MODULE DESCRIPTION FORM SEMESTER 1

Module Information معلومات المادة الدراسية					
Module Title	Workshops I			**Module Delivery**	
Module Type	Basic			☐ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	WSHE106				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level	1		**Semester of Delivery**	1	
Administering Department	**EMEN**		**College**	**EME**	
Module Leader	Training and Workshops Center		**e-mail**	Wissam.h.alawee@uotechnology.edu.iq	
Module Leader's Acad. Title	Wissam H. Alawee Prof.		**Module Leader's Qualification**	Ph.D.	
Module Tutor	-		**e-mail**	Iqbal.a.alshalal@uotechnology.edu.iq	
Peer Reviewer Name	Iqbal Alshala		**e-mail**	-	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1-Preparing applied engineers in the field of engineering sciences who are distinguished by a high level of knowledge and technological creativity, in line with the strict standards adopted globally in quality assurance and academic accreditation of the corresponding engineering programs, while adhering to the ethics of the engineering profession. 2. Enable the student to know and understand work systems, risks, and the factors surrounding them.

	3. Enable the student to know and understand theoretical principles in handicrafts and measurements.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- To familiarize the student with the vocabulary of occupational safety and its importance in the field of work. 2- Acquisition of the student's manual operation skills, for example (Filings and Tinsmith workshops), and mechanical operation skills, for example (Turning). 3- Acquisition of the student's mechanical forming skills, for example (Casting and Blacksmithing). 4- The student acquires basic engineering skills such as Welding, Carpentry, and Electrical installations that serve him in the professional field. 5- Enabling the student to operate the various machines and devices in mechanical operations and formation. 6- Cooperative learning by working collectively.
Indicative Contents المحتويات الإرشادية	1. Introducing the student to the basics of the art of turning and milling, types of cold working machines, the skill of dealing with them, choosing metals, operational tools, and methods of measurement and standardization 2. Introducing the student to the basics of the art of casting, hot forming, metal selection, method of working on casting furnaces and tools, and manufacturing casting molds 3. Familiarize students with the basics of cars and the systems they use, as well as maintenance, disassembly, and assembly processes. 4. Introducing students to the basics of household and industrial electrical appliances, the skill of using tools, and designing electrical circuits and control panels 5. Introducing the student to the basics of the art of plumbing, leveling surfaces, the skill of using tools, manufacturing and installing geometric shapes, and methods of measurement and standardization 6. Introducing the student to the basics of the art of blacksmithing, cold and hot forming of metals, the method of hardening them, and the skills of dealing with hand tools, forming machines, and heating furnaces 7. Introducing the student to the basics of the art of filing and manual operation of metals with the help of manual, electrical, and mechanical tools, the skills of dealing with them, and the methods of measurement and standardization 8. Introducing the student to the basics of the art of welding, the installation and assembly of metals, the types of welding machines, the skills of dealing with them, the types of welding, and the methods of measurement and standardization 9. Introducing the student to the basics of the art of carpentry and woodworking with the help of manual, electrical, and mechanical tools, the skills of dealing with them, and methods of measurement and standardization

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	This course aims to promote a set of learning strategies, including the strategy of learning by lecture, modeling and cooperative learning

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	**10**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	**0.66**
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**		20%		
	Assignments				
	Projects / Lab.	Every 3 weeks	60%		All
	Report				
Summative assessment	**Midterm Exam**				
	Final Exam	Week 15	20%		
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Welding workshop. -Occupational safety and its importance in welding workshops. -Introduction to the basics of welding. -Electric arc exercise. -An exercise for welding straight lines in a circular motion (helical).
Week 2	Welding workshop - An exercise for welding straight lines with a crescent movement and other welding methods -Construction welding exercise.

Week 3	Welding workshop. -Welding two pieces together. -Written exam in practical exercises. -
Week 4	Casting workshop -Occupational safety and its importance in plumbing workshops. -Introduction to the basics of metal casting. -Simple wooden disc exercise. Half workout.
Week 5	Casting workshop Wheel exercise. Pushing arm exercise.
Week 6	Casting workshop. -Complete pulley exercise. -Circular pole exercise. -Written exam in practical exercises.
Week 7	Blacksmith Workshop -Occupational safety and its importance in blacksmithing workshops. -Introduction to the Basics of Blacksmithing. - Barbell adjustment exercise. -Eight-star exercise. - Exercise forming the number eight in English. -Six formation exercises in English.
Week 8	Blacksmith Workshop -An exercise forming the number five in English. - Exercise forming the number nine in English. . -An exercise in forming an iron model in the form of a circle
Week 9	Blacksmith Workshop - S-shape exercise. - Air hammer hot barbell exercise. - Exercise to form a circle on an electric bending machine. - Exercising cold and hot ornament formation. . - A written exam in practical exercises
Week 10	Automotive Workshop -Occupational safety and its importance in car maintenance workshops. -An introduction to cars and their basic parts. -Parts of the engine, how it works, types of engines, and methods of classification.
Week 11	Automotive Workshop - Open the engine and identify the parts -Lubrication system -Cooling system.
Week 12	Automotive Workshop -The fuel system. -The old and new ignition circuits. -Written exam in practical exercises.

Week 13	Turning Workshop -Introduction to lathe machines and identifying their parts -Measuring tools and the use of an oven measuring instrument -Circular column lathing exercise on different diameters.
Week 14	Turning Workshop -Exercise using the pen (semicircular R) brackets. An exercise in making different angles using a pen (square + angle pen 55).
Week 15	Turning Workshop - Making shaft with different diameter exercises using (left and right pen) - Workout (Tube Connection). -Written exam in practical exercises.

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Workshop technology and measurements, Ahmed Salem Al-Sabbagh,	yes
Recommended Texts		
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 Information
معلومات المادة الدراسية

Module Title	English Language I	**Module Delivery**	
Module Type	Support	☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ENLA107		
ECTS Credits	2		
SWL (hr/sem)	50		

Module Level	1	**Semester of Delivery**	1
Administering Department	**EMEN**	**College**	**EME**
Module Leader	Yaser Ali Al -Yasiri	**e-mail**	50111@uotechnology.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	MSc.
Module Tutor	-	**e-mail**	-
Peer Reviewer Name	-	**e-mail**	-
Scientific Committee Approval Date	07/06/2023	**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	-	**Semester**	-
Co-requisites module	-	**Semester**	-

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	In this course, students will learn: • Proceeding the benefits of studying the English Language as a Second language

