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 Baghdad College of Engineering Department of Electrical Engineering	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية				
Module Title	ANALYTICAL CHEMISTRY 1		**Module Delivery**	
Module Type	CORE		**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	UoB12345			
ECTS Credits	8			
SWL (hr/sem)	200			
Module Level	1	**Semester of Delivery**	1	
Administering Department	CHEM006	**College**	APSC008	
Module Leader	Bashar Hussein Qasim	**e-mail**	Bashar.h.qasim@uobaghdad.edu.iq	
Module Leader's Acad. Title	Assistant Professor	**Module Leader's Qualification**	Ph.D.	
Module Tutor	None	**e-mail**	None	

Peer Reviewer Name	Mays Abdullhakim	**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. Understanding the principles of qualitative and quantitative analysis. **2.** Identify and calculate the different concentrations of the samples. **3.** Understanding the main methods of chemicals separation
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Explain how the chemical solutions are prepared and their types. 2. How to express the concentration of the prepared solutions. 3. How to identify the components in the samples. 4. Recognize and classification of the chemicals
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Nature and role of analytical chemistry 2. Main devision of analytical chemistry 3. Quantitative chemical method and analysis 4. Tools of analytical chemistry wich includes: a. Chemicals, apparatus and unit operations used in analytical chemistry b. Using of spreadsheet in analytical chemistry c. Errors in chemical analysis

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	5. Reading and comprehending text 6. Studying and remembering information 7. Writing and taking notes 8. Improving assessment and test performance 9. Problem solving

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	102	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	98	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
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 - Principles of analytical chemistry
Week 2	Preparation of chemical solution
Week 3	Expressing of concentrations
Week 4	Molar concentration of chemical solutions
Week 5	Calculation of Normal concentration of chemical solutions
Week 6	Calculation of Formal concentration of chemical solutions
Week 7	Calculation of Molality and mole fraction
Week 8	Calculation of Weight to weight percent ratio
Week 9	Calculation of Weight to volume percent ratio
Week 10	Calculation of Volume to volume percent ratio
Week 11	Calculation of Part per million concentration
Week 12	Calculation of Part per billion concentration
Week 13	Calculation of Solubility constant product
Week 14	Effect of common ion on solubility
Week 15	Precipitation of salts
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to laboratory instructions
Week 2	Lab 2: Using of laboratory glass wear
Week 3	Lab 3: Preparation of chemical solution
Week 4	Lab 4: Separation of ions of group I
Week 5	Lab 5: Separation of unknown solution from group I
Week 6	Lab 6: Separation of ions of group II
Week 7	Lab 7: Separation of unknown solution from group II

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Fundamental of Analytical Chemistry" by Doglas A.Skooge, Donald M.West and James Holler, 8th Edition, 2004	Yes
Recommended Texts	Analytical Chemistry" by Gary D. Christian, 9th Edition, 2014, John Wiley and Sons, Inc.	Yes
Websites		

	https://www.coursera.org/browse/analytical-chemistry

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 Baghdad College of Engineering Department of Electrical Engineering	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	INORGANIC CHEMISTRY			**Module Delivery**	
Module Type	CORE			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	UoB12345				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level	1		**Semester of Delivery**	1	
Administering Department	CHEM006		**College**	APSC008	
Module Leader	Dr. Sallal A.Abdullah		**e-mail**	Sallal.a.abdullaha@uotechnology.edu.iq	
Module Leader's Acad. Title	Dr.		**Module Leader's Qualification**	Ph.D.	
Module Tutor	None		**e-mail**	None	
Peer Reviewer Name	Liblab Sami Jassim		**e-mail**	Liblab.s.jassim@uotechnology.edu.iq	

