



## Academic Course Specification Form

### استمارة توصيف المقرر الأكاديمي

#### القسم الخاص بالطالب Section Concerning the Student

1. Course Code:	CHEMY 342	1. رمز المقرر:
2. Course Title	Practical Inorganic Chemistry	2. اسم المقرر:
3. College:	Science	3. الكلية:
4. Department:	Chemistry	4. القسم:
5. Academic Program:	Bachelor of Science in Chemistry	5. البرنامج الأكاديمي:
6. Course Credits:	0-6-3	6. عدد الساعات المعتمدة:
7. Course NQF Level:	7	7. مستوى المقرر وفقا للإطار الوطني للمؤهلات:
8. Notional Hours:	138	8. عدد الساعات الافتراضية:
9. NQF Credits:	14	9. عدد الساعات المعتمدة للمقرر وفقا للإطار الوطني للمؤهلات:
10. Prerequisite:	CHEMY 341	10. المتطلب السابق للمقرر:
11. Lectures Timing & Location:		11. وقت المحاضرة ومكانها:
12. General Mode of Teaching and Learning	تقليدي Traditional	12. النمط العام للتعليم والتعلم:

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May 2024

Changing any elements of the form is strictly prohibited.  
يرجى عدم تغيير أي عنصر من عناصر الاستمارة

13. Course Coordinator:		13. منسق المقرر:
14. Course Instructor:		14. مدرّس المقرر:
15. Office Hours and Location:		15. الساعات المكتبية ومكانها:
16. Instructor's Email:		16. البريد الإلكتروني لمدرّس المقرر:
17. Academic Year:		17. السنة الأكاديمية:
18. Semester:		18. الفصل الدراسي:
19. Textbook(s):		19. الكتب الدراسية للمقرر:
<ul style="list-style-type: none"> <li>Laboratory manual</li> <li>Synthesis and techniques in inorganic chemistry, Angelicci Jr, 2nd edition (1987), Saunders.</li> <li>Practical Inorganic Chemistry Pass and Sutcliffe, 2nd edition 1988 Chapman and Hall.</li> </ul>		
20. References:		20. المراجع:
<ul style="list-style-type: none"> <li>Practical Inorganic Chemistry; Pass and Sutcliffe, 2nd Edition (1988).</li> <li>Inorganic Experiments; J. Derek Woollins (1994).</li> <li>Microscale Inorganic Chemistry-A comprehensive Laboratory Experience; Szafran, Pike and Singh (1991).</li> <li>Experimental Inorganic/Physical Chemistry-An Investigative Integrated Approach to Practical Project Work; M.A. Malati (1999).</li> <li>Experimental Methods in Inorganic Chemistry; Tanaka, J. and Suin, S. L. (1999).</li> <li>Inorganic Chemistry; Huheey, Keiter and Keiter (1993).</li> <li>Inorganic Chemistry; A.G. Sharpe, 2nd Edition (1986).</li> <li>Inorganic Chemistry; Shriver and Atkins (1990).</li> <li>Advanced Inorganic Chemistry; Cotton and Wilkinson, 5th Edition (1989).</li> <li>Physical Inorganic Chemistry-A coordination Chemistry Approach; Kettle, S.F.A. (1996).</li> <li>Concepts and Models of Inorganic Chemistry; Douglas, Mc Daniel, and Alexander, 3rd edition (1994).</li> </ul>		
21. Other Learning Resources Used (e.g. e-learning, field visits, periodicals, software, etc.):		21. مصادر التعلّم الأخرى (مثال: التعلّم الإلكتروني، زيارات ميدانية، دوريات، برمجيات، إلخ....)
Learning through Microsoft Teams and Ultra Black Board		
22. Course Description (as published in the College Catalogue):		22. توصيف المقرر (حسب ما ورد في دليل الكلية):
Synthesis and isolation of coordination complexes containing a wide range of transition metal ions; analysis of the complexes using different analytical techniques; thermodynamics and kinetic studies of complexes, chemical reactivity; Jahn-teller distortion, linkage isomerism and resolution of optical isomers.		
23. Course Intended Learning Outcomes (3 to 5 CILOs):		23. مخرجات التعلّم للمقرر (CILOs) (3 إلى 5 مخرجات تعليمية):