	• The knowledge about using Technical Terminologies in their studies • Understanding of using the scientific English language in the Academic Program How to write, describe, and type reports in English.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	In this course, – English Language I - students will learn: 1. Introduction to English. 2. Grammar: a. Verbs (regular verbs, irregular Verbs, Verb to Be, Modal Verbs). b. Adjectives (Adjective + Noun) c. Adverbs (Adverbs of Frequency). d. Negatives. e. Nouns (Plural Nouns). f. Pronouns. g. Preposition. h. Possessive (Possessive 's, Possessive Adjectives). i. Question Words. j. Requests and Offers. k. Tenses (Present Simple, Past Simple, Present Continuous, Present Simple and Present Continuous, Future Tense). 3. Vocabulary (Countries, Plurals, Jobs, Personal Information, Languages and Nationalities, The time, Places, Shopping, Transport, Food, Roleplay, Colours, Clothes, Revision). 4. Skills Work (Reading and Vocabulary, Listening and Writing, Listening and Speaking, Reading and Speaking, Speaking, Speaking and Writing, Reading and Listening, A mini Autobiography). Everyday English (Direction, Making Conversation – showing Interest, Going Sightseeing, Everyday Problems, Signs, Social Expression).
Indicative Contents المحتويات الإرشادية	a. Parts of Speech ● What are the parts of speech? ● Noun ● Pronoun ● Verb ● Adjective ● Adverb ● Proposition ● Conjunction ● Interjection b. Preposition ● What is the preposition? ● Why does it use? ● How does it use? c. Your world (unit Two). ● How to know your world? ● How to communicate with each other? ● Knowing your Nationality. d. ALL ABOUT YOUR FAMILY AND FRIENDS

	● Personal information ● Your family members. ● Relatives and extended family. ● Jobs. e. Everyday Life ● Sport. ● Food. ● Drinks. ● Activities. f. My favorite ● Questions words. ● Pronouns. ● Demonstratives. ● Adjectives. ● Favorites. g. Where do I live? ● Rooms. ● Kitchen Furniture. ● Bedroom Furniture. ● Living Room Furniture. ● Bathroom. ● Grammar (difference between SOME and ANY). ● Directions. ● Grammar (difference between BUT&AND). ● Because and So.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The branch applies problem-based learning (new) and the student-active method, which helps the student getting the program outcomes.

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**
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	**75**

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	1	5%	5	LO # 1 , 2, 3
	Assignments	1	7.5%	1--9	LO # 4 , 5
	Projects / Lab.				
	Report	1	2.5 %	11	6
Summative assessment	**Midterm Exam**	1.5 hr	15%	10	LO # 1 - 6
	Final Exam	3 hr	70%	17	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Parts of speech, Introduction of English language, Sentences
Week 2	Introduction
Week 3	Countries
Week 4	Jobs
Week 5	Family
Week 6	The time
Week 7	preposition of time
Week 8	My favorites

Week 9	Rooms and furniture
Week 10	Mid-term Exam
Week 11	Question
Week 12	Saying years
Week 13	Questions (past simple)
Week 14	present continuous
Week 15	Positive (present continuous)
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	John and Liz Soars "New Headway Plus" Student's book.	Yes
Recommended Texts	John and Liz Soars "New Headway Plus" Workbook without key	Yes
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

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Module Information
معلومات المادة الدراسية

Module Title	Mathematics I	**Module Delivery**	
Module Type	Basic	☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	MATH113		
ECTS Credits	6		
SWL (hr/sem)	150		

Module Level	1	**Semester of Delivery**	1
Administering Department	**EMEN**	**College**	**EME**
Module Leader	Dr. Ghada Adel Aziz	**e-mail**	50070@uotechnology.edu.iq
Module Leader's Acad. Title	Assistance Prof	**Module Leader's Qualification**	Ph.D.
Module Tutor	-	**e-mail**	-
Peer Reviewer Name	-	**e-mail**	-
Scientific Committee Approval Date	07/06/2023	**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	-	**Semester**	-
Co-requisites module	-	**Semester**	-

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	The student will learn the first part of mathematics

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	In this course, for students will learn: **1.** Introduction, Quadratic Formula, Binomial Formula **2.** Straight Line, Conic Sections **3.** Functions (Inequality, Intervals, Absolute Value) **4.** Functions (Domain & Range, Drawing Function,) **5.** Functions (Inverse Functions) **6.** Functions (Trigonometric Functions, Inverse Trigonometric Functions,) **7.** Functions (Hyperbolic Functions, Inverse Hyperbolic Functions) **8.** Functions (Natural Logarithmic Functions, Exponential Functions) **9.** Limits &Continuity. **10.** Determinants (Properties, Cramer's Rule) **11.** Matrices (Operation, inverse of Square Matrix). **12.** Polar Coordinates **13.** Complex Numbers **14.** Vectors in Free Space with applications
Indicative Contents المحتويات الإرشادية	In this course, students will learn: ● Introduction, Quadratic Formula, Binomial Formula ● Straight Line, Conic Sections (Circle, Parabola) ● Functions (Inequality, Intervals, Absolute Value) ● Functions (Domain & Range, Drawing Functions) ● Functions (Inverse Functions) ● Functions (Trigonometric Functions & Inverse Trigonometric Functions) ● Functions (Hyperbolic Functions & Inverse Hyperbolic Functions) ● Functions (Natural Logarithmic Function, Exponential Function,) ● Limits & Continuity ● Determinants (Properties, Cramer's Rule) ● Matrices (Operations, Inverse of Square Matrix) ● Polar Coordinates ● Complex Numbers (Forms & Applications) ● Vectors, (Properties of Vectors) ● Vectors in Free Space & Applications

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The branch uses a problem-based learning which new and student active method. The method helps the student getting the program outcomes.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	**63**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	**4**
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**87**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	**5.8**
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	7.5%	5	LO # 1 , 2, 3
	Assignments	1	7.5%	7	LO # 4 , 5
	Projects / Lab.				
	Report				
Summative assessment	**Midterm Exam**	1.5 hr	15%	10	LO # 1 - 6
	Final Exam	3 hr	70%	17	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered

Week 1	Introduction, Quadratic Formula, Binomial Formula
Week 2	Straight line , conic sections (circle , parabola)
Week 3	Functions (Inequality, Intervals, Absolute Value)
Week 4	Functions (Domain & Range, Drawing Function, Inverse Functions)
Week 5	Functions (Trigonometric Functions, Inverse Trigonometric Functions)
Week 6	Functions (Hyperbolic Functions & Inverse Hyperbolic Functions)
Week 7	Functions (Natural Logarithmic Function, Exponential Functions)
Week 8	Limits & Continuity
Week 9	Determinants (Properties, Cramer's Rule, Applications)
Week 10	Matrices (Operations)
Week 11	Mid-term Exam
Week 12	Matrices (Inverse of Square matrix)
Week 13	polar coordinates
Week 14	Forms of Complex Numbers
Week 15	Applications of Complex Numbers
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Thomas Calculus, George B. Thomas et al, 12th, edition, 2010, USA	Yes
Recommended Texts		

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 Information
معلومات المادة الدراسية

