First and Second Semester

Module 1

Module Information			
Module Title	Workshops		Module Delivery
Module Type	Support		☐ Theory ☐ Lecture ☐ Lab ☐ Tutorial ■ Practical ☐ Seminar
Module Code	WORSH11		
ECTS Credit/year	4		
SWL/year	100		
Module level	1	Semester of Delivery	1, 2
Module Leader	Training and Workshops Center	College	
Module Leader Academic Title	Prof.	e-mail	twc@uotechnology.edu.iq
Module Tutor		Module Leader's Qualification	Ph.D.
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	1/6/2023	e-mail	
		Version Number	1

Relation with other Modules			
Prerequisite Module	-	Semester	-
Co-requisite Module	-	Semester	-

Module Aims, Learning Outcomes and Inductive Contents	
Module Aims	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	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.
Inductive Contents	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	
Strategies	

Student Workload (SWL)			
Structured SWL (h/sem)	46.5	Structured SWL (h/w)	3.00
Unstructured SWL (h/sem)	3.5	Unstructured SWL (h/w)	0.23
Total SWL (h/sem)	50		
Structured SWL (h/year)	93	Structured SWL (h/w)	3.00
Unstructured SWL (h/year)	7	Unstructured SWL (h/w)	0.23
Total SWL (h/year)	100		

Module Evaluation					
		Time/No.	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative Assessment	Quizzes				
	Assignments				All
	Projects / Practice	Every 3 weeks	60%	Continuous	
	Report				
Summative Assessment	Midterm Exam				
	Exam	Every 3 weeks	40%	Continuous	All
Total assessment			100%		

Delivery Plan (Weekly Syllabus)	
	Materials 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.
Week 16	Fitting workshop Occupational safety and its importance in filing workshops -An introduction to the basics of filing -Pen holder exercise “preparation and preparation”
Week 17	Fitting workshop Pencil holder exercises finishing and assembling.
Week 18	Fitting workshop -The catcher exercise. - Clamping exercise. Written exam in practical exercises.
Week 19	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 20	Carpentry workshop Garden fence work and how to connect its parts, the eight-star exercise
Week 21	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 22	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 23	The tinsmith workshop Geometric shapes Types of individuals and methods of individuals Geometric shape individuals exercise on a metal board
Week 24	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 25	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 26	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 27	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 28	supplementary training curriculum Welding workshop Plumbing workshop Blacksmith's workshop
Week 29	supplementary training curriculum - Automotive workshop - Turning workshop Fitting workshop
Week 30	supplementary training curriculum Carpentry workshop The plumbing workshop electric Workshop

Learning and Teaching Resources		
	Text	Available in the library
Required Texts	Workshop technology and measurements, Ahmed Salem Al-Sabbagh,	yes

Recommended Texts		
Websites		

	Ministry of Higher Education and Scientific Research - Iraq University of Technology College of Science Department of Biotechnology	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	HUMAN RIGHTS			**Module Delivery**	
Module Type	SUPLEMENT			✓ **Theory** **Lecture** **Lab** ✓ **Tutorial** **Practical** **Seminar**	
Module Code	HURI116				
ECTS Credits	2.00				
SWL (hr/sem)	50				
Module Level	1		**Semester of Delivery**	1	
Administering Department	PHYS002		**College**	APSC008	
Module Leader	Nagham A. Hussein		**e-mail**	150006@uotechnology.edu.iq	
Module Leader's Acad. Title	Asst. Professor		**Module Leader's Qualification**	master	
Module Tutor	None		**e-mail**	None	
Peer Reviewer Name	-		**e-mail**	-	
Review Committee Approval	-		**Version Number**	1	

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	1.Developing and flourishing the human personality in its emotional, intellectual and social dimensions, and rooting in its sense of dignity, freedom, equality, social justice and democratic practice. 2. Enhancing people's awareness - women and men - of their rights in a way that helps enable them to transform the principles of human rights into a social, economic, cultural and political reality, and raise their ability to defend, maintain and advance them at all levels. 3. Strengthening the bonds of friendship and solidarity among peoples, enhancing respect for the rights of others, preserving cultural pluralism and diversity, flourishing national cultures for all groups and peoples, enriching the culture of dialogue and mutual tolerance, rejecting violence and terrorism, promoting non-violence and combating intolerance, and providing all people with strong immunity against hate speech. 4. Promoting a culture of peace based on justice and respect for human rights, foremost of which is the right to self-determination, the right to resist occupation, and the democratization of international relations and the institutions of the international community, so as to reflect the common interests of humanity.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Students benefit from knowing the types of rights and their field of application. 2- Clarifying the historical stages of human rights and the extent of their development. 3- Knowing the correct concept of freedoms and democracy. 4 - Providing the student with the moral values that require adherence to them and clarifying the most important rights and duties entrusted to the individual. 5- Knowing the rights and duties of the Iraqi individual 6 - Introduction to the history of human rights and stages of development. 7 - Spreading culture and feeding students from the Islamic side. 8 - How to preserve society and the country by strengthening the country's		

	love for them. 9 - Learn about the most important rights granted to them in accordance with international norms and laws. 10 - Enhancing citizenship among students.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Teaching human rights requires learning to be based on participatory practice in an atmosphere of mutual respect so that everyone is aware of their shared responsibility to make human rights a reality. n the other hand, “human rights education” was defined in a practical and detailed manner for the purpose of the contract, as: “training, publishing and media efforts aimed at creating a global culture in the field of human rights by sharing knowledge and skills and shaping behavior in order to: 1. Promote respect for human rights and fundamental freedoms. 2. The full development of the human personality and its sense of dignity. 3. To promote understanding, tolerance, gender equality, and friendship among all nations, indigenous peoples, and racial, national, ethnic, religious, and linguistic groups. 4. Enabling all individuals to participate effectively in a free society. 5. Advance the activities of the United Nations in order to maintain peace.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	-Relying on concrete and realistic evidence and examples of human rights and the concept of democracy that reflects the nature of society and the environment that fosters the individual. -Teaching students the mechanism of scientific thinking, analysis and deduction. -Motivate students to find realistic problems and solve them in a scientific way. - Brainstorming, which gave the students an opportunity to present and discuss their ideas. -Lectures. -Intellectual questions and discussions.