1. Explain inorganic concepts to synthesize, isolate and characterize coordination compounds.			
2. Analyze kinetic and thermodynamic properties of synthesized coordination compounds.			
3. Use advanced skills to predict the structure of synthesized coordination compounds by spectroscopic techniques.			
4. Critically interpret experimental data to compile comprehensive laboratory reports			
<b>24. Course Assessment Percentages (as per Regulations of Study and Examination at the University of Bahrain):</b>			24. أساليب التقييم ونسبها المئوية (بحسب نظام الدراسة والامتحانات في جامعة البحرين):
Assessment التقييم	Type النوع	Percent age النسبة	Assessment Date تاريخ التقييم
Quizzes	Individual	10%	
Tests	Individual فردي	20%	
Lab reports	Individual فردي	20%	
Project and presentation	Pair ثنائي	10%	
Final Examination	individual	40%	
<b>Total</b>	<b>100%</b>		
<b>25. Description of Topics Covered</b>			25. وصف الموضوعات التي ينبغي تناولها:
<i>Topic Title</i> (e.g. chapter/experiment title) الموضوع		<i>Description</i> التفصيل	
Preparation and investigation of some coordination compounds		Preparation and investigation of some coordination compounds	
Preparation of $[\text{Co}(\text{NH}_3)_4\text{CO}_3]\text{NO}_3$ and $[\text{Co}(\text{NH}_3)_5\text{Cl}]\text{Cl}_2$		Preparation of $[\text{Co}(\text{NH}_3)_4\text{CO}_3]\text{NO}_3$ and $[\text{Co}(\text{NH}_3)_5\text{Cl}]\text{Cl}_2$ and investigation of their characters	
Preparation of tris(acetylacetonato) manganese (III)		Preparation and investigation of tris(acetylacetonato) manganese (III)	
Aquation of $[\text{Co}(\text{NH}_3)_5\text{Cl}]\text{Cl}_2$		Preparation and investigation of $[\text{Co}(\text{NH}_3)_5\text{H}_2\text{O}]\text{Cl}_2$	
Preparation of $[\text{Ni}(\text{NH}_3)_6]\text{Cl}_2$		Preparation and investigation of $[\text{Ni}(\text{NH}_3)_6]\text{Cl}_2$	
Preparation of $[\text{Co}(\text{NH}_3)_6]\text{Cl}_2$		Preparation and investigation of $[\text{Co}(\text{NH}_3)_6]\text{Cl}_2$	
Preparation of $[\text{Cu}(\text{NH}_3)_4]\text{SO}_4\cdot\text{H}_2\text{O}$		Preparation and investigation of $[\text{Cu}(\text{NH}_3)_4]\text{SO}_4\cdot\text{H}_2\text{O}$	
Stereochemistry		Preparation and characterization of two isomers	
Optical Isomers		Preparation, resolution, and characterization of optical isomers of $\text{Co}(\text{en})_3^{3+}$	
Complex ion by job's method		Preparation and investigation of Complex ion by job's method	

26. Weekly Schedule			26. الجدول الأسبوعي	
Week الأسبوع	Date التاريخ	Topics Covered الموضوعات المتناولة	CILOs مخرجات التعلم للمقرر (CILOs)	Teaching/Assessment Mode and Method منهجية ونمط التدريس/التقييم
1		Introductory Lecture; basic concepts for the course, inorganic electronic spectroscopy, writing of laboratory reports.	1	Traditional تقليدي  Insert teaching methods
2		Preparation and Investigation of Fe(II/III) complexes and their isolation. Analysis of the final product $K_3[Fe(C_2O_4)_3]$ complexometric and potentiometric titration. Chemical reactions and stability of complex. <b>Exp 1</b>	1,2,3,4	Traditional تقليدي
3		Preparation and Investigation of Fe(II/III) complexes and their isolation. Analysis of the final product $K_3[Fe(C_2O_4)_3]$ complexometric and potentiometric titration. Chemical reactions and stability of complex. <b>Exp 1</b>	1,2,3,4	Traditional تقليدي
4		Preparation of $[Co(NH_3)_4CO_3]NO_3$ and $[Co(NH_3)_5Cl]Cl_2$ FT-IR studies and kinetic studies of both complexes. <b>Exp 2</b>	1,2,3,4	Traditional تقليدي
5		Preparation of tri(acetylacetonato) manganese(III) Chemical reactivity and UV/visible characterization. <b>Exp 3</b>	1,2,3,4	Traditional تقليدي
6		Aquation/acid hydrolysis of $[Co(NH_3)_5Cl]Cl_2$ to get $[Co(NH_3)_5H_2O]Cl_2$ <b>Exp 4</b>	1,2,3,4	Traditional تقليدي
7		Preparation and isolation of $[Ni(NH_3)_6]Cl_2$	1,2,3,4	Traditional تقليدي