Module Title	Physics I	**Module Delivery**	
Module Type	Basic	☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	PHYS114		
ECTS Credits	5		
SWL (hr/sem)	125		

Module Level	1	**Semester of Delivery**	1
Administering Department	**EMEN**	**College**	**EME**
Module Leader	Dr. Suad Ali Aessa	**e-mail**	50044@uotechnology.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	Ph.D.
Module Tutor	-	**e-mail**	-
Peer Reviewer Name	-	**e-mail**	-
Scientific Committee Approval Date	07/06/2023	**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	-	**Semester**	-
Co-requisites module	-	**Semester**	-

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	In this course, students learn the principles of semiconductor materials. The doping of semiconductor, using it in P-N junction and its applications in different types of diodes, transistors, and solar cells.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	In this course, students will learn: 1. Study the general classification of engineering materials according to energy bands theory. 2. Realization the principles, properties, and electrical conduction especially in semiconductors. 3. Concept of intrinsic and extrinsic semiconductors. 4. Operation principle and models of p-n junction. 5. Realization the principles of some semiconductors devices as diode types and solar cells.
Indicative Contents المحتويات الإرشادية	• Electronics physics • Electric properties • Logic circuits

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The branch use a problem based learning which new and student active method. The method help the student getting the program outcomes.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	**63**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	**4**
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**37**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	**2.5**
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	1	7.5%	5	LO # 1, 2
	Assignments	1	7.5%	7	LO # 3, 4
	Projects / Lab.				
	Report				
Summative assessment	Midterm Exam	1.5 hr	15%	10	LO # 1 - 4
	Final Exam	3 hr	70%	17	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to materials science and engineering
Week 2	**Atomic structure and interatomic bonding.**
Week 3	**Physical properties.** ● Electrical properties. ● Electrical Conduction in matel.(Mobility and Conductivity, Energy Distribution of Electrons, Fermi Level,
Week 4	● Semi conductivity (Semiconductors Materials (Si , Ge and Compound Semiconductors) , Extrinsic Semiconductors , Fermi – Level in Semi-Conductor .

Week 5	Semiconductor P – N Junction. P-N Junction in Equilibrium , Current – Voltage Characteristics ,
Week 6	Charge Control Description of a Diode Transition and Diffusion Capacitances
Week 7	Diode Models
Week 8	Diode Switching Times
Week 9	Clipping &Clamping
Week 10	Mid-term Exam
Week 11	Other types of semiconductor diodes .Varactor Diode
Week 12	. Photodiode and Photovoltaic (Solar) Cell
Week 13	Light –Emitting Diode
Week 14	Principle and Operation of Semiconductor Laser
Week 15	Filed Effect Unipolar Transistor Construction
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	S. M. Sze, "Physics of Semiconductor Devices," third edition	
Recommended Texts	Thomas L. Floyd, "Electronic Devices,"9th Ed., P.CM, 2012	
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
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	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 Information
معلومات المادة الدراسية

Module Title	Computer Science I	**Module Delivery**	
Module Type	Support	☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	COSC108		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	1	**Semester of Delivery**	1
Administering Department	**EMEN**	**College**	**EME**
Module Leader	Ameer Abed Gaddoa	**e-mail**	ameer.A.Jaddoa @uotechnology.edu.iq
Module Leader's Acad. Title	Assist. Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	-	**e-mail**	-
Peer Reviewer Name	-	**e-mail**	-
Scientific Committee Approval Date	07/06/2023	**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	-	**Semester**	-
Co-requisites module	-	**Semester**	-

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	

	In this course, the student will learn how to use software in his work (Visual Basic Language)
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	In this course, – Computer Science students will learn: 1. Computer Hardware (Microprocessor, Memory, Input and Output Devices). Programming Languages, Operating Systems / Types of Files and Directories 2. Numbers representation (Binary, Decimal, Octal, Hexadecimal) 3. Logic Gates 4. Algorithm and Flow Chart 5. Programming in Visual Basic: a. Introduction to visual basic b. Elements of the Integrated Development Environment (IDE) c. Toolbox (Properties and its Events) d. Built the project by using Toolbox and Properties Window e. Built the project by using Code Module f. Input box and Messages box g. Visual Basic Operators h. Conditional Statements (IF, Select Case) 6. One Dimensional Array 7. Two-Dimensional Array Subroutine
Indicative Contents المحتويات الإرشادية	In this course for Computer Science, the topics are: ● Logic Gates ● Numbers representation (Binary, Decimal, Octal, Hexadecimal) ● Algorithm & Flow Chart ● Programming in Visual Basic

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The branch use a problem based learning which new and student active method. The method help the student getting the program outcomes.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	**63**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	**4**
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**37**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	**2.5**
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**	1	7.5%	5	LO # 1, 2
	Assignments	1	7.5%	7	LO # 3, 4
	Projects / Lab.				
	Report				
Summative assessment	**Midterm Exam**	1.5 hr	15%	10	LO # 1 – 4
	Final Exam	3 hr	70%	17	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Computer Hardware Concepts
Week 2	Computer Software Concepts
Week 3	Application Software
Week 4	System Software
Week 5	Machine Language
Week 6	High Level Languages
Week 7	Assembly Language
Week 8	Programming Language
Week 9	Application Software
Week 10	Mid-term Exam
Week 11	Compiler and Interpreter
Week 12	Files & Folders
Week 13	Binary Decimal Octal and Hexadecimal number system
Week 14	Logic gates
Week 15	Algorithms & Flow Charts
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1 and 2	Windows 7 / operating systems
Week 3 and 4	Microsoft Word2007
Week 5 and 6	Microsoft Excel 2007
Week 7 and 8	Microsoft Power Point 2007

Week 9 and 10	Visual basic programming
Week 11 and 12	Assignment Statement
Week 13 and 14	Declaration Statement

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Introductory circuit Analysis by Robert L. Boylestad .	Yes
Recommended Texts	DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2020, dissidents.	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 Information

معلومات المادة الدراسية

Module Title	Fundamental of Electrical Engineering (DC)	**Module Delivery**	
Module Type	Core	☒ **Theory** ☐ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	FUEE116		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	**Semester of Delivery**	1
Administering Department	**EMEN**	**College**	**EME**
Module Leader	Fatin Nabeel Abdullah	**e-mail**	50060@uotechnology.edu.iq
Module Leader's Acad. Title	Assist. Professor	**Module Leader's Qualification**	MSc.
Module Tutor	-	**e-mail**	-
Peer Reviewer Name	-	**e-mail**	-
Scientific Committee Approval Date	07/06/2023	**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	-	**Semester**	-
Co-requisites module	-	**Semester**	-

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives 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 circuits. 5. To understand Kirchhoff's current and voltage Laws problems. 6. To perform mesh and Nodal analysis.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. 8. Recognize how electricity works in electrical circuits. 9. List the various terms associated with electrical circuits. 10. Summarize what is meant by a basic electric circuit. 11. Discuss the reaction and involvement of atoms in electric circuits. 12. Describe electrical power, charge, and current. 13. Define Ohm's law. 14. Identify the basic circuit elements and their applications. 15. Discuss the various properties of resistors, capacitors, and inductors. 16. Explain the two Kirchoff's laws used in circuit analysis. 17. Identify the method of analysis (Mesh & Nodal) method. 18. Identify the network theorem of Thevenin's and Norton's.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. **D-C circuit** A- Ohm’s law, power, energy, efficiency B- Resistances in series , voltage source in series ,KVL ,batteries, polarity & drop voltages, voltage divider rule ,voltage relation(relative potential ,voltage description with one & tow points) ,Internal resistance of voltage source ,voltage regulation . C- DC parallel circuits. Resistance in parallel, parallel network, KCL, current divider rule, open & short circuit. D- Series- parallel circuits. Series- parallel network KS, Ladder networks. E- Current Sources

	A source conversion, dependent & independent source, current source in series, current source in parallel. Analysis Method : Brunch current method, loop current method (mesh), Nodal voltage method, Bridges method, Delta-Star transformation and Star-Delta transformation. Network Theorems : Super position theorem, Thevinin's , Norton's theorem.

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	**78**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	**5**
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**47**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	**3**
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	1	5%	5	LO # 1 , 2, 3
	Assignments	1	5%	1--9	LO # 4 , 5
	Projects / Lab.		10%		
	Report	1	5 %	11	6
Summative assessment	Midterm Exam	1.5 hr	15%	10	LO # 1 - 6
	Final Exam	3 hr	60%	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction - Ohm's law, power, energy, efficiency.
Week 2	Resistances in series , voltage source in series ,KVL ,batteries, polarity & drop voltages.
Week 3	voltage divider rule ,voltage relation(relative potential ,voltage description with one & tow points) .
Week 4	Internal resistance of voltage source ,voltage regulation .
Week 5	DC parallel circuits. Resistance in parallel, parallel network.
Week 6	KCL, current divider rule, open & short circuit.
Week 7	Series- parallel circuits. Series- parallel network KS, Ladder networks.
Week 8	Current Sources : A source conversion, dependent & independent source, current source in series, current source in parallel .
Week 9	Analysis Method : Brunch current method, loop current method (mesh).
Week 10	Nodal voltage method.
Week 11	Bridges method.

Week 12	Delta-Star transformation and Star-Delta transformation.
Week 13	Network Theorems : Super position theorem.
Week 14	Thevinin's theorem.
Week 15	Norton's theorem.
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1 and 2	Lab 1: - Ohm's law
Week 3 and 4	Lab 2: Kirchoff's laws
Week 5 and 6	Lab 3: Delta / Star + transformation
Week 7 and 8	
Week 9 and 10	
Week 11 and 12	
Week 13 and 14	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Introductory circuit Analysis by Robert L. Boylestad .	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 Information معلومات المادة الدراسية					
Module Title	**Engineering Mechanics (Static)**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ENME117**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	EMEN		**College**	EME	
Module Leader	Suad Hamzah Abbas		**e-mail**	50098@uotechnology.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	-		**e-mail**	-	
Peer Reviewer Name	-		**e-mail**	-	
Scientific Committee Approval Date	07/06/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	To introduce the basic engineering principles required for analyzing and solving ● The forces, moment and couple problems for two and three dimensions.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of the engineering mechanics module, students will be able to: 1. Understand and apply the principles of statics in engineering systems. 2. Analyze and solve problems related to forces, moments, equilibrium 3. Apply vector mathematics and coordinate systems to engineering mechanics problems. 4. Identify and analyze different types of supports in structures and machines. 5. Interpret and draw free body diagrams to represent the forces acting on a system.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Introduction to Engineering Mechanics ● Overview of mechanics and its applications in engineering ● Fundamental concepts and principles 2. Statics ● Forces and vectors ● Equilibrium of particles and rigid bodies ● Moment of a force and its applications ● Friction and its effects ● Center of Mass and Centroid 3. Problem-Solving and Applications ● Engineering problem-solving techniques ● Case studies and practical examples

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 اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**100**		

Module Evaluation تقييم المادة الدراسية				
		Time/Number	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	3	5 and 13	LO #1, #2
	Assignments	2	2 and 12	LO #1.# 2.#4
	Projects / Lab.	1	Continuous	All
	Report	1	10	LO#1-#4
	Midterm Exam	1.5hr	10	LO #1 - #4

Summative assessment	**Final Exam**	3hr	16	All
Total assessment				

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to statics) Scalar quantity , vector quantity, standers units(
Week 2	Two-dimensional force systems. Rectangular components.
Week 3	Moment, principle of moment Couple. Couple-force system.
Week 4	Resultants in two-dimensional force systems.
Week 5	Moment in three-dimensional force systems.
Week 6	Couple in three-dimensional force systems.
Week 7	Couple-force system in three-dimensional force systems.
Week 8	Resultant in three-dimensional force systems
Week 9	Equilibrium, free body diagram.
Week 10	Mid-term Exam
Week 11	Friction
Week 12	Types of friction problem.
Week 13	Centroids of lines and Areas.
Week 14	Moment of inertia - composite area
Week 15	Moment of inertia - composite area

Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Weeks 1,2, 3	The determination of the resultant of two forces (or more)
Weeks 4,5, 6	The determination of friction coefficient between two surfaces
Weeks 7,8, 9	Centroids and center of gravity
Weeks 10 ,11,12	Center of gravity of the composite areas
Weeks 13,14	The investigation of Hook's law using helical spring
Week 15	Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	R. C. Hibbeler, "Engineering Mechanics: Statics & Dynamics", 14th ed. Pearson Prentice Hall.	Yes
Recommended Texts	J. L. Meriam and L.G. Kraige, "Engineering Mechanics Statics", John Wiley & Sons, 2013..	Yes
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	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
(0 – 49)	**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

SEMESTER 2

Module Information معلومات المادة الدراسية					
Module Title	Workshops II			**Module Delivery**	
Module Type	Basic			☐ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	WSHE106				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level		1	**Semester of Delivery**		2
Administering Department		**EMEN**	**College**	**EME**	
Module Leader	Training and Workshops Center		**e-mail**	Wissam.h.alawee@uotechnology.edu.iq	
Module Leader's Acad. Title		Wissam H. Alawee Prof.	**Module Leader's Qualification**		Ph.D.
Module Tutor	-		**e-mail**	Iqbal.a.alshalal@uotechnology.edu.iq	
Peer Reviewer Name		Iqbal Alshala	**e-mail**	-	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1-Preparing applied engineers in the field of engineering sciences who are distinguished by a high level of knowledge and technological creativity, in line with the strict standards adopted globally in quality assurance and academic accreditation of the corresponding engineering programs, while adhering to the ethics of the engineering profession. 2. Enable the student to know and understand work systems, risks, and the factors surrounding them. 3. Enable the student to know and understand theoretical principles in handicrafts and measurements..
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- To familiarize the student with the vocabulary of occupational safety and its importance in the field of work. 2- Acquisition of the student's manual operation skills, for example (Filings and Tinsmith workshops), and mechanical operation skills, for example (Turning). 3- Acquisition of the student's mechanical forming skills, for example (Casting and Blacksmithing). 4- The student acquires basic engineering skills such as Welding, Carpentry, and Electrical installations that serve him in the professional field. 5- Enabling the student to operate the various machines and devices in mechanical operations and formation. 6- Cooperative learning by working collectively.