Review Committee Approval	20/06/2023	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. Need to change some of syllabuses in next semester 2. And ask them to prepare a seminar for each subject to courage them 3. Conducting student workshops to increase student participation in knowledge of the scientific subject
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	5. By the end of this course-I Foundations of inorganic chemistry), student's outcome will be able to: 6. Explain how to know the periodic properties of the elements, and do calculations on a topic of chemical shielding and calculate the term symbol for ions and atoms. 7. Build a basic understanding of spectra on board and concepts such as electronegativity, ionization potential, atomic and ionic radius. 8. 3. An accurate description of the most important atomic models and knowledge of the shapes of atomic orbitals.
Indicative Contents المحتويات الإرشادية	The mark scheme for each question shows: the marks available for each part of the question the total marks available for the question the typical answer or answers which are expected extra information to help the examiner make his or her judgment and help delineate what is acceptable or not worthy of credit or, in discursive answers, to give an overview of the area In which a mark or marks may be awarded.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	5. Reading and comprehending text 6. Studying and remembering information 7. Writing and taking notes 8. Improving assessment and test performance 9. Problem-solving

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	102	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	98	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
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 - General introduction
Week 2	Structure of the atom
Week 3	Atomic spectra
Week 4	The Boher Atom
Week 5	Quantum numbers
Week 6	Atomic orbitals
Week 7	Term
Week 8	symbols
Week 9	Pauli's exclusion principle
Week 10	Some of periodical properties of atoms
Week 11	Shielding
Week 12	Atomic radii, covalent and ionic radii
Week 13	Ionization energy

Week 14	Electronic affinity
Week 15	Electronegativity
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

لايوجد عملي

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	• ELLAN E. ET AL. HUHEEY, JAMES E. & KEITER, Inorganic Chemistry: Principles of Structure and Reactivity, 4th edition, person, 2006, ISBN-13 : 978-1292134147	Yes
Recommended Texts	• Catherine Housecroft, Inorganic Chemistry 5th Edition, person 978-1292134147	No
Websites	• Peter Atkins, Shriver & Atkins' Inorganic Chemistry 14341st Edition, Oxford University Press, 978-0199236176.	

APPENDIX:

GRADING SCHEME

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
(50 - 100)	**B -** Very Good	جيد جدا	80 - 89	Above average with some errors

	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	**FX –** Fail	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 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	HURI115				
ECTS Credits	2.00				
SWL (hr/sem)	50				
Module Level	1		**Semester of Delivery**	1	
Administering Department	CHEM006		**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 Baghdad College of Engineering Department of Electrical Engineering	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	MATHEMATICS			**Module Delivery**	
Module Type	BASIC			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	MATH113				
ECTS Credits	6				
SWL (hr/sem)					
Module Level		1	**Semester of Delivery**		1
Administering Department		CHEM006	**College**	APSC008	
Module Leader	Dr. Jehad R. Kider		**e-mail**	Jehad.r.kider@uobaghdad.edu.iq	
Module Leader's Acad. Title			**Module Leader's Qualification**		

Module Tutor	None	**e-mail**	None
Peer Reviewer Name			
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 مخرجات التعلم للمادة الدراسية	A - Cognitive Objectives 9. Familiarize the student with the concept of functions 10. Enable the student to study continuous functions 11. Enable the student to study trigonometric functions 12. Familiarize the student with differentiation methods 13. Develop performance skills in using examples from practical life, such as finding the area and length of a specific curves 14. 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. (5 hrs) 2- Trigonometric Functions: A brief review of trigonometric relations, limit of trigonometric functions, derivative of trigonometric functions. (6 hrs) 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. (10 hrs) 4- Hyperbolic Functions: Domain, range and graphs of hyperbolic functions, Properties, Limit and derivative. (6 hrs) Part B - Integration Calculus 1- The Integration Definition of indefinite and finite integration, laws of integration, Integration of

