ع 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 Department of Applied Science Medical and industrial material science	

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	HURI112		
ECTS Credits	2.00		
SWL (hr/sem)	50		

Module Level	1	**Semester of Delivery**	1
Administering Department	Medc003	**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 Science Medical and industrial material science	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Analytical Chemistry			**Module Delivery**	
Module Type	BASIC			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	ANCH113				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level		1	**Semester of Delivery**		1
Administering Department		Medc003	**College**	APSC008	
Module Leader	Ghadah safaa saud		**e-mail**	ghadah.s.saud@uotechnology.edu.iq	
Module Leader's Acad. Title		Assistant lect.	**Module Leader's Qualification**		M.Sc.
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. The course aims to introduce the student to the methods of analysis and the importance of using them. 2. The semester deals with the definition of analytical chemistry and its types, methods of quantitative and qualitative analysis of chemicals, and methods of expressing concentration.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. To familiarize the student with different concepts such as the concept of analytical chemistry. 2. To multifaceted development of analysis methods. 3. To improve and scientifically explain current analysis methods. 4. Develop new methods of analysis consistent with the requirements of advanced science and modern industry. 5. Analysis of natural materials and surroundings (atmosphere, hydrosphere and land) as well as technical materials. 6. Securing chemical analytical control over industry and scientific research in the field of chemistry, chemical industry and biochemistry. 7. Students learn the basic vocabulary that help the students in knowing the qualitative analysis of materials. 8. Students learn to deal with quantitative and gravimetric analysis of materials.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A - Analytical Chemistry</u> Definition for analytical chemistry, Important Terms used in analytical chemistry and definitions units of concentrations, Molarity (M) Normality (N),

	Formality (F) Molality (m), Calculate the concentration [15 hrs] Definition dilution process, calculate concentration Of dilute solution, Definition dilution process, calculate concentration Of dilute solution, Calculate concentration of stock and diluted solution, Weight percent ,Volume percent ,Weight/volume percent, Parts per million and parts per billion [8 hrs] Calculate the concentration in different percent, Acid-Base reaction Precipitation reaction, Oxidation-Reduction (Redox) reaction Complex formation reaction, Type of reaction [15 hrs] Acid Buffer Base Buffer, This method of analysis can be summarized on measuring the volume of the standard solution which is equivalent to another solution of unknown concentration [12 hrs] <u>Part B – Inorganic and physical chemistry</u> explores the basic concepts of chemistry such as the structure of atoms, electronic configuration and orbitals. Atomic structure, Ceramic bonds, covalent and ionic Structures, Bohr Model for Atom, Isotopic and Atomic Weight, Oxidation Number and Valence Number [15 hrs] calculate Isotopic and Atomic Weight, Metals ,Non Metals ,Metalloids or Semi Metals ,Noble Gases, Principle Quantume Number ,Secondary Quantume Number ,Magnitic Quantume Number ,Spin Quantume Number [15 hrs] Electron Configuration of the main Transition Elements , Stable Octet Configuration, Radii of Atomic and ions,Electronegativity ,Ionization Energy [12 hrs] Electron transfer , V. Comparison and properties of electrochemical and chemical rate constants, Oxidative agent ,reduced factor , Reduction and Oxidation reactions,

	Application of the Nirnest equation [15 hrs] Revision problem classes [6 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, slide viewer, computer, 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	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5.2
Unstructured SWL (h/sem)	97	**Unstructured SWL (h/w)**	6.4

الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
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 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 - Definition for analytical chemistry, important terms used in analytical chemistry and definitions units of concentrations.
Week 2	How do we express concentration of solutions - Molarity (M) Normality (N)
Week 3	Express concentration of solutions - Formality (F) Molality (m).
Week 4	Express concentration of solutions - Calculate the concentration

Week 5	Dilution - Definition dilution process, calculate concentration of dilute solution
Week 6	Diluted solution - Calculate concentration of stock and diluted solution
Week 7	Concentration of solution by percent - Weight percent, Volume percent, weight/volume percent, Parts per million and parts per billion
Week 8	Concentration of solution by percent Ceramics and Testing - Calculate the concentration in different percent.
Week 9	Type of Chemical Reactions - Acid-Base reaction, Precipitation reaction
Week 10	Type of Chemical Reactions - Oxidation-Reduction (Redox) reaction, complex formation reaction
Week 11	Type of reaction
Week 12	Buffer Solution - Acid Buffer, Base Buffer
Week 13	Buffer solution - is used widely in industries to maintain the pH of solutions stable
Week 14	NEUTRALIZATION TITRATION - this method of analysis can be summarized on measuring the volume of the standard solution which is equivalent to another solution of unknown concentration
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: volumetric glassware and balances
Week 2	Lab 2: sampling and statistical treatment of data
Week 3	Lab 3: Redox titration (dichromate titration)