Student Workload (SWL) الحمل الدراسي للطالب			
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	1.13
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	15% (15)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	15% (15)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	-	-	-	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	The concept of human rights (definition of human rights - their characteristics).
Week 2	Human rights in ancient civilizations, human rights in the Christian and Jewish religions, and human rights in Islam.
Week 3	Human rights sources - international sources - the Universal Declaration of Human Rights - the two international covenants on human rights
Week 4	National Sources - Declaration of the Rights of Man and the French Citizen - French Constitutions and Declarations - Constitution of the Republic of Iraq for the year 2005
Week 5	Human rights guarantees - Human rights guarantees at the internal level - Constitutional guarantees - Judicial guarantees
Week 6	Human rights in Islam - Adoption of the principle of dual responsibility in Islamic society - The religious character of Islamic law - Human trafficking
Week 7	**Mid-term Exam**
Week 8	The concept of democracy (development - definition - dimensions)
Week 9	Forms of democracy (direct democracy - its applications - an assessment of its system)

Week 10	Semi-direct democracy (concept - manifestations - appreciation)
Week 11	Representative democracy (concept - pillars - forms)
Week 12	The Representative Council - the single-parliamentary system and the two-chamber system - the internal organization of the Representative Council
Week 13	The mechanism of the representative system (parliamentary) - the concept of election and its legal adaptation - the electorate (its concept - the formation of the electorate)
Week 14	Organizing the election process - Election systems
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	-
Week 2	-
Week 3	-
Week 4	-
Week 5	-
Week 6	-
Week 7	-

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Human rights, children and democracy, Dr. Maher Saleh Allawi Al-Jubouri, Dr. Raad Naji Al-Jeddah, Dr. Riyadh Aziz Hadi, d. Cackle Abdel-Ankoud, d. Ali Abdul Razzaq Muhammad, d. Hassan Muhammad Shafiq, Dar Ibn Al-Atheer for Printing and Publishing, 2009.	Yes
Recommended Texts	Hadi, Riyadh Azaz. (2005). Human rights (development - contents - protection) (Baghdad). Al-Dulaimi, Hafez Alwan. (2009). Contemporary reading of the issue of human rights.	No
Websites	"Methods, education and culture of human rights", published on the International Information Network (Internet) on the website http://ghrorg-learning.blogspot.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.

	Ministry of Higher Education and Scientific Research - Iraq University of Technology Department of Applied Sciences **Branch of Applied Physics**	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	ELECTRICITY AND MAGNETISM I			**Module Delivery**	
Module Type	CORE			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	ELMA112				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level	1		**Semester of Delivery**	1	
Administering Department	PHYS002		**College**	APSC008	
Module Leader	Ban Khalid Mohammed		**e-mail**	Ban.K.Mohammed@uotechnology.edu.iq	
Module Leader's Acad. Title	Assist Professor		**Module Leader's Qualification**	Msc	
Module Tutor	None		**e-mail**	None	
Peer Reviewer Name			**e-mail**		
Review Committee Approval	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 Aims أهداف المادة الدراسية	1. To develop problem solving skills and understanding of Electric and magnetic circuits theory through the application of techniques. 2. To understand how voltage , current and power from a given circuit. 3. This course deals with the basic concept of Electric and magnetic circuits. 4. This is the basic subject for all Electric and magnetic circuits subject. 5. To understand Kirchhoff's current and voltage Laws problems.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize how electricity works in electrical circuits. 2. List the various terms associated with electrical circuits. 3. Summarize what is meant by a basic electric circuit. 4. Discuss the reaction and involvement of atoms in electric circuits. 5. Describe electrical power, charge, and current. 6. Define Ohm's law. 7. Define Biot-Savar Law and its applications. 8. Explain Torque on a Current Loop in a Uniform Magnetic Field. 9. Explain the two Kirchoff's laws used in circuit analysis. 10. Identify the capacitor and inductor phasor relationship with respect to voltage and current.		
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A - Circuit Theory</u> fundamentals, concepts electrical such as field, force and energy, electrical circuits, connecting methods, and application of electrical laws		

	Transformers, flux, Electrical voltage, The fundamentals, concepts magnetic such as field, force and energy. [15 hrs] flux magnetic circuits, connecting methods, and application of magnetic laws, Then study the electrical, magnetic circuits together. [15 hrs] The methods of linking, The laws of them, The generate the difference of electric voltage using the magnetic field and vice versa.. [10 hrs] RL, RC and RLC circuits - Frequency response of RLC circuits, simple filter and band-pass circuits, resonance and Q-factor, use of differential equations and their solutions. Time response . Introduction to second order circuits. [15 hrs] Revision problem classes [6 hrs] <u>Part B - Analogue Electronics</u> Fundamentals Resistive networks, voltage and current sources, current and voltage division, input resistance, output resistance, coupling and decoupling capacitors, maximum power transfer, RMS and power dissipation, current limiting and over voltage protection. [15 hrs] Active Components and Devices - Basic components of electrical circuits, real and exemplary components. Electric Generators and Fundamentals of Autogenous and Inductive Generation [7 hours] Fundamentals of magnetism, theories of magnetic field generation, magnetic flux, magnetic induction circuits. [15 hours]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	107	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