Indicative Contents المحتويات الإرشادية	1- Introducing the student to the basics of the art of turning and milling, types of cold working machines, the skill of dealing with them, choosing metals, operational tools, and methods of measurement and standardization 2- Introducing the student to the basics of the art of casting, hot forming, metal selection, method of working on casting furnaces and tools, and manufacturing casting molds 3- Familiarize students with the basics of cars and the systems they use, as well as maintenance, disassembly, and assembly processes. 4- Introducing students to the basics of household and industrial electrical appliances, the skill of using tools, and designing electrical circuits and control panels 5- Introducing the student to the basics of the art of plumbing, leveling surfaces, the skill of using tools, manufacturing and installing geometric shapes, and methods of measurement and standardization 6- Introducing the student to the basics of the art of blacksmithing, cold and hot forming of metals, the method of hardening them, and the skills of dealing with hand tools, forming machines, and heating furnaces 7- Introducing the student to the basics of the art of filing and manual operation of metals with the help of manual, electrical, and mechanical tools, the skills of dealing with them, and the methods of measurement and standardization 8- Introducing the student to the basics of the art of welding, the installation and assembly of metals, the types of welding machines, the skills of dealing with them, the types of welding, and the methods of measurement and standardization 9- Introducing the student to the basics of the art of carpentry and woodworking with the help of manual, electrical, and mechanical tools, the skills of dealing with them, and methods of measurement and standardization**.**

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	This course aims to promote a set of learning strategies, including the strategy of learning by lecture, modeling and cooperative learning

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	10	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	0.6
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**		20%		
	Assignments				All
	Projects / Lab.	Every 3 weeks	60%		
	Report				
Summative assessment	**Midterm Exam**				
	Final Exam	Week 16	20%		All
Total assessment			100%		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Fitting workshop Occupational safety and its importance in filing workshops -An introduction to the basics of filing -Pen holder exercise “preparation and preparation
Week 2	Fitting workshop Pencil holder exercises finishing and assembling
Week 3	Fitting workshop -The catcher exercise. - Clamping exercise. Written exam in practical exercises.
Week 4	Carpentry workshop -Occupational safety and its importance in carpentry workshops. - An introduction to carpentry, its types, types of wood, tools used, and preparation Preparing the tools used Face modification exercise using the reindeer
Week 5	Carpentry workshop Garden fence work and how to connect its parts, the eight-star exercise
Week 6	Carpentry workshop - Wood smoothing exercise using smoothing paper - Wood dyeing exercise in three stages Final smoothing and varnishing exercise Written exam in practical exercises
Week 7	The tinsmith workshop Occupational safety and its importance in plumbing workshops An introduction to plumbing, its tools, and plumbing stages Planning and marking exercise on metal plates

Week 8	The tinsmith workshop Geometric shapes Types of individuals and methods of individuals Geometric shape individuals exercise on a metal board
Week 9	The tinsmith workshop Cone members exercise - Exercise of cylinders with an oblique cut Roll forming operations Connection without the use of an intermediary Written exam in practical exercises
Week 10	Electric Workshop Occupational Safety and its importance in electrical workshops An introduction to the basics of electrical installations - Linking a simple circuit consisting of a lamp to the control of a single-way switch. Connect two lamps in series with one-way switch control. Connecting two lamps in parallel with the control of a single road switch. Connect two lights with one-way dual switch control.
Week 11	electric Workshop Connect a fluorescent lamp circuit to a one-way switch control Connecting an electric supply socket circuit to the control of a separate or combined one-way switch Written exam in practical exercises
Week 12	electric Workshop Occupational Safety and its importance in blacksmithing workshops Introduction to the basics of Blacksmithing - Barbell adjustment exercise Eight-star exercise - Exercise forming the number eight in English Exercise forming the number six in English

Week 13	supplementary training curriculum Welding workshop Plumbing workshop Blacksmith's workshop
Week 14	supplementary training curriculum Welding workshop Plumbing workshop Blacksmith's workshop
Week 15	supplementary training curriculum - Automotive workshop - Turning workshop Fitting workshop
Week 16	supplementary training curriculum Carpentry workshop The plumbing workshop electric Workshop

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		
Recommended Texts		
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 Information معلومات المادة الدراسية			
Module Title	**Human Rights**	**Module Delivery**	
Module Type	**Support**	☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**HURI121**		
ECTS Credits	**2**		
SWL (hr/sem)	**50**		
Module Level	1	**Semester of Delivery**	2

Administering Department		EMEN	**College**	EME	
Module Leader	Muaid Waleed		**e-mail**	10755@uotechnology.edu.iq	
Module Leader's Acad. Title		Assist Prof	**Module Leader's Qualification**		MSc
Module Tutor	-		**e-mail**	-	
Peer Reviewer Name		-	**e-mail**	-	
Scientific Committee Approval Date		07/06/2023	**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	It aims to teach sport and its various arts as well as to follow-up with the latest professional and technical developments in sport sciences in order to graduate a highly qualified generation who can practice the professional sport in its different fields. Physical Education and Sport sciences aims to achieve the following: A. Knowledge and Understanding Demonstrate an understanding of the principles and concepts related to a variety of physical Education. B. Movement Composition Students should be able to compose and communicate meaning and ideas through movement. C. Performance and Application Apply tactics, strategies and rules in individual and group situations, health and fitness principles effectively through a variety of physical Activity. D. Social Skills At the end of the course's students should be able to: Work cooperatively, respect themselves, support and encourage others and develop attitudes and strategies that enhance their relationship with others
Module Learning Outcomes	A. Knowledge and Understanding