Week 4	Lab 4: precipitation titration
Week 5	Lab 5: Gravimetric determination of sulfate

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Vogel, Quantitative Inorganic Analysis, 4th Ed., Jakarta: Penerbit Buku Kedokteran E G C. Svehla, G. & Vogel, A.L., Trans. By Setiono, 1985	Yes
Recommended Texts	A Quantitative Inorganic Analysis, 3rd Ed., New York: John Wiley & Sons Inc. Skoog, D.A. & West, D.M., 1990	No
Websites	Skoog, D.A., Holler, F.J. and Crouch, S.R. (2017) Principal of Instrumental Analysis. 7th Edition, Sunder College Publisher, New York.	

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	**FX –** Fail	مقبول بقرار	(45-49)	More work required but credit awarded
(0 – 49)	**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 Medical and industrial material science	

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	COSC114	
ECTS Credits	3	
SWL (hr/sem)	75	

Module Level	1	**Semester of Delivery**	1
Administering Department	Medc003	**College**	APSC008
Module Leader	Dr. JabbarA.Eleiwy	**e-mail**	Jabar.a.eleiwy@uotechnology.edu.iq
Module Leader's Acad. Title	Lecturer	**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	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	1. Recognize the concept of computers. 2. The students recognize the introduction to the computer. 3. The students recognize Windows versions and systems

مخرجات التعلم للمادة الدراسية	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	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem)	47	**Unstructured SWL (h/w)**	2

الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 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	**FX –** Fail	مقبول بقرار	(45-49)	More work required but credit awarded
(0 – 49)	**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 Medical and Industrial Materials Science	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية				
Module Title	Mathematics		**Module Delivery**	
Module Type	core		☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	MATH11			
ECTS Credits	7			
SWL (hr/sem)	175			
Module Level	1		**Semester of Delivery**	1

Administering Department	Medc003	**College**	APSC008
Module Leader	Assist.Prof. Ikram Ahmed Saed	**e-mail**	100016@uotechnology.edu.iq
Module Leader's Acad. Title	Assistant Professor	**Module Leader's Qualification**	M. Sc.
Module Tutor	None	**e-mail**	None
Peer Reviewer Name	Dr. Jehad R. Kider	**e-mail**	Jehad.r.kider@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	1. Familiarizes the student with the concept of a function, its domain, trigonometric functions, the purpose of a function, and its derivatives. 2. covers functions, their domains, purposes, various methods of solving them, trigonometric functions, their domains, methods of differentiation, and complex numbers and their propertiesTo develop problem solving skills and understanding of circuit theory through the application of techniques 3. To develop the student with the applications of integration in solving various mathematical problems 4. The ability to be creative, innovative and develop individual skills and talents 5. Enable the student to use books and references related to the course. 6. Enable the student to use the Internet to view more information related to the course
Module Learning Outcomes	A - Cognitive Objectives 1. Familiarize the student with the concept of functions

مخرجات التعلم للمادة الدراسية	2. Enable the student to study continuous functions 3. Enable the student to study trigonometric functions 4. Familiarize the student with differentiation methods 5. Develop performance skills in using examples from practical life, such as finding the area and length of a specific curves 6. To develop the student with the applications of integration in solving various mathematical problems B - Skills Objectives specific to the course 1. Teach the student the basic vocabulary of mathematics. 2. Enable the student to use functions and derive them in various important topics where functions are applicable. 3. Educate the student about the applications of functions. 4. Enable the student to use the internet to access more information related to the course. Enable the student to use books and references related to the course.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A- Differential Calculus 1- Revision and Basic Concepts : Coordinates and graphs in the plane slope, Equations for lines, Functions and their graphs shifts, the definition of limits, properties of limit, definition of derivative, laws of derivative, implicit derivative, higher order derivative, the L-hopitals rule. 2- Trigonometric Functions: A brief review of trigonometric relations, limit of trigonometric functions, derivative of trigonometric functions. 3- Transcendental Functions: Domain, range and graphs of natural logarithm functions, properties of natural logarithm functions, limit and derivative of natural logarithm functions, domain, range and graphs of exponential functions, properties of exponential functions, limit and derivative of exponential functions, domain, range and graphs of inverse trigonometric functions, limit and derivative of inverse trigonometric functions. 4- Hyperbolic Functions: Domain, range and graphs of hyperbolic functions, Properties, Limit and derivative.