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	2	10% (10)	2, 12	LO # 3, 4, 6 and 7

	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction - Basics of atomic structure
Week 2	The basics of electrification
Week 3	Resistance and Resistivity, Ohm's Law and Inductance, Capacitance
Week 4	Review of Kirchhoff's Laws, Circuit Analysis - Nodal and Mesh
Week 5	applications 0f electric force
Week 6	Review of Inductor and Capacitor as Circuit Elements, Source-free RL and RC Circuits, Transient Response
Week 7	Mid-term Exam + Unit-Step Forcing, Forced Response, the RLC Circuit
Week 8	Mutual Inductance, Linear and Ideal Transformers, Circuits with Mutual Inductance
Week 9	applications of Electrical voltage, Electric force
Week 10	Ampere's Law in magnetism
Week 11	Biot-Savar Law and its applications
Week 12	Fundamentals and applications of magnetic circuits
Week 13	Thomson's apparatus for measuring e/me, cyclotron

Week 14	Torque on a Current Loop in a Uniform Magnetic Field
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to Agilent VEE and PSPICE
Week 2	Lab 2: Kirchhoff's Laws
Week 3	Lab 3: Using the Oscilloscope
Week 4	Lab 4: Second-Order Transient Responses
Week 5	Lab 5: Series Connection of the RLC Circuit
Week 6	Lab 6: Parallel connection of the RLC circuit
Week 7	Lab 7: Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Fundamentals of Electric Circuits, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education	Yes

Recommended Texts	DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2020, dissidents.	No
Websites		

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.

	Ministry of Higher Education and Scientific Research - Iraq University of Technology Department of Applied Sciences **Branch of Applied Physics**	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	MATHEMATICS I			**Module Delivery**	
Module Type	BASIC			**Theory** **Lecture** **Tutorial** **Seminar**	
Module Code	MATH113				
ECTS Credits	7				
SWL (hr/sem)	175				
Module Level	1		**Semester of Delivery**	1	
Administering Department	PHYS002		**College**	APSC008	
Module Leader	Atheer Jawad Kadhim		**e-mail**	Atheer.J.Kadhim@uotechnology.edu.iq	
Module Leader's Acad. Title	Assistance Professor		**Module Leader's Qualification**	Ph-D	
Module Tutor	None		**e-mail**	None	
Peer Reviewer Name	Raghad kadhim salih		**e-mail**	raghad.k.salih@uobaghdad.edu.iq	
Review Committee Approval	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 Aims أهداف المادة الدراسية	This courses aims to learn the basic principles of applied mathematics and Enable the student to use mathematics for the purpose of applying it in various scientific fields
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. The student's knowledge of trigonometric functions, their graph, domain and corresponding domain, and their derivation 2. The student's knowledge of the inverse of trigonometric functions, their graph, domain and corresponding domain, and special derivation 3. The student's knowledge of the hyperbolic trigonometric functions, their plotting, their domain, and their corresponding field, and his knowledge of the .derivation and their inverse 4. Knowledge of the student's exponential and logistical functions and their derivations
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Develop performance skills in using examples from practical life, such as finding the area and length of a specific wire… 2.To develop the student with the applications of derivation and integration in solving various mathematical problems 3. The ability to be creative, innovative and develop individual skills and talents

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple examples involving some activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
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	112	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11

assessment	**Assignments**	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	General review with a general conception of the topic
Week 2	Limits and Continuity
Week 3	Derivation and its types
Week 4	Exponential and logarithmic functions
Week 5	Trigonometric functions
Week 6	Inverse of trigonometric functions
Week 7	Hyperbolic functions Draw functions and find their derivatives
Week 8	Inverse hyperbolic functions Draw the functions and find their derivatives
Week 9	Exponential and Logarithmic Functions
Week 10	Trigonometric functions
Week 11	Inverse of trigonometric functions
Week 12	Hyperbolic functions Draw functions and find their derivatives

Week 13	Inverse hyperbolic functions
Week 14	Complex numbers
Week 15	complex numbers
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1.Calculus	Yes

	2. analytic geometry (Thomas)	
Recommended Texts	Schaum's Calculus Series	yes
Websites		

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.

	Ministry of Higher Education and Scientific Research - Iraq University of Technology Department of Applied Sciences **Branch of Applied Physics**	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	CLASSICAL MECHANICS I	**Module Delivery**	
Module Type	CORE		**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**
Module Code	CLME111		
ECTS Credits	8		
SWL (hr/sem)	200		