مخرجات التعلم للمادة الدراسية	A1. Enabling student to get the knowledge and understanding of the theoretical principles of sport. A2. This knowledge includes an in-depth understanding of the skills, tactics and strategies required for effective training, practices and game-day decisions . A3. Helping the students for achieving a physical fitness Improvement , sports skills Acquisition and mental abilities Improvement .
Indicative Contents المحتويات الإرشادية	1. To offer a variety of sports activities including traditional sports, outdoor sports, fitness, lifetime sports, etc., visits to out of school institutions, 2. To offer a variety of training methods to enhance physical fitness components using circuit training, video and ICT tools for movement analysis, observation sheets, etc. 3. To promote the use of self-evaluation sheets, tests, competitions, demonstrations, video analysis, etc., 4. To provide knowledge of the organization of an element of a lesson/a competition/ a tournament; to create awareness of the student's role as a team player, coach, referee, assistant, journalist, observer, etc., 5. To encourage participation with fair play: respecting others, the rules, materials and equipment, cooperating with others, working for a common goal and supporting the teacher, 6. To offer different topics to link theory and practice, being presented by the students as small projects in class.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The learning/ teaching of the sport complementary course develops individual and group needs. It is based on the following didactic principles: 1. acquiring new motor skills and further developing motor skills learned before, 2. using a variety of approaches and teaching methods,

	3. focusing on students' varied learning styles and pace of learning, 4. using differentiation in order to meet students' individual needs, 5. focusing on students' abilities to apply skills, tactics and creative ideas, 6. reinforcing social skills, 7. promoting student's autonomy through teaching and learning, 8. improving students' performance by feedback, evaluation and self-evaluation, 9. linking and integrating practical and theoretical components, 10. using a range of teaching and learning resources including ICT.

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
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
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	7.5% (7.5)	5 and 10	LO #1, #2 and #10, #11
	Assignments				
	Projects / Lab.				

	Report	2	7.5% (7.5)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	1.5hr	15% (15)	10	LO #1 - #10
	Final Exam	3hr	70% (70)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Sports - concept, benefits and types
Week 2	Fitness - the concept and elements of fitness
Week 3	Football - concept + history,
Week 4	Football - basic soccer skills
Week 5	Football Law - Article 1, 2
Week 6	Football Law - Articles 3, 4, 5
Week 7	Basketball - concept + history
Week 8	Basketball - basic basketball skills
Week 9	Volleyball concept and skills
Week 10	Mid-term Exam
Week 11	Muscular system - concept + muscle, injuries
Week 12	Sport and Circulatory System
Week 13	Scouting - concept + stages + scouting law
Week 14	Biorhythm - concept + benefits + historical overview
Week 15	Biorhythm cycles
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	(الكرة الطائرة (تاريخ-مهارات-خطط-ادارة المباراة-والتدريب السلسلة الرياضية/ اساسيات لعبة كرة السلة التدريب الرياضي وآفاق المستقبل تطبيقات في تربية الحركة الكشفية استراتيجيات طرائق وأساليب التدريب الرياضي قانون كرة القدم	no
Recommended Texts		
Websites	https://www.s2s.net/home.php?P_hirek_azonosito=201 https://www.google.com/search?rlz=1C1GCEA_enIQ933IQ934&q https://ar.wikipedia.org/wiki/%D8%AA%D8%AF%D8%B1%D9%8A%D8%A8 https://www.7uah.com/search/label/%D8%A7%D9%84%D8%AA%D8%AF%D8%B1%D9%8A%D8%A8%20%D8%A7%D9%84%D8%B1%D9%8A%D8%A7%D8%B6%D9%8A	

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	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
(0 – 49)	**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 Information معلومات المادة الدراسية			
Module Title	**Mathematics II**	**Module Delivery**	
Module Type	**Basic**	☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**MATH122**		
ECTS Credits	**6**		
SWL (hr/sem)	**150**		
Module Level	1	**Semester of Delivery**	2

Administering Department	EMEN	**College**	EME
Module Leader	Assist Prof. Dr. Ghada Adel Aziz	**e-mail**	50070@uotechnology.edu.iq
Module Leader's Acad. Title	Assistance Professor / PhD	**Module Leader's Qualification**	PhD. Electrical. Eng.
Module Tutor	-	**e-mail**	–
Peer Reviewer Name	-	**e-mail**	-
Scientific Committee Approval Date		**Version Number**	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	The students will learn the second part of the basic math
Module Learning Outcomes	In this course, for students will learn: 1. Differentiation (Derivative Definition, Techniques of Derivative, Applications) 2. Differentiation (Derivative of Trigonometric Functions, Derivative of Inverse Trigonometric Functions, Chain Rule,)

مخرجات التعلم للمادة الدراسية	3. Differentiation (Parametric Equations, Implicit Differentiation) 4. Differentiation (Derivative of Some Functions, Derivative of Hyperbolic Functions, Derivative of Inverse Hyperbolic Functions) 5. Integration (Indefinite Integrals & Substitution Rule) 6. Integration (Definite Integrals, Properties, Relation Between definite & Indefinite Integrals) 7. Forms of Integration (Substitution Methods, By Part, By Tabular) 8. Integration (Partial Fractions for 2nd Equation Degree in Denominator) 9. Integration (Product between Trigonometric Functions, Product Between Hyperbolic Functions) 10. Integration (Simple Square Root, Trigonometric Substitutions, Hyperbolic Substitutions) 11. Integration of (Irrational Functions, Rational Functions) 12. Applications of Definite Integral (Area Under the Curve, Area Between Curve and x-axis, Area between Curve and y-axis, Area Between Two Curves) 13. Differential Equations D.E ,1st degree equation: (1-Direct Integration, 2-Variable Separable) 14. Differential Equations D.E. (3- Homogeneous, 4- Linear Equations) 15. Differential Equations D.E(5- Bernoulli's Equations, 6- Exact)
Indicative Contents المحتويات الإرشادية	In this course, students will learn: ● Differentiation (Derivative Definition, Techniques of Derivative, Applications) ● Differentiation (Derivative of Trigonometric Functions, Derivative of Inverse Trigonometric Functions, Chain Rule,) ● Differentiation (Parametric Equations, Implicit Differentiation) ● Differentiation (Derivative of Some Functions, Derivative of Hyperbolic Functions, Derivative of Inverse Hyperbolic Functions) ● Integration (Indefinite Integrals & Substitution Rule) ● Integration (Definite Integrals, Properties, Relation Between definite & Indefinite Integrals) ● Forms of Integration (Substitution Methods, By Part, By Tabular) ● Integration (Partial Fractions for 2nd Equation Degree in Denominator) ● Integration (Product between Trigonometric Functions, Product Between Hyperbolic Functions) ● Integration (Simple Square Root, Trigonometric Substitutions, Hyperbolic Substitutions) ● Integration of (Irrational Functions, Rational Functions) ● Applications of Definite Integral (Area, Area Under the Curve, Area Between Curve and x-axis, Area Between Curve and y-axis, Area Between Two Curves) ● Differential Equations D.E ,1st degree equation: (1-Direct Integration, 2-Variable Separable) ● Differential Equations D.E. (3- Homogeneous, 4- Linear Equations) ● Differential Equations D.E(5- Bernoulli's Equations, 6- Exact)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The branch use a problem based learning which new and student active method. The method help the student getting the program outcomes.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.8
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	7.5% (7.5)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	7.5% (7.5)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.				
	Report				

