Kuwait University
Vice President for Academic Affairs

جامعة الكويت
نائب مدير الجامعة للشئون العلمية

نموذج توصيف مقرر
Course Description Form

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

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

Course Name	**Solid State Chemistry**	**اسم المقرر**
Course No.	**444**	**رقم المقرر**
No. of Credits	**3**	**عدد الوحدات**
Theoretical Hours	**3**	**عدد الساعات النظرية**
Practical Hours	**0**	**عدد الساعات المحلية**

Course topics **مواضيع المقرر**

An Introduction to Crystal Structures
Physical Methods for Characterizing Solids
Bonding in Solids and Electronic Properties
Preparative Methods
Defects and Non-Stoichiometry and their applications
Optical Properties of Solids and their applications
Magnetic of Solids and their applications
Superconductivity.

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

Solid State Chemistry: An Introduction", By L. Smart and E. Moore,
Latest Edition, Chapman &Hall, London, 1996 (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**	

Grading	H.W.		%	5	واجبات	آلية رصد المقرر
	Project (field study)		%	10	مشاريع (دراسة ميدانية)	
	Final		%	40	الاختبار النهائي	
	100 %					

Chapters included:

Chapter	Topic	Sections Included
CH.1	An Introduction to Crystal Structures	1-7
CH.2	physical Methods for Characterizing Solids	1-12
CH.4	Bonding in Solids and Electronic Properties	1-5
CH.3	Preparative Methods	1-8
CH.5	Defects and Non-Stoichiometry and Their Applications	1-5
CH.8	Optical Properties of Solids and Their Applications	1-5
CH.9	Magnetic of Solids and their applications	1-11
CH.10	Superconductivity.	1-5

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 different types of solids	An Introduction to Crystal Structures	✓		
2	Describe the structure of the solids utilizing the band theory	An Introduction to Crystal Structures, Preparative Methods	✓		
3	Illustrate the distribution law	An Introduction to Crystal Structures	✓		

4	Define the symmetry and crystal structure of the solids	Physical Methods for Characterizing Solids	✓		
5	Describe the imperfections, stoichiometry and non-stoichiometry in solids	Defects and Non-Stoichiometry and their applications	✓		
6	Illustrate the physical properties as electronic conductivity, ionic and superconductivities, spectral and optical properties with respect to the stoichiometry and non-stoichiometry	Physical Methods for Characterizing Solids	✓		
7	Describe the structural transformation and the structure of the alloys	Defects and Non-Stoichiometry and their applications	✓		
8	Outline the Chemistry of stoichiometric compounds of the elements of group II, VI and II, V	Optical Properties of Solids and their applications	✓		
9	Illustrate the chemical properties of the nonstoichiometric solids	Defects and Non-Stoichiometry and their applications	✓		
10	Define and illustrate the chemical reactions at solid-liquid and solid-gas interfaces	Magnetic of Solids and their applications	✓		
11	Illustrate some applications as photography and electrochemical applications of the non-stoichiometric alloys	Defects and Non-Stoichiometry and their applications. Optical Properties of Solids and their applications. Superconductivity.	✓		
Fields					
Skills					
Coordinator (Name and Rank) :					
Signature and stamp :					
Date:			**13\ 11 \2025**		