Module Level	1	**Semester of Delivery**	1
Administering Department	PHYS002	**College**	APSC008
Module Leader	Dr. Haitham T.Hussein	**e-mail**	Haitham t.hussein@uotechnology.edu.iq
Module Leader's Acad. Title	Assist Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	None	**e-mail**	None
Peer Reviewer Name		**e-mail**	
Review Committee Approval	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 Aims أهداف المادة الدراسية	6. To develop problem solving skills and understanding of classic mechanics theory through the application of techniques. 7. To understand what is physics Science, Physical Quantity, unit systems, unit systems and dimensional Analysis. 8. This course deals with the basic concept of mechanics . 9. This is the basic subject for Scalars and Vectors, Coordinate Systems And Vector Representation 10. To understand Motion, distance and displacement, , Instantaneous velocity , also average speed and average velocity. 11. To understanding the Newton's First Law of Motion, Newton's Second Law and Newton's Third Law with applications .		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	11. Discuss the basic properties of classical mechanics with its application in our daily life. 12. Recognize between scalar and vector quantities. 13. Discuss the difference between the Motion in one dimensions and two dimension with examples. 14. Discuss the various terms associated with linear and circular motion. 15. Summarize what is meant the properties of projectile motion. 16. Discuss the Free-fall under gravity. 17. Describe the Mass and Weight and explain the difference between them. 18. Define Newton's Law. 19. Identify the forces and Work . 20. Discuss the relation between the work and kinetic energy. 21. Explain the Work Done by the Gravitational Force. 22. Identify and explain the momentum.		
Indicative Contents			

المحتويات الإرشادية	Indicative content includes the following. Part A - Physics and Measurements physics Science– Unit systems definition,Derived quantities Dimensional Analysis, Scalars and Vectors Coordinate Systems, Unit Vectors and Multiplication of Vector [15 hrs]. Motion in One Dimension– Motion, Distance and Displacement. Average Speed and Average Velocity, Instantaneous velocity, Acceleration, Time Independent Acceleration equation, Free-fall under gravity. [15 hrs] Motion in Two Dimensions- definition of Motion in two dimension with constant acceleration, Properties of Projectile Motion. [10 hrs] Force and Motion- Newton's First, second and third Law of Motions, difference between the Mass and Weight, definitions of Forces, and Types of forces . [15 hrs] Revision problem classes [6 hrs] Part B - Work and kinetic Energy Fundamentals of work and kinetic energy- Work done by a constant force; study the Work done by a varying force, Work Done by the Gravitational Force, explain the Power . [15 hrs] Circular and rotational motion–properties of Circular motion, difference between Circular and rotational motion Angular Displacement, Velocity and Acceleration, and Rotational Work and Kinetic Energy. [7 hrs] Liner Momentum – definition of momentum, conservation of momentum, collisions types, inelastic and elastic collisions. [15 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	107	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

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	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	

	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction - Physics and Measurements, What is physics Science? application of physics in fields.
Week 2	Physical Quantity, Unit systems, Unit systems and Dimensional Analysis. Examples
Week 3	Define Vectors- Scalars and Vectors, Coordinate Systems, equation of scalar and vector
Week 4	Vector Representation And Vector addition, application of vectors, examples.
Week 5	Vector subtraction, vector Components, unit vectors, examples
Week 6	finding the magnitude and direction of vector and multiplication of vector, vectors and mathematics
Week 7	What is motion, Motion in one Dimension, type of Motion, Distance and Displacement, difference between speed and velocity, examples.
Week 8	Average speed and average Velocity, Instantaneous velocity, and Acceleration, examples
Week 9	Distance, Time and under Constant Acceleration ,Time Independent Acceleration equation,
Week 10	Distance and displacement, where does this equation come from, and Free-fall under gravity, properties of free fall, examples.
Week 11	What is motion in two dimensions- Motion in two dimensions with constant acceleration, examples
Week 12	Derive mathematics equation of two dimension , difference between one dimension and two dimensions, examples

Week 13	Derive the equations between one and two dimensions, application of motion in two dimentions,examples
Week 14	Calculate the maximum vertical distance (MAXIMUM HEIGHT), The time of Flight (T), the maximum horizontal distance (R) (RANGE).examples.
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to the mechanics experiment, General Instructions.
Week 2	Lab 2: Coefficient of Static Friction between two Surfaces
Week 3	Lab 3: prove of Hooke's law and harmonic motion
Week 4	Lab 4: prove the Gravitational force using a simple pendulum
Week 5	Lab 5: Finding the coefficient of liquid viscosity by Stock method
Week 6	Lab 6: measure the Young Modulus
Week 7	Lab 7: Tuning Fork in air

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Serway - Physics for Scientists and Engineers 6e.	Yes

Recommended Texts	Fundamentals of Physics Extended.	No
Websites		

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.

	Ministry of Higher Education and Scientific Research - Iraq University of Technology Department of Applied Science Laser science and technology	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Chemistry			**Module Delivery**	
Module Type	BASIC			✓ **Theory** ✓ **Lecture** ✓ **Lab** ✓ **Tutorial** **Practical** **Seminar**	
Module Code	CHEM115				
ECTS Credits	3				
SWL (hr/sem)	75				
Module Level	1		**Semester of Delivery**	1	
Administering Department	PHYS002		**College**	APSC008	
Module Leader	Dr. Firas Al-Oqaili		**e-mail**	100074@uotechnology.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	None		**e-mail**	None	

Peer Reviewer Name	None	**e-mail**	None
Review Committee Approval	01/06/2023	**Version Number**	1

Relation With Other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	12. Introducing the student to the scientific principles of science theories. 13. To develop problem solving skills and understanding of general chemistry through the application of techniques. 14. This course deals with the basic concept of general chemistry. 15. This is the basic subject for all chemistry phenomena subject. Teaching the student how to process to obtain results that are consistent with practical results. 16. Introducing the student to how to build scientific theories in chemistry.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	23. Introducing the student to the important laws and chemical equations. 24. List the various terms associated with general chemistry. 25. Teaching students how to use and apply theoretical laws in laboratory experiments. 26. Discuss the reaction and involvement of elements… 27. The possibility of applying these experiments and methods and benefiting from them industrially or commercially in order to reduce time and cost. 28. Define groups of elements in periodical table 29. Identify the principal concepts of elements (atoms, molecules, compounds…etc.), applications. 30. Conducting special applications manually inside the laboratory. 31. Giving additional skills to the students when using the tolls and conducting measurements of rection. 32. Gaining experience in dealing with equipments and raising their awareness to avoid risks when misused.