Summative assessment	**Midterm Exam**	1.5hr	15% (15)	10	LO #1 - #10
	Final Exam	3hr	70% (70)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Differentiation Derivative by definition Techniques of differentiation & Applications
Week 2	Derivative of trigonometric functions Derivative of inverse trigonometric functions Chain rule
Week 3	Parametric equation Implicit differentiation Derivative of some functions
Week 4	Derivative of hyperbolic functions Derivative of inverse of hyperbolic functions
Week 5	Integration (Indefinite Integrals & Substitution Rule) Relation between indefinite& definite integral
Week 6	Forms of integration Substitution Method By parts By tabulate
Week 7	Forms of integration By partial fractions For 2^{nd} equation degree in denominator
Week 8	Forms of integration Product between trigonometric functions Product between hyperbolic functions

Week 9	Forms of integration Simple square root Trigonometric substitutions Hyperbolic substitutions
Week 10	Mid-term Exam
Week 11	Integration of irrational functions Integration of rational function
Week 12	Applications of definite integral Area under the curve & Area between curve and x- axis , Area between Curve and y-axis, Area between two curves
Week 13	Differential Equations D.E ,1st degree equation: Formation & Solution of differential equation
Week 14	Solution of differential equation Method-1-by direct integration Method -2- by separating the variables Method -3- homogeneous equation
Week 15	Solution of differential equation Method -4- linear equation(use of integrating factor) Method -5- Bernoulli's Equations Method -6-Exact
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Thomas Calculus, George B. Thomas et al, 12th, edition, 2010, USA.	Yes
Recommended Texts		
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 Information معلومات المادة الدراسية				
Module Title	**Physics II**		**Module Delivery**	
Module Type	**Basic**		☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**PHYS123**			
ECTS Credits	**4**			
SWL (hr/sem)	**100**			
Module Level	1	**Semester of Delivery**	2	

Administering Department	EMEN	**College**	EME
Module Leader	Rawa Ahmed Helal	**e-mail**	50105@uotechnology.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	MSc
Module Tutor	-	**e-mail**	-
Peer Reviewer Name	-	**e-mail**	-
Scientific Committee Approval Date	07/06/2023	**Version Number**	1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	In this course, students learn the basic of nano material science, nano engineering and nanotechnology with its different properties like mechanical, electrical, optical. etc. The module also includes a study of the manufacturing methods and their applications and their environmental implications.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	In this course, students will learn: ● Study the general classification of engineering materials, in addition to concept and types of advanced materials ● Concept of nanomaterials science, nanomaterials engineering and environmental implications. ● Analyze the atomic structure and types of nano materials ● Realization the principles, properties, synthesize techniques of nanostructures, and advance applications of these materials. ● Study the applications of nano materials in different fields.
Indicative Contents المحتويات الإرشادية	1. Introduction to nano materials science and engineering. 2. Nano materials structure and types 3. Nano materials applications 4. nano materials properties

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The branch use a problem based learning which new and student active method. The method help the student getting the program outcomes.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**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	7.5% (7.5)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	7.5% (7.5)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.				

	Report				
Summative assessment	**Midterm Exam**	1.5 hr	15% (15)	10	LO #1 - #10
	Final Exam	3hr	70% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction, Fundamentals of nanotechnology Nanomaterial, nanoscience and nanotechnology
Week 2	Nano engineering and nanomaterial environmental implications
Week 3	Classification of nonmaterial Classification according to their origin with application example
Week 4	Classification according to their dimensions with application example
Week 5	Classification according to their nature with application example
Week 6	Nanomaterials characterization by Microscopy, Spectroscopy, X-Ray and Particle size analyzer
Week 7	Nanomaterials Properties Mechanical Properties with application examples
Week 8	the effect of the nano grain size on the mechanical properties
Week 9	Optical properties with application examples
Week 10	Mid-term Exam
Week 11	the effect of the nano grain size on the optical` properties Magnetic Properties, the effect of the nano grain size on the magnetic properties
Week 12	Electrical properties, the effect of the nano grain size on the electrical properties
Week 13	Manufacturing of nanomaterial

Week 14	Manufacturing of nanomaterial
Week 15	Applications of nanomaterials
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	William D. Callister, "Materials science and engineering (An introduction)," 8th edition.	Yes
Recommended Texts	Bryan Harris, "Engineering composite materials, "The Institute of Materials, London, 1999	
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	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
(0 – 49)	**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 Information معلومات المادة الدراسية		
Module Title	Fundamental of Electrical Engineering (AC)	**Module Delivery**
Module Type	Core	☒ **Theory** ☐ **Lecture** ☒ **Lab**
Module Code	FUEE127	

ECTS Credits	6			☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
SWL (hr/sem)	150				
Module Level		1	**Semester of Delivery**		2
Administering Department		**EMEN**	**College**	**EME**	
Module Leader	Fatin Nabeel Abdullah		**e-mail**	50060@uotechnology.edu.iq	
Module Leader's Acad. Title		Assist. Professor	**Module Leader's Qualification**		MSc.
Module Tutor	-		**e-mail**	-	
Peer Reviewer Name		-	**e-mail**	-	
Scientific Committee Approval Date		07/06/2023	**Version Number**		1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	-	**Semester**	-
Co-requisites module	-	**Semester**	-

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives 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 circuits. 5. To understand Kirchhoff's current and voltage Laws problems.

	6. To perform mesh and Nodal analysis.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. 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 various properties of resistors, capacitors, and inductors. 9. Explain the two Kirchoff's laws used in circuit analysis. 10. Identify the method of analysis (Mesh & Nodal) method. 11. Identify the network theorem of Thevenin's and Norton's.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. **A-C circuit** Impedance, admittance, phase diagram, resistance & capacitance, frequency response, inductive & capacitive, reaction power & power factor. AC series circuit, impedance phase diagram, R-L, R-C, series R-L-C, voltage divider rule, R-C frequency response, AC parallel circuits, admittance and phase diagram , R-L ,R-C & parallel R-L-C circuits, current divider rule, combined circuit. Method of A.C. Analysis : Source Conversions, Mesh Analysis. Nodal Analysis, Star-Delta and Delta-Star conversions. Network Theorems for A.C. Circuits : Thevenin's Theorem, Norton's Theorem

