .Classification of volumetric method, End point , buffer solution . Precipitation reaction , the PH- scale . Gravimetric analysis , calculations .Salability of precipitations . Errors & treatment of analytical data: sources of errors , Determinates of errors - indeterminate errors.Presion term. mode , range , median , deviation Average deviation , standard deviation , variance . Method of expressing accuracy . Absolute error , relative error , rejecting pf experimental result . <u>Part B – Physical Chemistry</u> Thermodynamic : First law of thermodynamic ,Reversible and irreversible expansion . Heat capacities , adiabatic expansion , Introduction to Second law of thermodynamic spontaneous processes ,Application of Second law. Entropy

	Electrochemistry, Electrochemistry : electrochemical cells ,Types of electrodes , electrolytes ,Electromotive force ,Nernst equation , cell potential . Batteries. Photochemistry (spectrophotometer analysis) ,Regions of electromagnetic spectrum . Absorption and emission of electromagnetic spectrum .Beer , Lambert law instrumentation ,Components of spectrophotometer .,Analysis by spectrophotometers .

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 types of simple experiments involving some sampling activities that are interesting to the students.

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

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	75	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	51	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**126**		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	5% (5)	5 and 10	LO #1 and #10
	Assignments	6	10% (10)	Continuous	All
	Projects / Lab.	15	10% (10)	Continuous	All
	Report	2	5% (5)	7, 13	LO #5, and #8
Summative assessment	**Midterm Exam**	2hr	20% (10)	7	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 1,2,3	Introduction to analytical chemistry. Methods of Expressing analytical concentrations
Week 4,5	Volumetric analysis: principles.
Week 6,7	Gravimetric analysis
Week 8	Errors & treatment of analytical data
Week 9,10	Thermodynamic: First law of thermodynamic.
Week 11	Second law of thermodynamic
Week 12,13	Electrochemistry Batteries
Week 14,15	Photochemistry

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Laboratory safety.
Week 2,3	Laboratory Equipment. Analytical Balance
Week 4,5,6	Preparation different types of solutions
Week 7,8	Titration reactions, Neutralization.
Week 9	Precipitation titration
Week 10	Oxidation reduction titration
Week 11,12	Potentiometric titration using pH meter.
Week 13	Conduct metric titration
Week 14,15	Spectrophotometric Determine the maximum wavelength λmax.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Skoog. 2007. Fundamental of Analytical Chemistry, 7th Ed., Sanders. Hasan Maridi 2016 Physical Chemistry	Yes
Recommended Texts	David Harvey 1996 Modern Analytical Chemistry	No
Websites	https://www.infobooks.org/free-pdf-books/chemistry/physical-chemistry/	