Indicative Contents المحتويات الإرشادية	Introducing the student to the scientific principles of science theories. to develop problem-solving skills and understanding of general chemistry through the application of techniques. This course deals with the basic concept of general chemistry. This is the basic subject for all chemistry phenomena subject. teaching the student how to process to obtain results that are consistent with practical results. Introducing the student to how to build scientific theories in chemistry.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Theoretical lectures 2. Weekly theoretical exercises in the classroom. 3. Stimulating scientific thinking among the student. 4. The ability to understand practical applications of the laws of physics. 5. Weekly exercises implemented in the classroom. 6. Surprise exams are distributed throughout the school year. 7. Scientific reports submitted by the student. 8. Online exams

Student Workload (SWL) الحمل الدراسي للطالب			
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	12	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	0.8
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**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (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	**Lab safety (Risks and Incidents)**
Week 2	**Lab safety (The requirements that must followed after finished from the lab.)**
Week 3	**Lab safety (The demands dealing with the storage of chemicals and tools in the lab.)**
Week 4	**General view of chemistry course (1)**
Week 5	**General view of chemistry course (2)**

Week 6	**Structure of Chemical Compounds (1)**
Week 7	**Structure of Chemical Compounds (2)**
Week 8	**Mid Exam**
Week 9	**Solutions**
Week 10	**Acids, Bases and salts**
Week 11	**Chemical Nomenclature**
Week 12	**Fundamental Units of measurement**
Week 13	**Fundamental of Analytical Chemistry**
Week 14	**Periodical Table (1)**
Week 15	**Periodical Table (2)**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Preparation of Standard Solution
Week 2	Lab 2: Standardization of HCl and the Determination of Sodium Hydroxide Solution Normality
Week 3	Lab 3: Quantitative determination of carbonate and hydroxide in mixture
Week 4	Lab 4: Acidity of Vinegar
Week 5	Lab 5: Back Titration
Week 6	Lab 6: Oxidation - Reduction Reaction
Week 7	Lab 7: Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	اساسيات الكيمياء العامة ؟ أ.د.حسن احمد شحاتة (2005)	Yes
Recommended Texts		
Websites		

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.

	Ministry of Higher Education and Scientific Research - Iraq University of Technology Department of applied science Laser Science and Technology	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	COMPUTER SCIENCE			**Module Delivery**	
Module Type	BASIC			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	COSC123				
ECTS Credits	3				
SWL (hr/sem)	75				
Module Level		1	**Semester of Delivery**		2
Administering Department		PHYS002	**College**		APSC008
Module Leader			**e-mail**		
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		Ph.D.

Module Tutor	None	**e-mail**	None
Peer Reviewer Name	Dr. JabbarA.Eleiwy	**e-mail**	Jabar.a.eleiwy@uotechnology.edu.iq
Review Committee Approval	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 Aims أهداف المادة الدراسية	1. The course aims to understand the concept of computer content. 2. To develop the student skills in Microsoft Office application of techniques. 3. To understand the definition of the computer, its basics, branches, and applications. 4. This course deals with the basic concept of the Excel program. 5. This is the basic subject for all mathematical functions of Excel subject. 6. To understand extracting the range, average, maximum, and minimum of columns and rows. 7. To perform mesh and Nodal analysis.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize the concept of computers. 2. The students recognize the introduction to the computer. 3. The students recognize Windows versions and systems 4 .The students recognize and study the basic components of the computer. 5. Recognize the concept of computer use. 6. The students recognize the hardware components. 7. Recognize what are software components. 8. Students recognize and study the Microsoft Hardware Software

	9. Learn what are Microsoft Excel, and its applications . 10. Learn how to apply the mathematic applications and text in Excel.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. The Labs, and quizzes
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 and interactive tutorials.

Student Workload (SWL) الحمل الدراسي للطالب			
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	12	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	0.8
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**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction - General definition of a computer
Week 2	Basics of the components of a computer
Week 3	The computer operating systems
Week 4	Review of Windows operating systems
Week 5	The desktop components, command list of the taskbar, List of shortcut commands for the taskbar, Adding, deleting and moving documents
Week 6	Microsoft word system The basic elements of Word, Word toolbars and Word page settings
Week 7	Mid-term Exam + Unit-Step Forcing, Forced Response, the RLC Circuit

Week 8	Microsoft Excel- Introduction
Week 9	Excel Fundamentals
Week 10	Understanding Workbooks
Week 11	Typing text or numbers into A worksheet
Week 12	Typing simple formulas in a worksheet
Week 13	Understanding formatting
Week 14	Inserting and deleting worksheets
Week 15	Selecting ranges
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab1: Introduction - List of shortcut commands for the Taskbar
Week 2	Lab2: Adding, deleting, and moving documents
Week 3	Lab3: Microsoft word system
Week 4	Lab4: The basic elements of Word
Week 5	Lab5: Word toolbars
Week 6	Lab6: Word page settings
Week 7	Lab7: How to deal with the Word buttons

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Windows , Microsoft word and Fundamentals of Excel	No
Recommended Texts	Fundamentals of Excel	No
Websites	chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.sgul.ac.uk/about/our-professional-services/information-services/library/documents/training-manuals/Excel-Fundamentals-Manual.pdf	

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.