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	**78**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	**5**
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**72**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	**5**
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	LO # 1 , 2, 3
	Assignments	1	5%	1--9	LO # 4 , 5
	Projects / Lab.		10%		
	Report	1	5 %	11	6
Summative assessment	Midterm Exam	1.5 hr	15%	10	LO # 1 - 6
	Final Exam	3 hr	60%	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري	
	Material Covered
Week 1	AC circuits : Impedance, admittance, phase diagram,
Week 2	resistance & capacitance, frequency response, inductive & capacitive.
Week 3	reaction power & power factor.
Week 4	AC series circuit, impedance phase diagram.
Week 5	R-L, R-C, series R-L-C,
Week 6	voltage divider rule, R-C frequency response.
Week 7	AC parallel circuits, admittance and phase diagram.
Week 8	R-L ,R-C & parallel R-L-C circuits.
Week 9	current divider rule, combined circuit.
Week 10	Method of A.C. Analysis : Source Conversions.
Week 11	Mesh Analysis.
Week 12	Nodal Analysis.
Week 13	Star-Delta and Delta-Star conversions.
Week 14	Network Theorems for A.C. Circuits : Thevenin's Theorem.
Week 15	Norton's Theorem.
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1 and 2	Lab 1: Thevenin’s theorem
Week 3 and 4	Lab 2: Super Position theorem

Week 5 and 6	Lab 3: Induction & Capacitive Reactance
Week 7 and 8	Lab 4: Oscilloscope
Week 9 and 10	
Week 11 and 12	
Week 13 and 14	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Introductory circuit Analysis by Robert L. Boylestad .	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	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
(0 – 49)	**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 Information معلومات المادة الدراسية		
Module Title	**Engineering Mechanics (Dynamic)**	**Module Delivery**
Module Type	**Core**	**☒ Theory**

Module Code	**ENME124**			☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	EMEN		**College**	EME	
Module Leader	Suad Hamzah Abbas		**e-mail**	50098@uotechnology.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	-		**e-mail**	-	
Peer Reviewer Name	-		**e-mail**	-	
Scientific Committee Approval Date	07/06/2023		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	To introduce the basic engineering principles required for analyzing and solving ● Motion and the forces that produce it.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of the engineering mechanics module, students will be able to: 1. Understand and apply the principles of dynamics in engineering systems. 2. Analyze and solve problems related to motion of particles. 3. Apply vector mathematics and coordinate systems to engineering mechanics problems.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. ● Introduction to dynamic ● Motion of particles: kinematics and kinetics

	• Newton's laws of motion • Work, energy, and power • Impulse and momentum Problem-Solving and Applications • Engineering problem-solving techniques • Case studies and practical examples

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 اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.5
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	7.5% (7.5)	5 and 13	LO #1, #2 and #11, #12
	Assignments	2	7.5% (7.5)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report				
Summative assessment	**Midterm Exam**	1.5hr	15% (15)	10	LO #1 - #10
	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 dynamic
Week 2	Kinematics of particles, rectilinear motion.
Week 3	Velocity , acceleration and ,motion laws
Week 4	Plane curvilinear motion (rectangular coordinate (x-y))
Week 5	Projectile motion
Week 6	Plane curvilinear motion(normal and tangential coordinates(n-t))
Week 7	Plane curvilinear motion(polar coordinates(r-θ))
Week 8	Kinetics of particles , Newton's second law
Week 9	Rectilinear motion.
Week 10	Mid-term Exam
Week 11	Curvilinear motion
Week 12	Kinetics of particles, Work, Power.
Week 13	Kinetics of particles, Efficiency.
Week 14	principle of work and kinetic energy.

Week 15	Impulse & momentum
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Weeks 1,2,3	The fundamental law of rotation
Weeks 4 ,5,6	The law of energy conservation
Weeks 7 ,8,9	Calculating the acceleration of a falling body using a simple pendulum
Weeks 10 ,11,12	Disc rolling on an inclined plane
Weeks 13 ,14	Uniformly accelerated motion of a flywheel
Week 15	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	R. C. Hibbeler, "Engineering Mechanics: Statics & Dynamics", 14th ed. Pearson Prentice Hall.	Yes
Recommended Texts	J. L. Meriam and L.G. Kraige, "Engineering Mechanics Dynamics", John Wiley & Sons, 2013..	Yes
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks %**	**Definition**
Success Group	**A -** Excellent	امتياز	90 - 100	Outstanding Performance

(50 - 100)	**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	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
(0 – 49)	**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 Information معلومات المادة الدراسية		
Module Title	**Engineering Drawing (AutoCAD)**	**Module Delivery**
Module Type	**Support**	☐ **Theory**

Module Code	**ENDR 125**			☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level		1	**Semester of Delivery**		2
Administering Department		EMEN	**College**	EME	
Module Leader	Kays A. Al-Tae'y		**e-mail**	50007@uotechnology.edu.iq	
Module Leader's Acad. Title		Assist. Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	-		**e-mail**	-	
Peer Reviewer Name		-	**e-mail**	-	
Scientific Committee Approval Date		07/06/2023	**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	Students learn how to create, edit, store, and print engineering drawings.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Tour of AutoCAD. 2- User Interface. 3- Entering commands. 4- Basic Objects. 5- Object selection. 6- Entering coordinates.

	7- Object snap. 8- Construction Aids. 9-Solid and curved objects. 10- Adding and Altering objects. 11- Moving and Duplicating Objects.
Indicative Contents المحتويات الإرشادية	Tour of AutoCAD. 2- User Interface. 3- Entering commands. 4- Basic Objects. 5- Object selection. 6- Entering coordinates. 7- Object snap. 8- Construction Aids. 9-Solid and curved objects. 10- Adding and Altering objects. 11- Moving and Duplicating Objects. 12- Modifying and Maneuvering**.**

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The branch uses problem-based learning which new and student-active method. The method helps the student get the program outcomes.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem)	63	**Structured SWL (h/w)**	4

الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	**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**				
	Assignments				
	Projects / Lab.	1.5/2	25% (25)	7, 10	LO #1 - #7
	Report				
Summative assessment	**Midterm Exam**	1.5hr	15% (15)	10	LO #1 - #10
	Final Exam	3hr	60% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Tour of AutoCAD.
Week 2	User Interface.
Week 3	Entering commands.
Week 4	Basic Objects.
Week 5	Object selection.

Week 6	Entering coordinates.
Week 7	Object snap.
Week 8	Construction Aids.
Week 9	Solid and curved objects.
Week 10	Mid-term Exam
Week 11	Moving and Duplicating Objects.
Week 12	Modifying and Maneuvering.
Week 13	Orthographic projection.
Week 14	Isometric Projection.
Week 15	Preparing for the final exam
Week 16	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Computer Aided Drawing. Assistant professor Ali Hussein Ali Saeed, UOT, 2011	Yes
Recommended Texts	Engineering Drawing. Assistant professor Abed Alrassol AL-Khfaf , UOT , 1990	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
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	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

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