	Part B - Integration Calculus 1- The Integration Definition of indefinite and finite integration, laws of integration, Integration of trigonometric functions. 2- Integration of Transcendental Functions Integration of Natural logarithm functions, Integration of exponential functions, Integration of inverse trigonometric functions. 3- Method of Integration Integration by parts, partial fraction method, Trigonometric substitutions integrals involving $a^2+u^2, \sqrt{a^2+u^2}, a^2-u^2, \sqrt{a^2-u^2}, u^2-a^2, \sqrt{u^2-a^2}$ Method for integration with any rational function of sin(x) and cos(x), Method for integration with one root or different roots, Improper integrals. 4- Integration of Hyperbolic functions, Laws of integration. 5- Application of Definite Integrals Area of functions, Length of functions, Volumes, Surface area. Curves . 6- Complex Numbers: Definition of complex number, Algebraic operations, Definition of complex number by sin(x) and cos(x) (polar form), Algebraic operations Definition of complex number by exponential function (Euler form), Algebraic operations, De Movers theorem, Solve equations of complex numbers.
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	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	112	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7.4
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 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	Functions and graphs
Week 2	Limits
Week 3	Definition of derivative / Rules of derivative
Week 4	Derivatives of trigonometric functions
Week 5	Indefinite integral / Definite integral
Week 6	Applications / Areas / Volumes
Week 7	Inverse trigonometric functions
Week 8	Logarithmic function and exponential function
Week 9	Hyperbolic and inverse hyperbolic functions
Week 10	Integration methods / Parts method / Trigonometric substitutions method
Week 11	Completing the square method /Partial fractions method /Products and powers of trigonometric functions
Week 12	Matrices
Week 13	Determinants
Week 14	Vectors /Dot product / Cross product
Week 15	Complex numbers / Polar form / Roots equations
Week 16	**Preparatory Week and 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:

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	"Calculus and analytic geometry"; G.Thomas and R.Rinney	Yes
Recommended Texts	"Calculus and analytic geometry"; Edwards &Penny	Yes
Websites	https://www.coursera.org/courses?query=calculus	

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 Medical and industrial material science	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية				
Module Title	Materials Science Principles		**Module Delivery**	
Module Type	Basic		**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	MASP115			
ECTS Credits	8			
SWL (hr/sem)	200			
Module Level	1	**Semester of Delivery**	1	
Administering Department	Medc003	**College**	APSC008	
Module Leader	Dr. ALI A. ALJUBOURI	**e-mail**	Ali.a.aljubouri@uotechnology.edu.iq	
Module Leader's Acad. Title	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	1- Describe the important quantum-mechanical principle that relates to electron energies. 2- Briefly describe ionic, covalent, metallic, hydrogen, and van der Waals bonds. 3- Describe the atomic/molecular structure difference between crystalline and noncrystalline materials. 4- Draw unit cells for face-centered cubic, body-centered cubic, and hexagonal close-packed crystal structures. 5- Specify the Miller indices for a plane that has been drawn within a unit cell. 6- Classification of crystalline imperfections, calculate the weight percent and atom percent for each element in a metal alloy. 7- Explain the use of X-ray diffraction measurements in determining crystalline structures.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understanding the basic concepts in materials science (the purpose of studying materials science and engineering, classification of materials, interatomic bonds, metallic crystal structures, and crystal systems) and relating them to the materials' properties. 2. Understanding of the basic concepts in crystalline defects and analysis of the materials using optical and electron microscopes and x-ray diffraction characterization. 3. Compute ionic radii using unit cell dimensions. 4. Given the masses and atomic weights of two or more elements in a metal alloy, calculate the weight percent and atom percent for each element.