	Ministry of Higher Education and Scientific Research - Iraq University of Technology Department of Applied Sciences **Branch of Applied Physics**	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	CLASSICAL MECHANICS II			**Module Delivery**	
Module Type	CORE			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	MATH123				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level	1		**Semester of Delivery**	2	
Administering Department	PHYS002		**College**	APSC008	
Module Leader	Dr. Haitham T. Hussein		**e-mail**	Haitham t.hussein@uotechnology.edu.iq	
Module Leader's Acad. Title	Assistant Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	None		**e-mail**	None	
Peer Reviewer Name			**e-mail**		
Review Committee Approval	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 Aims أهداف المادة الدراسية	17. To understand what is physics Science, Physical Quantity, unit systems, unit systems and dimensional Analysis. 18. This course deals with the basic concept of mechanics . 19. This is the basic subject for Scalars and Vectors, Coordinate Systems And Vector Representation 20. To develop problem-solving skills and an understanding of classic mechanics theory through the application of techniques. 21. To understand Motion, distance, displacement, Instantaneous velocity, also average speed and average velocity. 22. To understand the Newton's First Law of Motion, Newton's Second Law and Newton's Third Law with applications.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	33. Discuss the basic properties of classical mechanics with its application in our daily life. 34. Recognize between scalar and vector quantities. 35. Discuss the difference between the Motion in one dimension and two dimensions with examples. 36. Discuss the various terms associated with linear and circular motion. 37. Summarize what is meant the properties of projectile motion. 38. Discuss the Free-fall under gravity. 39. Describe the Mass and Weight and explain the difference between them. 40. Define Newton's Law. 41. Identify the forces and Work. 42. Discuss the relation between the work and kinetic energy. 43. Explain the Work Done by the Gravitational Force. 44. Identify and explain the momentum.		
Indicative Contents			

المحتويات الإرشادية	Indicative content includes the following. Part A - Physics and Measurements physics Science– Unit systems definition, Derived quantities Dimensional Analysis, Scalars and Vectors Coordinate Systems, Unit Vectors and Multiplication of Vectors [15 hrs]. Motion in One Dimension– Motion, Distance, and Displacement. Average Speed and Average Velocity, Instantaneous velocity, Acceleration, Time Independent Acceleration equation, and Free-fall under gravity. [15 hrs] Motion in Two Dimensions- definition of Motion in two dimensions with constant acceleration, Properties of Projectile Motion. [10 hrs] Force and Motion- Newton's First, second, and third Law of Motions, difference between the Mass and Weight, definitions of Forces, and Types of forces. [15 hrs] Revision problem classes [6 hrs] Part B - Work and kinetic Energy Fundamentals of work and kinetic energy- Work done by a constant force; study the Work done by a varying force, Work Done by the Gravitational Force, explain the Power . [15 hrs] Circular and rotational motion–properties of Circular motion, difference between Circular and rotational motion Angular Displacement, Velocity and Acceleration, and Rotational Work and Kinetic Energy. [7 hrs] Liner Momentum – definition of momentum, conservation of momentum, collision types, inelastic and elastic collisions. [15 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	107	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

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	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	

	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction, what is Projectile Motion, Properties of Projectile, difference between one direction motion and two direction motion
Week 2	state of projectile, types of projectiles, application of projectile , Equation of path, and examples
Week 3	Force and Motion- what is Newton's First Law of Motion, examples , Newton's Second Law, examples, Newton's Third Law, example.
Week 4	What is Force, the force and Motion, relation between force and movement, examples
Week 5	Definition the newton's law, what is Newton's First Law of Motion, moment of inertia examples ,
Week 6	Newton's Second Law, the difference between liner acceleration and gravitational acceleration, relation between force and acceleration, examples, Newton's Third Law, example.
Week 7	Difference between mass and weight, Units of measurement,
Week 8	What is Forces, types of forces, normal force, friction force, weight and examples.
Week 9	Introduction of Work, definition, type of work , Work done by a constant force,
Week 10	Work done by a varying force, work done by weight force, relation between work and kinetic energy, calculate the wok equation, examples
Week 11	Work and Kinetic Energy, Work Done by the Gravitational Force Power-definition of power.
Week 12	Circular and rotational motion–properties of circular motion, difference between Circular and rotational motion. angular displacement, velocity and acceleration, and rotational work and

	kinetic energy
Week 13	Liner Momentum-what is momentum, impulse, conservation of momentum,
Week 14	Collisions- Inelastic Collisions, Elastic Collisions, and examples
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to the mechanics experiment, General Instructions.
Week 2	Lab 2: Coefficient of Static Friction between two Surfaces
Week 3	Lab 3: prove of Hooke's law and harmonic motion
Week 4	Lab 4: prove the Gravitational force using a simple pendulum
Week 5	Lab 5: Finding the coefficient of liquid viscosity by Stock method
Week 6	Lab 6: measure the Young Modulus
Week 7	Lab 7: Tuning Fork in air

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Serway - Physics for Scientists and Engineers 6e.	Yes

Recommended Texts	Fundamentals of Physics Extended.	No
Websites		

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.