	trigonometric functions. (4 hrs) 2- Integration of Transcendental Functions Integration of Natural logarithm functions, Integration of exponential functions, Integration of inverse trigonometric functions. (4 hrs) 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. (8 hrs) 4- Integration of Hyperbolic functions, Laws of integration. (4 hrs) 5- Application of Definite Integrals Area of functions, Length of functions, Volumes, Surface area. (6 hrs) 6- Polar Coordinate Review equations and exercises, Graphs of polar equations, Laws of symmetry, Particular curves, Area in the plane. (4 hrs) 7- 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. (6 hrs)
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	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 - 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
Week 2	Higher order derivative, the L-Hopitals rule, Derivative of trigonometric functions, Domain, range and graphs of natural logarithm functions, properties of natural logarithm functions
Week 3	Limit and derivative of natural logarithm functions, Domain, range and graphs of exponential functions, properties of exponential functions, Limit and derivative of exponential functions
Week 4	Domain, range and graphs of inverse trigonometric functions, Limit and derivative of inverse trigonometric functions, Domain, range and graphs of hyperbolic functions, Properties, Limit and derivative
Week 5	Introduction - Definition of Integration with Examples, The Integration Definition of indefinite and definite integration
Week 6	Integration of trigonometric functions, laws of Integration of trigonometric functions, laws of Integration of trigonometric functions
Week 7	Integration of Transcendental Functions, Integration of Natural logarithm functions, Integration of exponential functions
Week 8	Integration of inverse trigonometric functions
Week 9	Method of Integration Integration by parts, partial fraction method, Trigonometric substitutions integrals involving $a^2+u^2, \sqrt{a^2+u^2}, a^2-u^2, \sqrt{a^2-u^2}, u^2-a^2, \sqrt{u^2-a^2}$
Week 10	Method for integration with any rational function of $sin(x)\ and\ cos(x)$, Method for integration with one root or different roots
Week 11	Improper integrals , Application of Definite Integrals
Week 12	Area of functions, Length of functions
Week 13	Volumes, Surface area
Week 14	Algebraic operations Definition of complex number by exponential function (Euler form), Algebraic operations, De Movers theorem, Solve equations of complex numbers
Week 15	Definition of complex number, Algebraic operations, Definition of complex number by sin(x) and cos(x) (polar form)
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 Branch Medical and industrial material science	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	General Physics			**Module Delivery**	
Module Type	CORE			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	GEPH114				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	1		**Semester of Delivery**	1	
Administering Department	CHEM006		**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	4. Demonstrate a conceptual understanding of fundamental physics principles. 5. To develop problem-solving skills and an understanding of general physics through applying techniques. 6. To understand how Mechanics, sound and fluid concepts. 7. This course deals with the basic concept of physics. 8. To understand Vectors, Motion, Newtonian laws, kinetic energy, and work problems. 9. To understand sound and fluids principles and solve problems of it.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	15. 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. 16. Able to solve physics problems independently and responsibly with complete physical completion method. 17. 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. 18. 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	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.13
Total SWL (h/sem)	125		

الحمل الدراسي الكلي للطالب خلال الفصل	

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, London-Thomson, 2004	Yes
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:

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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	4				
SWL (hr/sem)	100				
Module Level		1	**Semester of Delivery**		2
Administering Department		CHEM006	**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			
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	37	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 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:

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	F – Fail	راسب	(0-44)	Considerable amount of work required

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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	ENGLISH LANGUAGE			**Module Delivery**	
Module Type	BASIC			☒ **Theory** ☒ **Lecture** ☐ **Lab.** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ENLA124				
ECTS Credits	2.00				
SWL (hr/sem)	50				
Module Level	1		**Semester of Delivery**	2	
Administering Department	CHEM006		**College**	APSC008	
Module Leader	Hassan Hamed Abd		**e-mail**		
Module Leader's Acad. Title	Lecture		**Module Leader's Qualification**	Master	
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	Indicative content includes the following.

المحتويات الإرشادية	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
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 and 10	LO #1, #2 and #10, #11
	Assignments	2	15% (15)	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	50% (50)	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 Baghdad College of Engineering Department of Electrical Engineering	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	INORGANIC CHEMISTRY-2			**Module Delivery**	
Module Type	CORE			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	UoB12345				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level	1		**Semester of Delivery**	2	
Administering Department	CHEM006		**College**	APSC008	
Module Leader	Dr. Sallal A.Abdullah		**e-mail**	Sallal.a.abdullaha@uotechnology.edu.iq	
Module Leader's Acad. Title	Dr.		**Module Leader's Qualification**	Ph.D.	
Module Tutor	None		**e-mail**	None	
Peer Reviewer Name	Liblab Sami Jassim		**e-mail**	Liblab.s.jassim@uotechnology.edu.iq	