Indicative Contents المحتويات الإرشادية	Indicative content includes the following. **Atomic Structure and Interatomic Bonding:** **Atomic Structure:** Fundamental Concepts, Electrons in Atoms, The Periodic Table **Atomic Bonding in Solids:** Bonding Forces and Energies, Primary Interatomic Bonds, Secondary Bonding or van der Waals Bonding. **The Structure of Crystalline Solids:** Crystal Structures: Fundamental Concepts, Unit Cells, Metallic Crystal Structures, Density Computations, Polymorphism and Allotropy, Crystal Systems. **Crystallographic Points, Directions, and Planes:** Point Coordinates, Crystallographic Directions, Crystallographic Planes, Linear and Planar Densities, Close-Packed Crystal Structures. **Crystalline And Noncrystalline Materials:** Single Crystals, Polycrystalline Materials, X-Ray Diffraction: Determination of Crystal Structures, Noncrystalline Solids. **Imperfections in Solids:** **Point Defects**: Vacancies and Self-Interstitials, Impurities in Solids, Specification of Composition. **Miscellaneous Imperfections:** Dislocations–Linear Defects, Interfacial Defects, Surface Defects, Bulk or Volume Defects, Atomic Vibrations. **Microscopic Examination:** Basic Concepts of Microscopy, Microscopic Techniques, Grain Size Determination.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Establish a positive learning environment: Create an atmosphere of respect,

	collaboration, and inclusion. 2. Use a variety of teaching methods: Incorporate lectures, discussions, demonstrations, experiments, and hands-on activities to keep students engaged. 3. Set clear expectations: Explain the goals of the lesson and the criteria for success. 4. Provide feedback: Give timely and constructive feedback to help students learn from their mistakes. 5. Encourage active learning: Ask questions and provide opportunities for students to practice and apply their knowledge. 6. Promote critical thinking: Challenge students to think critically and analyze information. 7. Foster collaboration: Encourage students to work together to solve problems and share ideas. 8. Utilize technology: Incorporate technology into the classroom to enhance the learning experience

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	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	112	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7.4
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 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 to the Materials Science**
Week 2	**Classification of Materials**
Week 3	**Quiz + Atomic Structure and Interatomic Bonding (Electrons in Solids)**
Week 4	**Atomic Structure and Interatomic Bonding (Interatomic Bonds)**
Week 5	**Quiz + The Structure of Crystalline Solids, Unit Cells, Metallic Crystal Structures**
Week 6	**Density Computations, Polymorphism and Allotropy, Crystal Systems**
Week 7	**Quiz + Crystallographic Planes and Directions**
Week 8	**Midterm Exam + Single and Polycrystalline Materials**
Week 9	**X-ray Diffraction Analysis of Crystal Structures**

Week 10	**Quiz + Imperfections in Solids, Point Defects**
Week 11	**Specification of Composition**
Week 12	**Linear Defects**
Week 13	**Quiz + Bulk Defects**
Week 14	**Grain-size Determination**
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	J. C. Williams and G. R. David, *Materials Science and Engineering: An Introduction*, 9th ed. USA: John Wiley & Sons, Inc., 2013.	Yes
Recommended Texts	● D. R. Askeland, P. P. Fulay, and D. K. Bhattacharya, *Essentials of Materials Science and Engineering*. USA: Cengage Learning, 2010. ● F. C. Campbell, *Elements of Metallurgy and Engineering Alloys*. USA: ASM International, 2008. ● R. Abbaschian, L. Abbaschian, and R. E. Reed-Hill, *Physical Metallurgy Principles*, 4th ed. USA: Cengage Learning, 2008.	Yes
Websites		

	● Dissemination of IT for the Promotion of Materials Science (DoITPoMS)-University of Cambridge https://www.doitpoms.ac.uk/ 8- Online Tutorials | School of Materials Science and Engineering-University of Sydney http://www.materials.unsw.edu.au/tutorials/online-tutorials

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 Medical and industrial material science	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Biological Science Principles			**Module Delivery**	
Module Type	Basic			**Theory** **Lecture** **Tutorial** **Practical** **Seminar**	
Module Code	ESP1214				
ECTS Credits	7				
SWL (hr/sem)	175				
Module Level		1	**Semester of Delivery**		2
Administering Department		Medc003	**College**	APSC008	
Module Leader	Sadeer M. majeed		**e-mail**	100308@uotechnology.edu.iq	
Module Leader's Acad. Title		Assistant Prof.	**Module Leader's Qualification**		PhD
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	The objective of General Biology Principles is to principles of biology science and its application to problems of human health and disease, with the ultimate goal of advancing the public's health.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize what biology is. 2. List the various terms associated with biology. 3. Summarize what is meant by a biology science. 4. Discuss the relation and involvement of biology. 5. Describe biology programs. 6. Define biology. 7. Identify the basic principles of applications of biology. 8. Discuss the operations of biology. 9. Discuss the various properties of . biology 10. Explain the general biology laws. 11. Identify the applications and pathways relationship with respect to biology.		
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Biology is a branch of science that deals with living organisms and their vital processes. Biology encompasses diverse fields, including botany, conservation, ecology, evolution, genetics, marine biology, medicine, microbiology, molecular biology, physiology, and zoology.		