	Ministry of Higher Education and Scientific Research - Iraq University of Technology Department of Applied Sciences **Branch of Applied Physics**	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	MATHEMATICS II			**Module Delivery**	
Module Type	BASIC			**Theory** **Lecture** **Tutorial** **Seminar**	
Module Code	MATH123				
ECTS Credits	7				
SWL (hr/sem)	175				
Module Level	1		**Semester of Delivery**	2	
Administering Department	PHYS002		**College**	APSC008	
Module Leader	Atheer Jawad Kadhim		**e-mail**	Atheer.J.Kadhim@uotechnology.edu.iq	
Module Leader's Acad. Title	Assistance Professor		**Module Leader's Qualification**	PhD	
Module Tutor	None		**e-mail**	None	
Peer Reviewer Name	Raghad Kadhim Salih		**e-mail**	raghad.k.salih@uobaghdad.edu.iq	
Review Committee Approval	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 Aims أهداف المادة الدراسية	This course aims to learn the principles of applied mathematics and Enable the student to use mathematics for the purpose of applying it in various scientific fields		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. The student's knowledge of trigonometric functions, their graph, domain and corresponding domain, and their derivation 2. The student's knowledge of the inverse of trigonometric functions, their graph, domain and corresponding domain, and special derivation 3. The student's knowledge of the hyperbolic trigonometric functions, their plotting, their domain, and their corresponding field, and his knowledge of the .derivation and their inverse 4. Knowledge of the student's exponential and logistical functions and their derivations		
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Develop performance skills in using examples from practical life, such as finding the area and length of a specific wire… 2.To develop the student with the applications of derivation and integration in solving various mathematical problems 3. The ability to be creative, innovative and develop individual skills and talents		

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials, and by considering type of simple examples involving some activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
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	112	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11

assessment	**Assignments**	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	General review with a general conception of the topic
Week 2	Limits and Continuity
Week 3	Derivation and its types
Week 4	Exponential and logarithmic functions
Week 5	Trigonometric functions
Week 6	The inverse of trigonometric functions
Week 7	Hyperbolic functions Draw functions and find their derivatives
Week 8	Inverse hyperbolic functions Draw the functions and find their derivatives
Week 9	Exponential and Logarithmic Functions
Week 10	Trigonometric functions
Week 11	The inverse of trigonometric functions
Week 12	Hyperbolic functions Draw functions and find their derivatives

Week 13	Inverse hyperbolic functions
Week 14	Complex numbers
Week 15	complex numbers
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1. Calculus	Yes

	2. Analytic geometry (Thomas)	
Recommended Texts	Schaum's Calculus Series	yes
Websites		

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 is required but credit awarded
	F – Fail	راسب	(0-44)	A 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.

	Ministry of Higher Education and Scientific Research - Iraq University of Technology Department of Applied Sciences **Branch of Applied Physics**	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	ENGLISH LANGUAGE			**Module Delivery**	
Module Type	SUPLEMENT			**Theory** **Lecture** **Tutorial** **Seminar**	
Module Code	ENLA126				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level		1	**Semester of Delivery**		2
Administering Department		PHYS002	**College**	APSC008	
Module Leader	Aiyah S. Noori		**e-mail**	Aiyah.s.noori@uotechnology.edu.iq	
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		PhD
Module Tutor	None		**e-mail**	None	
Peer Reviewer Name			**e-mail**		
Review Committee Approval		13/06/2023	**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 Aims أهداف المادة الدراسية	This course aims to learn the principles of the English language by combining the best of traditional approaches - solid grammar and practice, vocabulary development, etc. - and newer approaches, such as communicative role-play and personalization.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Grammar has a core place in language teaching and learning. 2. A wide variety of practice tasks in all four skills are essential to language learning. 3. Everyday expressions, particularly spoken English, also need a place in the syllabus. These can be functional, social, situational, or idiomatic.		
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Acquiring knowledge of the grammar as written. 2. Developing the skill of text reading. 3. Learning new vocabulary words. 4. Discussing and explaining the topics about daily life 5. Understanding and analyzing the techniques used by the writers to develop the ability of the student to substitution of the thinking technique.		
Learning and Teaching Strategies استراتيجيات التعلم والتعليم			
Strategies	Students acquire a general knowledge of the English language and increase their ability to speak properly in accordance with the principles and grammar by enhancing students skill to write sentences and express correctly with the least linguistic mistakes and enhancing the importance of public discussion that increases the student's self-confidence by using the right pronouncing and vocabulary through preparing reports on general subjects, as one of the goals of learning English in the first stage is to link the scientific English with relevant		

	external scientific in Physics to reach the goal and purpose of the module.

Student Workload (SWL) الحمل الدراسي للطالب			
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	1.2
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	15% (15)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	15% (15)	2, 12	LO # 3, 4, 6 and 7

	Projects / Lab.				
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Unit One: Hello** (Introduction, Am/Is/Are, What's This In English?, Numbers 1-10, Plural, Good Morning)
Week 2	**Unit Two: Your World** (Countries, Pronouns, Questions, Adjective, Numbers 11-30)
Week 3	**Unit Three: All About You** (Verb To Be, Vocabulary, Question And Negative, Social Expression(1)
Week 4	**Unit Four: Family And Friends** (Possessive 'S, The Alphabet, Vocabulary Revision, Has/Have)
Week 5	**Unit Five: The Way I Live** (Present Simple, Language And Nationalities)
Week 6	**Unit Six: Every Day** (Present Simple –He/She, Preposition – In/ At / On, The Time, Days Of Week)
Week 7	**Unit Seven: My Favorite** (Questions, Pronouns- Me/Him, Possessive Adjective- My/His, This That, Can I..?, Adjective)
Week 8	**Unit Eight: Where I Live** (Preposition On/ Under/ Next To, There Is/ There Are, Directions)

