	Ministry of Higher Education and Scientific Research - Iraq Al-Nahrain University College of Science Department of Medical Physics	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Inorganic Chemistry			**Module Delivery**	
Module Type	SUPLEMENT			☒**Theory** ☐**Lecture** ☒**Lab** ☒**Tutorial** ☒**Practical** ☒**Seminar**	
Module Code	CRINOCHE				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	2		**Semester of Delivery**	1	
Administering Department	MPHY		**College**	College of Science	
Module Leader	Talib Hamid Mawat		**e-mail**	Dr.talib_h@nahrainuniv.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	PhD	
Module Tutor	Talib Hamid Mawat		**e-mail**	Dr.talib_h@nahrainuniv.edu.iq	
Module Reviewer	Talib Hamid Mawat		**e-mail**	Dr.talib_h@nahrainuniv.edu.iq	
Peer Reviewer Name			**e-mail**		
Review Committee Approval			**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. Overview of the Periodic Table and Atomic Structure 2. Atomic Energy Levels and Electron Orbitals 3. Groups 1 and 2: Alkali Metals and Alkaline Earth Metals 4. Atoms, Molecules, Ions, and Ionic Compounds 5. Periodic Trends: Ionization Energy, Atomic Radius, Electron Affinity, and Electronegativity 6. Chemical Bonding and Physical Properties: Shielding Effect, Dipole Moment, Polarity, Hydrogen Bonding, Melting Point, Boiling Point, Solubility, and Orbital Hybridization
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Introduce students to the fundamental principles of chemistry. 2. Explain atomic structure and the formation of chemical compounds. 3. Explore key chemical phenomena and their underlying concepts. 4. Examine the properties and behaviors of selected chemical elements. 5. Develop practical and laboratory skills through hands-on experiments. 6. Enhance critical thinking and analytical skills to deepen students' understanding of chemistry. 7. Foster productive scientific skills such as observation, interpretation, and problem-solving.
Indicative Contents المحتويات الإرشادية	Indicative Content Includes the Following: 1. Key areas and branches of inorganic chemistry. 2. The modern role and applications of inorganic chemistry in science and industry. 3. Developing students' understanding of how to handle chemicals responsibly and recognize their practical uses. 4. Educating students about hazardous chemicals in the laboratory and teaching essential safety measures to minimize risk.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The learning strategy is based on the following approaches: 1. Interactive in-class lectures supplemented with educational videos to enhance understanding. 2. Hands-on laboratory sessions to reinforce practical skills and theoretical concepts. 3. Encouraging active student participation through guided questions and group discussions as a core teaching method. 4. Utilizing PowerPoint presentations, along with examples from textbooks and credible online resources, to support learning.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	94	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6.3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	31	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.1
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**	1	10% (10)	Continuous	All
	Online Assignments	1	5% (5)	Continuous	All
	Lab	1	15% (15)	Continuous	All
	Seminar	1	10% (10)	Continuous	All
Summative assessment	**Midterm Exam**	2 hr	10% (10)	14	LO # 1-13
	Final Exam	4hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Atomic Structure.
Week 2	Atomic Structure.
Week 3	Energy levels, orbitals, Groups 1 & 2, the Alkali Metals and the Alkaline Earth metals.
Week 4	Energy levels, orbitals, Groups 1 & 2, the Alkali Metals and the Alkaline Earth metals.
Week 5	Energy levels, orbitals, Groups 1 & 2, the Alkali Metals and the Alkaline Earth metals.
Week 6	Atoms, Molecules, Ions and ionic compounds.
Week 7	Atoms, Molecules, Ions and ionic compounds.
Week 8	Atoms, Molecules, Ions and ionic compounds.
Week 9	Ionization energy, Atomic Radii, Electron Affinity, electronegativity.

Week 10	Ionization energy, Atomic Radii, Electron Affinity, electronegativity.
Week 11	Shielding effect, Dipole moment, Polarity, Hydrogen bonding, Melting point, Boiling point Solubility Orbital hybridization.
Week 12	Shielding effect, Dipole moment, Polarity, Hydrogen bonding, Melting point, Boiling point Solubility Orbital hybridization.
Week 13	Shielding effect, Dipole moment, Polarity, Hydrogen bonding, Melting point, Boiling point Solubility Orbital hybridization.
Week 14	Mid Exam
Week 15	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Laboratory Report.
Week 2	Lab 2: Laboratory safety practices.
Week 3	Lab 3: Glasses and laboratory equipement.
Week 4	Lab 4: Preparation of sodium hydroxide
Week 5	Lab 5: Purification of table salt.
Week 6	Lab 6: Preparation and reaction of barium peroxide.
Week 7	Lab 7: Calculate the percentage of water in hydrated salt.
Week 8	Lab 8: Paper chromatography.
Week 9	Lab 9: Synthesis of alum from aluminum.
Week 10	Lab 10: Halogens (Group VII B).
Week 11	Lab 11: Preparation of Calcium Peroxide CaO2.
Week 12	Lab 12: Preparation of Copper Iodate and Determination of Its Solubility Product in Water.
Week 13	Lab 13: Identification of Oxalate in their Complex as Below.
Week 14	Mid Exam
Week 15	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Inorganic chemistry, Sharpe, A. G. (Alan George), Harlow: Longman Scientific and Technical, 3rd Edition 1992	YES
Recommended Texts	Basic Inorganic Chemistry F. Albert Cotton, Geoffrey Wilkinson, Paul L. Gaus, , 3rd Edition, 1995	YES
Websites	https://courses.lumenlearning.com/boundless-chemistry/chapter/the-structure-of-the-atom/ https://www.acs.org/content/acs/en/careers/chemical-sciences/areas/inorganic-chemistry.html https://courses.lumenlearning.com/boundless-chemistry/chapter/periodic-trends/	

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