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Inquiry-Based Model. Storyboarding. Peer Tutoring and Assessment. Brainstorming. Reflections. Student-Led Classes. Visual Aids. Interdisciplinary Approach.

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	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	112	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7.4
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 assessment	**Quizzes**	2	2.5% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	2.5% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects	1	2.5% (10)	Continuous	
	Report	1	2.5% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	20% (10)	7	LO # 1-7
	Final Exam	3hr	70% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Basic Biology**
Week 2	**Cell**
Week 3	**Cell Biology**
Week 4	**Cell structure**
Week 5	**Biochemistry**
Week 6	**Biomolecukes**
Week 7	**Molecular Biology**
Week 8	**DNA**
Week 9	**RNA**
Week 10	**Human Biology**
Week 11	**Medical Microbiology**
Week 12	**Bacteria**

Week 13	**Viruses**
Week 14	**Fungi**
Week 15	**Immunology**
Week 16	Final exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	The science of Biology	No
Recommended Texts	An Introduction to Biology Concepts	No
Websites	https://explorebiology.org/?utm_term=biology%20sites&utm_campaign=XBio_Comprehensive_India-ME-Africa&utm_source=adwords&utm_medium=ppc&hsa_acc=1425885247&hsa_cam=19789616333&hsa_grp=151977049572&hsa_ad=650702211524&hsa_src=g&hsa_tgt=kwd-297841749248&hsa_kw=biology%20sites&hsa_mt=b&hsa_net=adwords&hsa_ver=3&gclid=CjwKCAjw-b-kBhB-EiwA4fvKrC1k4ly1mWiVpKm4IPnosICWswalJqDcNM2RdFURmHkI06qz5-1KBBoC3AcQAvD_BwE	

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 Medical and industrial material science	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Engineering Drawing			**Module Delivery**	
Module Type	Basic			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	ENDR125				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		1	**Semester of Delivery**		2
Administering Department		Medc003	**College**	APSC008	
Module Leader	Dr. Duraid F. Mahdi		**e-mail**	100382@uotechnology.edu.iq	
Module Leader's Acad. Title		Lecturer	**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	1. Knowledge of engineering drawing principles and AutoCAD 2010 software. 2. Learning the theoretical basic in the engineering shape drawing and executing by AutoCAD 2010 software. 3. Learning the practical basic in applying of the engineering shape drawing by AutoCAD 2010 software on the computers. 4. Learning the ingredient and parts of AutoCAD 2010 software such as tools, modifying, scales, etc. and employing in the engineering shapes drawing. 5. Learning of use different systems which applying in the AutoCAD 2010 software. 6. Learning of execute the engineering draws with required dimensions and scales precisely.
Ng Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Knowledge of engineering drawing principles. 2. Knowledge of employing the dies and scientific systems design in the AutoCAD 2010 software. 3. Development of practical imagines the tools, scientific system form and cost. 4. Possibility of using tools and parts the AutoCAD 2010 software and employing in the specialist.
tIndicative Contents المحتويات الإرشادية	1. Present the theoretical lecture directly on the blackboard. 2. Using the computer and linking it to the data show, and presenting a direct application of the AutoCAD 2010 software. 3. Follow-up and guide students on the correct methods of drawing engineering shapes in AutoCAD 2010 on a computer. 4. Introducing and teaching students the various shortcuts and ways to draw engineering designs according to the required dimensions.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم	
Strategies	1. Theoretical lectures in the class. 2. Practical classes in the laboratory. 3. Seminars.

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	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 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 - drawing environment and drawing space preparation.
Week 2	User interface layout and lists of shortcuts and interface tools defined for AutoCAD 2010.
Week 3	AutoCAD 2010 software files and how to display engineering shapes.
Week 4	Definition of command line and coordination system.
Week 5	Enter the dynamic and enter the direct distance used.
Week 6	Standard units, setting up units and how to choose them.
Week 7	Preparing and defining the properties of the engineering drawing paper.
Week 8	Types of lines and colors used and engineering drawing methods in AutoCAD 2010.
Week 9	Commands of drawing engineering shapes.
Week 10	Line, square, circle, arc, curve, rhombus, oval, and point.
Week 11	Modification commands on engineering shapes.
Week 12	Copy, move, duplicate, erase and rotate.
Week 13	Dealing with layers of engineering shapes.

