Course Description Form

1. Course Name: Inorganic Chemistry
2. Course Code: HECM3101
3. Semester / Annual : Annual
4. Description Preparation Date: 2026\3\30
5. Available Attendance Forms: Regularity
6. Number of Credit Hours (Total) / Number of Units (Total): Theory 60\ 4
7. Course administrator's name (mention all, if more than one name)
Name: Asst. Lect. Hussein Ali Hussein Email: hussein_ali_hussein@hilla-unc.edu.iq
8. Course Objectives

Course Objectives	**•The student will learn the most important theoretical foundations of atomic structure, its la and how to interpret them.** **•The student will understand the nature of electromagnetic radiation and the phenomena explained by scientists, such as the photoelectric effect.** **•The student will learn some basic laws of theoretical inorganic chemistry and their applications.** **•The student will be able to understand the nature of bonding between different compounds** **• The student will understand the concept of hybridization, its different types, and the conditions under which it occurs.**

9. Teaching and Learning Strategies

Strategy	1 .Developing students' cognitive skills through questions and answers.

	2 .Providing opportunities for students to present their ideas through discussions of the lecture with their professor and classmates. 3 .Applying what they have learned through homework and quizzes. 4. The teaching methods include lectures, discussions, motivational activitie and brainstorming.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theoretical	**The electron, the nature of radiation.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
2	2 theoretical	**Electromagnetic radiation.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
3	2 theoretical	**Properties of waves.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
4	2 theoretical	**Energy levels and orbitals (d and p).**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
5	2 theoretical	**State symbol designation for multi-electron atoms.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
6	2 theoretical	**Electron shielding.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
7	2 theoretical	**Atomic, ionic, and covalent radii.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
8	2 theoretical	**Ionization energy, electron affinity, electronegativity.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**

9	2 theoretical	**Magnetic properties.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
10	2 theoretical	**Ionic lattice energy.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
11	2 theoretical	**Ionic lattice energy.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
12	2 theoretical	**Crystal lattice structure.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
13	2 theoretical	**Lewis structures of polyatomic molecules.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
14	2 theoretical	**Resonance.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
15	2 theoretical	**Molecular geometry and electron pair repulsion outer shells.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
16	2 theoretical	**Molecular geometry and electron pair repulsion outer shells.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
17	2 theoretical	**Molecular symmetry.**	**Inorganic Chemistry**	**Lectures Theoretical**	
18	2 theoretical	Molecular orbital configuration. Molecula orbital energy level	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
19	2 theoretical	**diagram for diatomic molecules.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
20	2 theoretical	**Molecular orbital energy level diagram for triatomic molecules.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
21	2 theoretical	**Hybridization.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**

22	2 theoretical	**Hybridization.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
23	2 theoretical	**Method for determining the structure of some simple molecules.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
24	2 theoretical	**Method for determining the structure of some simple molecules.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
25	2 theoretical	**Bonding in some organic molecules.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
26	2 theoretical	**Activity Radioactive.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
27	2 theoretical	**Radioactive series**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
28	2 theoretical	**Alpha rays, beta rays.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
29	2 theoretical	**Gamma rays, cosmic rays.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Oral and written tests**
30	2 theoretical	**Radiation dose.**	**Inorganic Chemistry**	**Lectures Theoretical**	**Lectures Theoretical**

11.Course Evaluation

The grade distribution out of 100 is based on the tasks assigned to the student:

1. Midterm exam (theory) = 50%

2. Final exam (theory) = 50%

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	***Modern Inorganic Chemistry - Part 1 / Dr. Basim Mohammed Saadi***
Main references (sources)	Inorganic Chemistry for Early Stages / Thanaa Al-Hassani
Recommended books and references (scientific journals, reports…)	Inorganic Chemistry - Part 1 (Dr. Numan Al-Nuaimi and his group) Inorganic Chemistry / Dr. Sajid Mahmoud Latif Inorganic Chemistry / Dr. Essam Jirjis

Electronic References, Websites	Huhey