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 DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	**Arabic Language**	**Module Delivery**	
Module Type	**Basic**	☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	**MIE112**		
ECTS Credits	**2**		
SWL (hr/sem)	**60**		
Module Level	**First**	**Semester of Delivery**	**First**
Administering Department	**Med. Ins. Tech. Eng.**	**College**	**Technical Engineering College**
Module Leader	**Eesha Ibrahim Mohammed**	**e-mail**	**aysha.ibrahim@ntu.edu.iq**
Module Leader's Acad. Title	**Assistant Professor**	**Module Leader's Qualification**	**PhD**
Module Tutor	**Name (if available)**	**e-mail**	**E-mail**
Peer Reviewer Name	**Mohammed S Jarjees**	**e-mail**	**Mohammed.s.jarjees@ntu.edu.iq**
Scientific Committee Approval Date	**01/06/2023**	**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	ينشأ الطالب على حب اللّغة العربيّة لغة القرآن الكريم. التعرّف على مواطن الجمال في اللّغة العربيّة وآدابها، وأن يكتسب الطالب القدرة على دراسة فروع اللّغة العربيّة. تعريف الطالب بألفاظ اللّغة العربيّة الصحيحة وتراكيبها وأساليبها السليمة بطريقة مشوقة وجذابة. أن يستغل الطالب وقت فراغه بالقراءة والاطلاع والرجوع إلى المكتبة . تمكين الطالب من القراءة الصحيحة، وأن يكتسب القدرة على استعمال اللغة استعمالاً صحيحاً في الاتّصال مع الآخرين؛ كالسرعة وجودة الإلقاء وحسن التعبير، وتعويده حسن الاستماع لما يسمع مما ييسّر له أموره ويعينه على قضاء حوائجه. تنمية الذوق الأدبي لدى الطالب حتى يدرك النواحي الجمالية في أساليب الكلام ومعانيه وصوره. تعويد الطالب التعبيرات السليمة الواضحة عن أفكاره وما يقع تحت حواسه نطقاً وكتابة وحسن استخدام علامات الترقيم. تنمية قدرة ومهارة الطالب الإملائية والخطية بحيث يستطيع الكتابة الصحيحة من جميع النواحي. إيقاظ وعي الطالب لإدراك شرف الكلمة وتوجيهه؛ للمحافظة على طهارتها ونقائها حتى لا تستعمل إلا في الخير. مساعدة الطالب على فهم التراكيب المعقدة والأساليب الغامضة .

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. معرفة القواعد النحوية والصرفية. 2- التعريف بأبرز المصنفات اللغوية والأدبية. 3- تحديد المشكلات اللغوية والأدبية لدى الدارسين. 4- القراءة المعاصرة للنصوص اللغوية والأدبية. 5- قراءة النصوص الأدبية وكتابتها وفق المعايير النحوية والصرفية 6- تعزيز الثقة بالنفس والجرأة والفصاحة 7- المنافسة والتميز في سوق العمل.
Indicative Contents المحتويات الإرشادية	مقدمة عن الأخطاء اللغوية التاء المربوطة والتاء المفتوحة (4 ساعات) تطبيقات الأخطاء اللغوية الشائعة واقسام الكلام (6 ساعات) همزة الوصل والقطع والهمزة المتوسطة والمتطرفة قواعد كتابة الالف الممدودة والمقصورة الحروف الشمسية والقمرية والضاد والظاء (12 ساعة) المشاكل والمعوقات ونقاشات (6 ساعات)

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	1- .تبسيط المعلومات وتنظيمها 2- .تسهيل عملية استرجاع المعلومات 3- ربط المفاهيم الجديدة بالمكتسبات السابقة 4- .إيجاد العلاقة بين المفاهيم 5 - تسهيل تذكر المعارف والمعلومات

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	30	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	30	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	60		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	10% (10)	3, 5, 7, 10	LO #1, 2, 5 and 7
	Assignments	0	0		
	Projects / Lab.	0	0		
	Report	4	10% (10)	Continuous	All
Summative assessment	**Midterm Exam**	2 hr	20% (20)	7	LO # 1-7
	Final Exam	3 hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	مقدمة عن الأخطاء اللغوية
Week 2	التاء المربوطة والتاء المفتوحة
Week 3	همزة الوصل والقطع
Week 4	الهمزة المتوسطة والمتطرفة

Week 5	قواعد كتابة الالف الممدودة والمقصورة
Week 6	الحروف الشمسية والقمرية
Week 7	الضاد والظاء
Week 8	العـــدد
Week 9	المفاعيل
Week 10	أقسام الكلام
Week 11	معاني حروف الجر
Week 12	تطبيقات الأخطاء اللغوية الشائعة
Week 13	النون والتنوين
Week 14	مقدمة عن الأخطاء اللغوية
Week 15	الامتحان النهائي

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	الكامل في اللغة والادب لابي عباس المبرد	Yes
Recommended Texts	أخطاء لغوية شائعة لخالد بن هلال بن ناصر العبري	No
Websites	https://www.eshamel.ne https://www.ektebsa7.com	

APPENDIX:

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	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB 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.