		<b>Exp 5</b>		
8		Gravimetric analysis of Ni <sup>2+</sup> and NH <sub>3</sub> in complex [Ni(NH <sub>3</sub> ) <sub>6</sub> ]Cl <sub>2</sub> obtained in <b>Exp. 5.</b>	1,2,3,4	Traditional تقليدي
9		Preparation of [Co(NH <sub>3</sub> ) <sub>6</sub> ]Cl <sub>3</sub> . <b>Exp 6</b> Gravimetric analysis of Ni <sup>2+</sup> and NH <sub>3</sub> in complex [Ni(NH <sub>3</sub> ) <sub>6</sub> ]Cl <sub>2</sub> obtained in <b>Exp. 5.</b> Preparation of [Co(NH <sub>3</sub> ) <sub>6</sub> ]Cl <sub>3</sub> . <b>Exp 6</b>	1,2,3,4	Traditional تقليدي
10		Preparation and investigation of [Cu(NH <sub>3</sub> ) <sub>4</sub> ]SO <sub>4</sub> .H <sub>2</sub> O <b>Exp 7</b>	1,2,3,4	Traditional تقليدي
11		Stereochemistry <b>Exp 8</b>	1,2,3,4	Traditional تقليدي
12		Complex ion by job's method <b>Exp 9, Test 2</b>	1,2,3,4	Traditional تقليدي
13		Optical Isomers <b>Exp 10</b>	1,2,3,4	Traditional تقليدي
14		Project Presentation	1	Traditional تقليدي
15		Revision and General Discussion		Traditional تقليدي
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<b>27. Academic Integrity Statement</b>			<b>27. بيان النزاهة الأكاديمية</b>	
Students are to observe the highest level of honesty and academic ethics in pursuit of their academic goals as per UOB Regulations of Student Conduct and Academic Integrity, <a href="#">Anti-plagiarism Policies</a> , and <a href="#">Students' Rights and Responsibilities Handbook</a> . The consequences for cheating, plagiarism, unauthorized collaboration, and other forms of academic dishonesty can be very serious and will be dealt with as per the aforementioned policies and regulations.			يتعين على الطلبة الالتزام بأعلى مستويات الصدق والأمانة والأخلاق الأكاديمية في سعيهم لتحقيق أهدافهم الأكاديمية وفقاً للوائح سلوك الطلاب والنزاهة الأكاديمية، سياسات مكافحة الانتحال، <a href="#">ودليل حقوق الطلبة واجباتهم</a> ، المعمول بها في جامعة البحرين. يمكن لعواقب الغش والسرقة الأدبية والتعاون غير المصرح به وغيرها من أشكال عدم الأمانة الأكاديمية أن تكون خطيرة للغاية وسيتم التعامل معها وفقاً للسياسات واللوائح المذكورة آنفاً.	
<b>28. Attendance and Absence Regulations</b>			<b>28. نظام الحضور والغياب</b>	
Students are required to adhere to regular attendance for class lectures and practical sessions, as determined by the nature of the course, as per Article (33) of Regulations of <a href="#">Study and Examination at the University of Bahrain</a> .			يجب على الطلبة الالتزام بالحضور المنتظم للمحاضرات الصفية والعملية، حسبما تحدده طبيعة المقرر الدراسي، ووفقاً للمادة (33) من <a href="#">نظام الدراسة والامتحانات في جامعة البحرين</a> .	

