MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Analytical chemistry			**Module Delivery**	
Module Type	C			☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOMU0206011				
ECTS Credits	7				
SWL (hr/sem)	175				
Module Level		1	**Semester of Delivery**		One
Administering Department		**Fuel and Energy Techniques Engineering Department**	**College**	**Technical Engineering College- Al Mustaqbal university**	
Module Leader	**Zahraa Salah Hadi Aljassar**		**e-mail**	Zahraa.Salah.Hadi@uomus.edu.iq	
Module Leader's Acad. Title		**Zahraa Salah Hadi Aljassar**	**Module Leader's Qualification**		**Msc. Identifying and selecting engineering materials**
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**		

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. Introduction to Analytical Chemistry with a goal of teaching the reason for doing analytical 2. Chemistry and the basic steps of dealing with analytical issues present for a professional chemist. 3. Later the curriculum develops to learning the main units in regard to analytical chemistry and the relations between them and the ability to exchange them. Introducing students to the basic concepts related to descriptive analysis methods 4. Focusing on the method of sedimentation of elements in descriptive analytical chemistry and calculating their quantities
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The student able to: A- Cognitive goals . A1. Introduce students to the basic concepts related to descriptive analytical chemistry A2. Increasing awareness and educating students by solving problems related to segregation and sedimentation methods. B. The skills goals special to the course. B1. practical skills B2. Analytical and inferential skills B3. Development skills C- Knowledge and Understanding Introduce basic definitions and Introductory concepts of analytical chemistry. D. Show the different methods to prepare solutions with different concentrations and PH.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. introduction to main definitions for volumetric and gravimetric analysis 2. introduction to solubility and common ion effect. 3. Enabling students to solve problems related to the intellectual framework of the lecture material. 4. Enabling students to think intellectual questions from the lecture material

	5. Linking the lecture curriculum with practical applications, especially with our daily life.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Providing students with the basics and additional topics related to thinking outcomes 2. Discussing the topics of the lesson that require thinking and analysis 3. Raising a set of thinking questions during the lectures, which increases and motivates students to analyze and conclude 4. Giving students homework that requires self-explanations 5. Assessment methods I. Oral exams for the previous lecture II. Participation scores for competition questions related to the subject III. Specific grades for homework IV. - Semester exams

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	116	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	8
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	94	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	210		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	10% (10)	3,6, 9,12	
	Assignments	2	10% (10)	6, 12	
	Projects / Lab.	1	10% (10)	Continuous	
	Report/ Lab.	1	10% (10)	14	
Summative assessment	Midterm Exam	2 hr	10% (10)	7	
	Final Exam	4 hr	50% (50)		
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Basic concept of qualitative and quantitative analysis
Week 2	Qualitative and quantitative analytical method and concentrations
Week 3	Principals of quantitative gravimetric analysis
Week 4	Stoichiometric of chemical analysis
Week 5	Chemical equilibrium and Chemical solubility
Week 6	Reactions of acids, bases
Week 7	pH for the acidic solutions
Week 8	Buffer solution
Week 9	Equilibrium in the precipitation, solubility, precipitation and partial precipitation.
Week 10	Equilibrium in the oxidation and reduction reactions, equations of oxidation and reduction, indicators of oxidation and reduction.
Week 11	Complex formation
Week 12	Drawing of reaction curves in aqueous solution, construction of titration curves of aqueous solutions

Week 13,14	Methods and principles of spectrometric analysis
Week 15	Instrumental analysis for industry
Week 16	**Final exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Safety in laboratory, laboratory tool , How to write a scientific report
Week 2,3	Measurement of the density by pycnometer and hydrometer
Week 4	Measure the melting point of compounds
Week 5	boiling point of compounds
Week 6,7	Recrystallization.
Week 8,9	TITRATION
Week 10	molarity
Week 10.11	normality
Week 11,12	pH Strong Acid, Strong Base, Salt of Strong A,cid and Strong Base
Week 13	solubility
Week14	Preparatory week before the final Exam
Week15	final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	-Analytical chemistry, skoog 2nd edition Fundamentals of analytical chemistry, skoog 8th	yes

	edition Fundamentals of Analytical Chemistry 9e by Douglas A. Skoog"	
Recommended Texts	Flaschka. Quantitive Analytical Chemistry	no
Websites	http://www.acs.org/content/acs/en.html	

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.