Week 9	**Unit Nine: Times Past** (Past Simple- Irregular Verbs, Was/ Were, Have/ Do/ Go, Months And Date)
Week 10	**Unit Ten: We Had A Great Time** (Past Simple – Regular Verbs, Question And Negatives, Making Conversation)
Week 11	**Unit Eleven: I Can Do That** (Can/ Can't, Adverbs- Very Well/Not At All, Request And Offers, Adjective + Noun)
Week 12	**Unit Twelve: Please And Thank You** (Some/Any, I'd Like A../ I'd Like To.., Offering Things, Like And Would Like, Food)
Week 13	**Unit Thirteen: Here And Now** (Present Continuous, Present Simple Or Continuous, Opposite Verbs- Leave/ Arrive, What's The Matter, Colours And Clothes)
Week 14	**Unit Fourteen: It's Time To Go** (Future Plans, Grammar Revision, From Filling, Social Expressions (2)
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	New Headway Plus, John and Liz Soars, Oxford University Press.	Yes
Recommended Texts	Headway Academic Skills, Richard Harrison, Series Editor: Liz and John Soars, OXFORD.	Yes
Websites	https://elt.oup.com/catalogue/items/local/ae/new_headway_plus/?cc=dk&selLanguage=en	

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.

	Ministry of Higher Education and Scientific Research - Iraq University of Technology Department of Applied Sciences **Branch of Applied Physics**	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	ELECTRICITY AND MAGNETISM II			**Module Delivery**	
Module Type	CORE			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	ELMA122				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level	1		**Semester of Delivery**	2	
Administering Department	PHYS002		**College**	APSC008	
Module Leader	Ban Khalid Mohammed		**e-mail**	Ban.K.Mohammed@uotechnology.edu.iq	
Module Leader's Acad. Title	Assist Professor		**Module Leader's Qualification**	Msc	
Module Tutor	None		**e-mail**	None	
Peer Reviewer Name			**e-mail**		
Review Committee Approval	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 Aims أهداف المادة الدراسية	23. This course deals with the basic concept of Magnetic Force Between Two Parallel Conductors . 24. This is the basic subject for all Electric and magnetic circuits subject. 25. To understand how Electric Dipole in an Electric Field . 26. To develop problem solving skills and understanding of Capacitance and Dielectrics . 27. To understand The Magnetic Field of a Solenoid		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	45. Recognize Capacitance and Dielectrics. 46. List the various terms associated with electrical circuits. 47. Summarize what is meant by Energy Stored in a Charged Capacitor. 48. Discuss the reaction and involvement of atoms in electric circuits. 49. Describe electrical power, charge, and current. 50. Define Faraday's Law of Induction 51. Define The Magnetic Field of a Solenoid 52. Explain The Magnetic Force Between Two Parallel Conductors. 53. Explain Energy Stored in a Charged Capacitor.. 54. Identify Displacement Current and the General Form of Ampère's Law.		
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A - Circuit Theory</u> Fundamentals, concepts Magnetic Fields and Forces , An Electron Moving in a Magnetic Field, Magnetic Force Acting on a Current-Carrying Conductor , Force on a Semicircular Conductor. [15 hrs]		

	Torque on a Current Loop in a Uniform Magnetic Field, The Magnetic Dipole Moment of a Coil, Satellite Attitude Control, The D'Arsonval Galvanometer . [15 hrs] Parallel-Plate Capacitor, Cylindrical and Spherical Capacitors Combinations of Capacitors, Energy Stored in a Charged Capacitor, Capacitors with Dielectrics . [10 hrs] Two Parallel Conductors, Ampère's Law ,The Magnetic Field Created by a Long Current-Carrying Wire, The Magnetic Field Created by a Toroid [15 hrs] Revision problem classes [6 hrs] <u>Part B - Analogue Electronics</u> Fundamentals Motion of a Charged Particle in a Uniform Magnetic Field, A Proton Moving Perpendicular to a Uniform Magnetic Field, Bending an Electron Beam, Applications Involving Charged Particles Moving in a Magnetic Field . [15 hrs] Fundamentals of magnetism, Faraday's Law of Induction, magnetic flux, One Way to Induce an emf in a Coil, An Exponentially Decaying Field. [7 hours] Types of Capacitors, Electric Dipole in an Electric Field, An Atomic Description of Dielectrics , A Model for Electrical Conduction, Resistance and Temperature, Superconductors . [15 hours]
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes,

	interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	113	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

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	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction - Capacitance and Dielectrics
Week 2	Combinations of Capacitors
Week 3	Energy Stored in a Charged Capacitor
Week 4	Capacitors with Dielectrics
Week 5	Electric Dipole in an Electric Field
Week 6	An Atomic Description of Dielectrics
Week 7	The Magnetic Force Between Two Parallel Conductors
Week 8	The Magnetic Field of a Solenoid
Week 9	Magnetic Flux
Week 10	Gauss's Law in Magnetism
Week 11	Displacement Current and the General Form of Ampère's Law
Week 12	Faraday's Law of Induction
Week 13	Lenz's Law
Week 14	Generators and Motors
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1:
Week 2	Lab 2:
Week 3	Lab 3:
Week 4	Lab 4:
Week 5	Lab 5:
Week 6	Lab 6:
Week 7	Lab 7: Final Exam

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

	engineering

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.