Review Committee Approval	20/06/2023	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	10. Need to change some of syllabuses in next semester 11. And ask them to prepare a seminar for each subject to courage them 12. Conducting student workshops to increase student participation in knowledge of the scientific subject
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	19. By the end of this course-I Foundations of inorganic chemistry), student's outcome will be able to: 20. Explain how to know the periodic properties of the elements, and do calculations on a topic of chemical shielding and calculate the term symbol for ions and atoms. 21. Build a basic understanding of spectra on board and concepts such as electronegativity, ionization potential, atomic and ionic radius. 22. 3. An accurate description of the most important atomic models and knowledge of the shapes of atomic orbitals.
Indicative Contents المحتويات الإرشادية	The mark scheme for each question shows: the marks available for each part of the question the total marks available for the question the typical answer or answers which are expected extra information to help the examiner make his or her judgment and help delineate what is acceptable or not worthy of credit or, in discursive answers, to give an overview of the area In which a mark or marks may be awarded.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	5. Reading and comprehending text 6. Studying and remembering information 7. Writing and taking notes 8. Improving assessment and test performance 9. Problem-solving

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	102	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	98	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
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	Periodic properties, calculation effective nucleulic charge, atomic Radius, electronegativity, electron affinity, covalent molecules
Week 2	Bonding in Molecules Covalent Bonding, Hybridization of covalent molecules, Theories of Covalent Bonding
Week 3	Valence Bond Theory (V.B.T), examples and questions about VBT.
Week 4	Molecular Orbital Theory, MOT of Diatomic Molecules, homonuclear diatomic molecule, hetronuclear diatomic molecule.
Week 5	VESPR theory, examples and questions about VESPR
Week 12	Bonding in Molecules Covalent Bonding, Hybridization of covalent molecules, Theories of Covalent Bonding
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

لايوجد عملي

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Gary L. Miessler; Donald Arthur Tarr (2004). Inorganic Chemistry	Yes
Recommended Texts	Bruice, Paula (2016). Organic Chemistry (8 ed.)	No
Websites	Gary L. Miessler; Donald Arthur Tarr (2004). Inorganic Chemistry	

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 Baghdad College of Engineering Department of Electrical Engineering	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	GENERAL BIOLOGY			**Module Delivery**	
Module Type	CORE			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	GEBI123				
ECTS Credits	6				
SWL (hr/sem)	200				
Module Level		1	**Semester of Delivery**		2
Administering Department		CHEM006	**College**	APSC008	
Module Leader	Afnan Ismail Abdulwahab		**e-mail**	afnanismail1979@gmail.com	
Module Leader's Acad. Title		Assistant Professor	**Module Leader's Qualification**		Master
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	4. Understanding the principles of biology and microbiology . **5.** Identify how to use the microscope. **6.** Understanding the advantages and disadvantages of biology and microbiology.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	23. Explain how what the microscope can do. 24. Know the each function of the organs. 25. How to identify the components of cell of organisms. 26. Recognize biological molecules and it's functions .
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Nature and role of biology. 2. Anatomy of some tissues with microscope. 3. Slides of some biological organisms. 4. Tools and reagents for examination and preparation of biological samples.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	5. Reading and comprehending text 6. Studying and remembering information

	7. Writing and taking notes 8. Improving assessment and test performance 9. Questions solving

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	102	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	98	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
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 - Biochemistry and Cell Membrane Application of Biochemistry
Week 2	Biomolecules , Cell Membrane The Contents of the Cell Wall
Week 3	Cellular Activities, Transport Across Cell Membranes , Mechanism of Transfer of Materials Through Cell Membranes
Week 4	Active Transport, Passive Transport , Carrier Proteins , Channel Proteins
Week 5	Channel Protein Transport, Potassium Channels
Week 6	Sodium-Potassium Pump
Week 7	Endoplasmic Reticulum
Week 8	Plasma Membrane
Week 9	Endocytosis
Week 10	Functions of Water in the Body and Cell, The Solubility of Compounds in Water , Buffer Solution
Week 11	Principles of Buffering , Acidic Buffer Solutions , Adding an Acid to this Buffer Solution , Adding an Alkali to this Buffer Solution
Week 12	Alkaline Buffer Solutions , Adding an Acid to this Buffer Solution ,
Week 13	Calculations Involving Buffer Solutions, Acidic Buffer Solutions, Alkaline Buffer Solutions
Week 14	Buffer Solution in Blood
Week 15	Adding an Alkali to this Buffer Solution
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Standard techniques
Week 2	Lab 2: Animal behavior
Week 3	Lab 3: Cells to systems
Week 4	Lab 4: Technology
Week 5	Lab 5: Control and communication
Week 6	Lab 6: Evolution
Week 7	Lab 7: Genetics