Week 14	Put dimensions on engineering shapes.
Week 15	Small projects for engineering drawings and designs for scientific systems and dies.
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to drawing environment of AutoCAD 2010.
Week 2	Lab 2: Introduction to tools and properties of AutoCAD 2010.
Week 3	Lab 3: Drawing methods in AutoCAD 2010.
Week 4	Lab 4: Commands of drawing engineering shapes (line, circle, square and point).
Week 5	Lab 5: Modification commands on engineering shapes (erase, repeat, copy, rotate)
Week 6	Lab 6: Layers of engineering shapes.
Week 7	Lab 7: Dimensions on engineering shapes.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Autodesk Certification Preparation, "Learning **AutoCAD®** 2010, Volume 1", 2009, USA**.**	Yes

Recommended Texts	Munir M. Hamad, "AutoCAD 2010 Essentials", 2010, USA.	No
Websites	http://images.autodesk.com/adsk/files/acad_dxf1.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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	ENGLISH LANGUAGE 1			**Module Delivery**	
Module Type	BASIC			☒ **Theory** ☒ **Lecture** ☐ **Lab.** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ENLA123				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level	1		**Semester of Delivery**	2	
Administering Department	Medc003		**College**	APSC008	
Module Leader	Dr. Hassan Hamed Abd		**e-mail**	Hassan.h.abd@uotechonology.edu.iq	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D	
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	None	**Semester**	

Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1- English (1) is a first-class comprehensive course that provides the students the fundamental principles of English. 2- Some of the principles are illustrated with a nature. 3- It is focused on effective teaching and learning English 4- It is specially adapted for the Middle East and North Africa. 5- This course combines the best of English language teaching methodologies to help students use English accurately and fluently.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The objective of the course is for undergraduate students: 1. It will develop an understanding and appreciation of English language. 2. Students will acquire basic concepts of English, which are reading, writing, listening and speaking. 3. Students will focused on efficient instructions in studying English. 4. Students will be able to apply what they learn in their everyday life or in their study. 5. Provide students the best methodologies for Learning English language. 6. Help students to use English rightly and smoothly. 7. Discuss the various properties of materials in English. 8. Identify the basic elements and their applications in English.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. English (1) is a course for first-class students depending on theoretical

	lectures. It is a comprehensive course that provides the students the fundamental principles of English. , some of the principles are illustrated with a nature. In addition, it is focused on effective teaching and learning. English course is specially adapted for the Middle East and North Africa. This course combines the best of English language teaching methodologies to help students use English accurately and fluently. It is provides Basic Concepts materials and its applications. (15 hr.)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the English activities, 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 analysis involving some enjoyable activities for the students to solve problems that related in materials analysis.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**50**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	There is no lab.			
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	1.5 hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	40% (40)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	- Introduction: Definition of course, course outline, and self introduce. - Placement test. - Course discussion and class plans.
Week 2	- General grammars: Present simple tense, past simple tense, and Future. - Vocabulary and pronunciation. - Audio-listening. - Group conversation.
Week 3	- Grammars reviews and prepositions: in, at, on, etc. - Reading and pronunciation. - Homework discussion.

Week 4	- Improve your spelling. - Vocabulary: Opposite verbs and positive and negative adjectives. - Class activities: Puzzle. - Homework discussion.
Week 5	- Intermediate grammars: Continuous tenses- present and past. - Practice your handwriting. - Writing a short speech. - Homework discussion.
Week 6	- Has and have: What is the difference? - Write and punctuate sentences. - Group work. - Homework discussion.
Week 7	- Negatives tense and modals- can and can't. - Improve your reading. - Solving exercises in class. - Homework discussion.
Week 8	- Speaking: Interviews. - What is dislike vs. like? - Writing a short speech.
Week 9	Exam and course review
Week 10	- Who, that, and where: What is the difference? - Vocabulary and Pronunciation. - Class activities: Write sentence, short talk "question and answer", and reading.
Week 11	- Adverb and preposition: during, in, ago, from, to, for, and since. - Audio-Listening. - Strategies and self- improvement. - Homework discussion.

Week 12	- Reading an article and complete a chart. - Crossword puzzle. - Writing a letter.
Week 13	- Speaking: Talk about things you need to have done. - Class activities: Match the verbs with nouns. - Improve your spelling. - Homework discussion.
Week 14	- Midterm Exam.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
	There is no lab.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	The course is: 1. First course textbook: Headway academic Skills Reading, Writing and study skills. Student's book, Sarah Philpot and Lesley Curnick, Series Editors Liz and John Soars, Oxford, University Press. 2011 2. First course textbook: Headway academic Skills listening, Speaking and study skills.Student's book, Sarah Philpot and Lesley Curnick, Series Editors Liz and John Soars, Oxford, University Press.	No
Recommended	There is no reference book but students can use any English textbook to help themselves for quick learning.	No

Texts		
Websites	Any videos about learning English Language	

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.

