	Ministry of Higher Education and Scientific Research - Iraq Al-Nahrain University College of Science Applied Pathological Analysis Department	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	ANALYTICAL CHEMISTRY			**Module Delivery**	
Module Type	SUPPLEMENT			☒**Theory** ☒**Lecture** ☒**Lab** ☒**Tutorial** ☐**Practical** ☒**Seminar**	
Module Code	CREQ1105				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	UGx11		**Semester of Delivery**	1	
Administering Department	APPA		**College**	College of Science	
Module Leader	Dr. Wisam Kadhum H- Al-Hashemi		**e-mail**	Wisam.kadhim@nahrainuniv.edu.iq	
Module Leader's Acad. Title	Assistance Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	MSc. Ibrahim Abdul Kareem MSc. Rana Abd Hamza MSc. Ahlam Abdulla MSc. Ahmed Abd Temur MSc. Alaa Waleed Qader		**e-mail**	ibrahim.bdulkareem@nahrainuniv.edu.iq Ahlam.Abdullah@nahrainuniv.edu.iq ahmed.abed@nahrainuniv.edu.iq alaa.waleed@nahrainuniv.edu.iq	
Peer Reviewer Name	Khawla A. Kasar		**e-mail**	khawla.kasar@nahrainuniv.edu.iq	
Review Committee Approval			**Version Number**	1	
Laboratory Staff	MSc. Ahmed Abd Temur, MSc. Ibrahim Abdul Kareem, MSc. Zina Jabbar Ghaib Hassan, MSc. Alaa Waleed Qader, MSc. Ahlam Abdulla Alwan, MSc. Anwar Hameed Darwesh, MSc. Noor Jumaa Swari				

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	-
Co-requisites module	None	**Semester**	-
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	This 15-week course is designed to provide students with a 1. comprehensive understanding of the fundamental concepts of General Chemistry and their application in Analytical Chemistry 2. Understanding the mole concept, various expressions of concentrations 3. Acid-Base Equilibria expression and its calculations 4. Buffer solution concepts and designing 5. develop students' ability to analyze, interpret, and solve problems related to these areas of chemistry		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. use the various concentration expressions and manipulate each one to SI unite system 2. Naming chemical compounds, understanding the nature of it physically and chemically 3. Describe the preparation of any type of solution i.e. acids, bases, salts from concentrated solutions or solid 4. Designing preparation of various types of buffer solutions		
Indicative Contents المحتويات الإرشادية	Part A- General Chemistry Nature of Matter- Element, Compound, Mixture Periodic table, Chemical Bonding, molecular view of reactions in aqueous solutions, Naming chemical compounds Part B- Analytical Chemistry Mole concept, stoichiometry, the balance of chemical equations, acid-base equilibria concept, buffer solution concept, and design.		

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1- Dividing students into several groups and encourage them to work as a team 2- Several quizzes will be established to activate to ignite the spirit of competition 3- YouTube will be used in several lectures to attract students to the material 4- A lot of Homework will be asked to do from students to ensure that materials have been understudied

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	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	32	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
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 to Chemistry and Scientific Measurements
Week 2	The Metric System
Week 3	Matter and Energy
Week 4	Models of the Atom
Week 5	The Periodic Table
Week 6	Language of Chemistry
Week 7	Chemical Reactions
Week 8	Chemical Bonding
Week 9	The Mole Concept and Stoichiometry
Week 10	Concentrations expressions
Week 11	Acids and Bases
Week 12	Chemical Equilibrium Oxidation and Reduction
Week 13	Buffer solution
Week 14	Buffer solution designing
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: safety and equipment and apparatus in analytical chemistry
Week 2	Lab 2: Making measurements
Week 3	Lab 3: Scientific method: Identify an Unknown Chemical Mixture
Week 4	Lab 4: Determination of Avogadro's Number
Week 5	Lab 5: Qualitative Analysis of Cations
Week 6	Lab 6: standardization of 0.1 N NaOH
Week 7	Lab 7: Determination of acetic acid in Vinegar
Week 8	Lab: preparation of buffer solution

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	**Chemistry The Molecular Nature of Matter 6th ed by Neil D. Jespersen, James E. Brady**	As pdf
Recommended Texts	**Fundamentals of Analytical Chemistry 9th Edition by Douglas A. Skoog (Author), Donald M. West (Author), F. James Holler (Author)**	As pdf
Websites		

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي