Kuwait University
Vice President for Academic Affairs

جامعة الكويت
نائب مدير الجامعة للشئون العلمية

جامعة الكويت
KUWAIT UNIVERSITY

نموذج توصيف مقرر
Course Description Form

Name of College\Faculty : **Science** **اسم الكلية:**

Name of Department **Chemistry** **اسم القسم العلمي:**

Course Name	**Inorganic Reaction Mechanism**	**اسم المقرر**
Course No.	**446**	**رقم المقرر**
No. of Credits	**3**	**عدد الوحدات**
Theoretical Hours	**3**	**عدد الساعات النظرية**
Practical Hours	**0**	**عدد الساعات المحلية**

Course topics **مواضيع المقرر**

1. The Determination of the Rate Law (Pages: 1-64)
2. The Deduction of Mechanism (Pages: 65-130)
3. Substitution reactions.
4. Redox reactions
5. The Modification of Ligand Reactivity by Complex Formation (Pages: 299-332)
6. Isomerism and Stereochemical Change (Pages: 333-371)

Text book: (Name, Author , Year , Publisher) **عنوان الكتاب : (الاسم ، المؤلف ، سنة الطبع ، دار النشر)**

"Kinetics and Mechanism of Reactions of Transition Metal Complexes"
By R.G. Wilkins, Latest Edition, VCH, Weinheim, 1991(2nd edition)

References: (Name , Author , Year . Publisher) **عنوان المرجع : (الاسم ، المؤلف ، سنة الطبع ، دار النشر)**

None

Prerequisites **متطلبات المقرر**

	Exams		**%**	**40**	**الاختبارات**	
	Quizzes		**%**	**5**	**امتحانات قصيرة**	
	H.W.		**%**	**5**	**واجبات**	

Grading	**Project (field study)**		**%**	**10**	**مشاريع (دراسة ميدانية)**	**آلية رصد المقرر**
	Final		**%**	**40**	**الاختبار النهائي**	
	100 %					

Chapters included:

Chapter	Topic	Sections Included
1	The Determination of the Rate Law (Pages: 1-64)	-
2	The Deduction of Mechanism (Pages: 65-130)	-
4	Substitution reactions.	-
5	Redox reactions	-
6	The Modification of Ligand Reactivity by Complex Formation (Pages: 299-332)	-
7	Isomerism and Stereochemical Change (Pages: 333-371)	-

Course objectives					
No.	**Course Objectives (Learning Outcomes)**	**Example(s) of relevant (Topics and activities)**	**Recommended Level to satisfy the objectives**		
			High	**Medium**	**Low**
1	Define the rate law (0, 1st, 2nd, reversible, initial, consecutive), activation parameters, free energy relationships and the effect of electrolytes on the rate	The Determination of the Rate Law	✓		
2	Describe the common experimental methods to determine the rate as spectrophotometry, flow methods and flash photolysis	The Deduction of Mechanism	✓		
3	Discuss the substitution reactions in simple and complex metal ion with	Substitution reactions	✓		

	octahedral and square planar complexes				
4	Define the terms base hydrolysis, labile and inert	Redox reactions		✓	
5	Define and differentiate between the inner and outer spheres redox reactions	Redox reactions		✓	
6	Illustrate and differentiate between the oxidative addition, reductive elimination and redox substitution	Redox reactions		✓	
7	Outline the factors affecting the mechanisms of the different inorganic reaction a neighboring group effects.	The Modification of Ligand Reactivity by Complex Formation		✓	
8	Discuss metal ion assisted substitution reaction and CO substitution in organometallic complexes	Isomerism and Stereochemical Change		✓	
Fields					
Skills					
Coordinator (Name and Rank) :					
Signature and stamp :					
Date:			**9\ 11 \2025**		