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Fundamental of Analytical Chemistry" by Doglas A.Skooge, Donald M.West and James Holler, 8th Edition, 2004	Yes
Recommended Texts	Analytical Chemistry" by Gary D. Christian, 9th Edition, 2014, John Wiley and Sons, Inc.	Yes
Websites	https://www.coursera.org/browse/analytical-chemistry	

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 Baghdad College of Engineering Department of Electrical Engineering	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	ANALYTICAL CHEMISTRY 1			**Module Delivery**	
Module Type	CORE			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	UoB12345				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level		1	**Semester of Delivery**		2
Administering Department		CHEM006	**College**	APSC008	
Module Leader	Bashar Hussein Qasim		**e-mail**	Bashar.h.qasim@uobaghdad.edu.iq	
Module Leader's Acad. Title		Assistant Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	None		**e-mail**	None	

Peer Reviewer Name	Mays Abdullhakim	**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	7. Understanding the principles of qualitative and quantitative analysis. **8.** Identify and calculate the different concentrations of the samples. **9.** Understanding the main methods of chemicals separation
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	27. Explain how the chemical solutions are prepared and their types. 28. How to express the concentration of the prepared solutions. 29. How to identify the components in the samples. 30. Recognize and classification of the chemicals
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Nature and role of analytical chemistry 2. Main devision of analytical chemistry 3. Quantitative chemical method and analysis 4. Tools of analytical chemistry wich includes: a. Chemicals, apparatus and unit operations used in analytical chemistry b. Using of spreadsheet in analytical chemistry c. Errors in chemical analysis

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	5. Reading and comprehending text 6. Studying and remembering information 7. Writing and taking notes 8. Improving assessment and test performance 9. Problem solving

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	102	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	98	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
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	Volumetric Methods of Analysis
Week 2	Volumetric Calculations for Acid-Base Titrations
Week 3	Calculating the pH of weak acids and base solutions
Week 4	Calculating the pH of salts solutions
Week 5	Buffer solutions and Calculating pH of Buffer solutions
Week 6	Acid – Base Indicators
Week 7	Selection of suitable indicator or choice of indicator
Week 8	Differential titration (Titration mixtures of two acids , Titration one Base or Mixture of two Bases with Strong Acid)
Week 9	Calculation the concentration of pieces of weak acids in known pH
Week 10	Precipitation titration and Conditions for Precipitation Titrations
Week 11	Determination of End point for precipitation titrations:Indicator
Week 12	Complexometric titration
Week 13	EDTA Titration Techniques
Week 14	Oxidation/reduction reactions
Week 15	Indicators in oxidation-reduction titrations
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Preparation of approximately(0.1N)HCl and(0.1N) sodium carbonate
Week 2	Lab 2: Standardization of HCl with standard solution of sodium carbonate
Week 3	Lab 3: Analysis of sodium carbonate
Week 4	Lab 4: Analysis of mixture($NaOH + Na_2CO_3$)
Week 5	Lab 5: Analysis of mixture($NaHCO_3 + Na_2CO_3$)
Week 6	Lab 6: Determination of chloride ion by Mohr method
Week 7	Lab 7: Determination of total hardness of water

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Fundamental of Analytical Chemistry" by Doglas A.Skooge, Donald M.West and James Holler, 8th Edition, 2004	Yes

Recommended Texts	Analytical Chemistry" by Gary D. Christian, 9th Edition, 2014, John Wiley and Sons, Inc.	Yes
Websites	https://www.coursera.org/browse/analytical-chemistry	

APPENDIX:

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