	Ministry of Higher Education and Scientific Research - Iraq University of Technology Department of Applied Science Medical and industrial material science	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Inorganic and physical chemistry			**Module Delivery**	
Module Type	BASIC			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	INPC122				
ECTS Credits	7				
SWL (hr/sem)	175				
Module Level	1		**Semester of Delivery**	2	
Administering Department	Medc003		**College**	APSC008	
Module Leader	Ghadah Safaa Saud		**e-mail**	ghadah.s.saud@uotechnology.edu.iq	
Module Leader's Acad. Title	Assistant lect.		**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	The course aims to explain natural phenomena such as pressure, temperature, boiling in chemical compounds, and other phenomena. It also explains the corrosion of metals, the polymer industry, and batteries of all kinds. It also studies ions in solution.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. The course includes knowledge of the electronic structure of the atom and the structure of the atom by highlighting an introduction that explains the theories of the electronic structure, the origin of the quantum theory and black body radiation, touching on the atomic spectrum and energy levels, knowing the symbols of atomic states and turbulence, and then studying the periodic table and the periodicity of the elements in it. 2. The student learns the basic vocabulary that helps in dealing with chemicals 3. The student learns the most important vocabulary that is included in the subject of chemistry in terms of materials and products
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A - Analytical Chemistry</u> Definition for analytical chemistry, Important Terms used in analytical chemistry and definitions units of concentrations, Molarity (M) Normality (N), Formality (F) Molality (m), Calculate the concentration [15 hrs] Definition dilution process, calculate concentration Of dilute solution, Definition dilution process, calculate concentration Of dilute solution, Calculate concentration of stock and diluted solution, Weight percent ,Volume

	percent ,Weight/volume percent, Parts per million and parts per billion [8 hrs] Calculate the concentration in different percent, Acid-Base reaction Precipitation reaction, Oxidation-Reduction (Redox) reaction Complex formation reaction, Type of reaction [15 hrs] Acid Buffer Base Buffer, This method of analysis can be summarized on measuring the volume of the standard solution which is equivalent to another solution of unknown concentration [12 hrs] <u>Part B – Inorganic and physical chemistry</u> explores the basic concepts of chemistry such as the structure of atoms, electronic configuration and orbitals. Atomic structure, Ceramic bonds, covalent and ionic Structures, Bohr Model for Atom, Isotopic and Atomic Weight, Oxidation Number and Valence Number [15 hrs] calculate Isotopic and Atomic Weight, Metals ,Non Metals ,Metalloids or Semi Metals ,Noble Gases, Principle Quantume Number ,Secondary Quantume Number ,Magnitic Quantume Number ,Spin Quantume Number [15 hrs] Electron Configuration of the main Transition Elements , Stable Octet Configuration, Radii of Atomic and ions,Electronegativity ,Ionization Energy [12 hrs] Electron transfer , V. Comparison and properties of electrochemical and chemical rate constants, Oxidative agent ,reduced factor , Reduction and Oxidation reactions, Application of the Nirnest equation [15 hrs] Revision problem classes [6 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, slide viewer, computer, 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	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	97	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.4
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 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 - Atomic structure
Week 2	Concept of Atom –Historical view – Ceramic bonds, covalent and ionic Structures
Week 3	Concept of Atom –Historical view – Bohr Model for Atom
Week 4	Atomic and Mass Numbers – Isotopic and Atomic Weight, Oxidation Number and Valence Number
Week 5	Atomic and Mass Numbers – calculate Isotopic and Atomic Weight Oxidation Number and Valence Number
Week 6	Classification of Elements and chemical Reactivity - Metals ,Non Metals ,Metalloids or Semi Metals ,Noble Gases
Week 7	Atomic Spectrum and Quantum Number - Principle Quantume Number ,Secondary Quantume Number ,Magnitic Quantume Number ,Spin Quantume Number
Week 8	Atomic Spectrum and Quantum Number - Principle Quantume Number ,Secondary Quantume Number ,Magnitic Quantume Number

