

SUBJECT OUTLINE DETAILS

1. Subject: General and Inorganic Chemistry Lab II

- Code: CH162C
- Credits: 1
- Hours: 30 practice hours.

2. Management Unit:

- Department: Chemistry
- Faculty: Natural Sciences

3. Prerequisites: CH161C

4. Subject objectives:

4.1. Knowledge:

- 4.1.1. Develop proper laboratory skills and techniques for safely acquiring experimental data and characterizations of inorganic compounds.
- 4.1.2. Investigate the important reactions of typical inorganic compounds.
- 4.1.3. Understand the key chemical principles of experiments through the observation, collection, and summarization of experimental data using the scientific method.

4.2. Skill:

- 4.2.1. To provide the students an appreciation for the synthesis and characterizations of some simple inorganic complexes.
- 4.2.2. To provide the students with a degree of competence in the laboratory skills required for accurate and precise chemical analysis.
- 4.2.3. Learn effective communication of scientific results, both written and oral.

4.3. Attitude:

The course also provides an opportunity to set up and develop personal characteristics necessary for scientific activities such as curiosity, persistence, concentration, and team working.

5. Brief description of subject content:

The course is designed to develop the laboratory techniques, data collection, and data analysis, in addition to demonstrate the basic reactions of typical inorganic compounds. Through the experiences, students reinforce and promote an understanding of the principles of stoichiometry, gases, liquids, solutions, energy and chemical reactions.

6. Subject content structure:

	Content	Hours	Objectives
Unit 1. Chemistry of non-metals and their compounds			
1.1.	Hydrogen and its compounds		4.1; 4.2; 4.3
1.2.	Halogens and their compounds		4.1; 4.2; 4.3
1.3.	Group 15 elements and their compounds		4.1; 4.2; 4.3
1.4.	Group 16 elements and their compounds		4.1; 4.2; 4.3
Unit 2. Chemistry of main-group metals and their compounds			
2.1.	The alkali metals and their compounds		4.1; 4.2; 4.3
2.2.	The alkaline earth metals and their compounds		4.1; 4.2; 4.3
2.3.	The group 13 elements and their compounds		4.1; 4.2; 4.3
Unit 3. Chemistry of transition metals			
3.1.	Reactions involving chromium compounds		4.1; 4.2; 4.3
3.2.	Reactions involving manganese compounds		4.1; 4.2; 4.3
3.3.	Reactions involving iron compounds		4.1; 4.2; 4.3
3.4.	Reactions involving cobalt compounds		4.1; 4.2; 4.3
3.5.	Reactions involving copper compounds		4.1; 4.2; 4.3
Unit 4. Preparation and Characterization of Phosphorous Acid			
4.1	Preparation of H_3PO_4 from P		4.1; 4.2; 4.3
4.2	Titration of H_3PO_4 solution prepared with a strong basic solution		4.1; 4.2; 4.3
4.3	Typical reactions of H_3PO_4		4.1; 4.2; 4.3
Unit 5. Synthesis and Optical Properties of Potassium Tris(oxalato)ferrate(III)			
5.1	Synthesis of $K_3[Fe(ox)_3]$		4.1; 4.2; 4.3
5.2	Investigation of optical properties of $K_3[Fe(ox)_3]$		4.1; 4.2; 4.3
Unit 6. Coordination compounds			
6.1	Determine K_f of $[Ag(NH_3)]^+$ complex		4.1; 4.2; 4.3
6.2	Ligand field theory and colors of complexes		4.1; 4.2; 4.3
6.3	Chelate effects		4.1; 4.2; 4.3

7. Teaching method: discussion; demonstration; self-learning; group-working

8. Duties of student:

Students have to do the following duties:

- show up to each lab period on time and prepared to work, dressed in the appropriate attire.

- focus on what is happening in the lab; surfing the internet, texting your friends, or having conversations on the phone are not allowed.

9. Assessment of student learning outcomes:

9.1. Assessment

No.	Point components	Rules and Requirement	Weights	Objectives
1	Report	Report	30%	4.1; 4.2; 4.3
2	Final examination	Oral exam	70%	4.1; 4.2; 4.3

9.2. Grading

- Grading components and final test scores will be marked on a scale of 10 (0 to 10), rounded to one decimal place.
- Subject score is the sum of all the components of the evaluation multiplied by the corresponding weight. The subject score is marked on a scale of 10 and rounded to one decimal place, then is converted to A-B-C-D score and score on a scale of 4 under the academic provisions of the University.

10. Materials:

Materials information	Code number
[1] Synthesis and Technique in Inorganic Chemistry: A Laboratory Manual, 3 rd ed., Gregory S. Girolami, Thomas B. Rauchfuss, and Robert J. Angelici, ISBN 978-0935702484	...
[2] Mai Viết Sanh, 1997, Giáo trình TT Hóa VC và HC Đại cương A3, Khoa KHTN	...
[3] Võ Duy Thanh, 1995, Giá trình TT Hóa Đại cương, Trường ĐHTH TP. HCM	...

Can Tho,/...../2014

**ON BEHALF OF RECTOR
DEAN/ DIRECTOR**

HEAD OF DEPARTMENT