	Spin Quantume Number
Week 9	Electron Configuration Of Atom - Electron Configuration of the main Transition Elements , Stable Octet Configuration
Week 10	Electron Configuration Of Atom - Electron Configuration of the main Transition Elements , Stable Octet Configuration
Week 11	Periodic Table - Radii of Atomic and ions,Electronegativity ,Ionization Energy ,
Week 12	Reduction and Oxidation reactions - Electron transfer , V. Comparison and properties of electrochemical and chemical rate constants.
Week 13	Reduction and Oxidation reactions - Oxidative agent ,reduced factor , Reduction and Oxidation reactions
Week 14	Nairnst equation - Application of the Nirnest equation
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction
Week 2	Lab 2: Detection of group I cations
Week 3	Lab 3: Purification of sodium chloride
Week 4	Lab 4: Reactions of the Aluminum Ion
Week 5	Lab 5: Reaction of the lead Ion

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1. Inorganic Chemistry Principle of Structure and Reactivity. James Huheey , Ellen A. Keiter, Richard L. Keiter. 4th Ed., 1993.	Yes
Recommended Texts	2. Inorganic Chemistry 3rd Ed., Gary L. Miessler Donald A. Tarr 2011.	No
	3. Inorganic Chemistry, James E. House, Copyright 2008, Elsevier Inc. All right reserved.	

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 Branch Medical and industrial material science	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Physics			**Module Delivery**	
Module Type	CORE			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	PHYS121				
ECTS Credits	7				
SWL (hr/sem)	175				
Module Level	1		**Semester of Delivery**	2	
Administering Department	Medc003		**College**	APSC008	
Module Leader	Ruqaya Fouad Kadhim		**e-mail**	Ruqay.f.kadhim@uotechnology.edu.iq	
Module Leader's Acad. Title	Assistant lect.		**Module Leader's Qualification**	MSc.	
Module Tutor	None		**e-mail**	None	
Peer Reviewer Name	Mustafa A.ibrahim		**e-mail**	100051@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. Demonstrate a conceptual understanding of fundamental physics principles. 2. To develop problem-solving skills and an understanding of general physics through applying techniques. 3. To understand how Mechanics, sound and fluid concepts. 4. This course deals with the basic concept of physics. 5. To understand Vectors, Motion, Newtonian laws, kinetic energy, and work problems. 6. To understand sound and fluids principles and solve problems of it.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	3. Able to demonstrate and analyze the basic property of object/matter in the form of physical equation related to particle kinematic, interaction force between particles/matter, harmonic oscillator, the elasticity of the material, static and dynamic fluid, and sound. 4. Able to solve physics problems independently and responsibly with complete physical completion method. 5. Able to use the basic equations of physics in solving problems with Vectors, Motion, Newton's laws of motion, work and energy, linear momentum, and collisions. 6. Able to distinguish the force types and kinetic energy and work, power and potential energy, momentum and angular momentum. Able to design and demonstrate the basic principles of physics in conducting experiments on object motion.		
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Vector and Scalar quantities, unit vectors, Adding Vectors, Subtracting vectors, Vector multiplication, Dot Product, Cross Product [4 hrs].		

	Motion in one dimension, Distance, displacement, velocity, speed, kinematic equation, free falling object. Motion in two and three-dimension, projectile motion [8 hrs]. Force and motion, Newton's laws, types of force, gravitational force, weight and normal force [8 hrs]. Kinetic energy and work, power and potential energy, momentum and collision, angular momentum [12 hrs]. Static equilibrium, kinetic energy of rotation and moment inertia, oscillation, sound, and fluids [20 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	6.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	82	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.4
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 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**	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	Introduction – Vectors
Week 2	Motion along a straight line
Week 3	Motion in two and three dimensions
Week 4	Newtonian laws
Week 5	The force types
Week 6	Kinetic energy and work
Week 7	Power and potential energy
Week 8	Momentum and collision
Week 9	Angular momentum
Week 10	Static equilibrium

Week 11	Kinetic energy of rotation and moment inertia
Week 12	Oscillation
Week 13	Sound
Week 14	Fluids
Week 15	**Preparatory Week (questions)**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Measurement in the physics Lab
Week 2	Lab 2: Vectors and the Force Table
Week 3	Lab 3: Static and dynamic Fraction
Week 4	Lab 4: Density of liquid
Week 5	Lab 5: Surface Tension
Week 6	Lab 6: Simple pendulum
Week 7	Lab 7: speed of sound

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Physics for Scientists and Engineers, Jewett and Serway,	Yes

	London-Thomson, 2004	
Recommended Texts	Fundamentals of Physics David Halliday, Robert Resnick, Jearl Walker -Wiley (2000).	No
Websites	Top Physics Courses - Learn Physics Online (coursera.org)	

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.