

Planning and Quality Assurance Affairs

Form (A)

Course Specifications

General Information

Course name	General Chemistry Lab(1)
Course number	CHEM1103
Faculty	
Department	
Course type	College Needs
Course level	1
Credit hours (theoretical)	0
Credit hours (practical)	1
Course Prerequisites	

Course Objectives

1 - 1.	The objective of the general chemistry laboratory course is to become proficient in techniques used by practicing chemist, to carry out experiments safely and carefully in the laboratory, to obtain data accurately and to manipulate the data correctly. This course also complements and consolidates the theoretical knowledge acquired in the general chemistry lecture course.
2.	To provide students with basic skills and laboratory safety rules by which they can be qualified for employment or further study.
3.	To familiarize the student with handling the chemical substances, balances and equipments.

Intended Learning Outcomes

Knowledge and Understanding	* 1. Gain general basics and principles of chemistry. 2. Recognize physical and chemical properties of substance. 3. Synthesis of some organic compounds.
Intellectual Skills	* 1. Creative thinking 2. Ability to recognize and solve problems related to chemistry 3. Interpret issues in chemistry with reference to the practices of the international scientific community.
Professional Skills	* 1. Ability to interpret experimental results, perform calculations on these results, writing reports and draw reasonable conclusions 2. Ability to diagnose 3. Ability to solve the problem 4. Implement practical training and reporting for solving problems considering scientific ethics. 5. Assess laboratory risk work taking into consideration the specific chemical hazards and safe handling and proper operation of the laboratory techniques.
General Skill	* 1. Ability to recognize and solve problems related to chemistry 2. Ability to communicate with scientists and nonscientists. 3. Demonstrate team-working ability through group projects. 4. Demonstrate time-management skills. 5. Ability to make effective use of the library and other information resources in chemistry, including the primary literature, tabulated data, and secondary sources such as the internet.

## Course Contents

1 - 1. Safety role and lab equipments. 2. Physical properties: melting point and density determination. 3. Physical properties: boiling point and solubility determination. 4. Chemical Properties. 5. Formula of Hydrate. 6. Empirical Formula of Magnesium Oxide. 7. Midterm Exam. 8. Limiting Reactant. 9. Molar Mass of Volatile Liquid. 10. Colligative properties of solutions. 11. Synthesis of Aspirin. 12. Acid Base Titration- Analysis of Aspirin. 13. Acid Base Titration: determination the molarity of HCl solution. 14. Final exam.

## Teaching and Learning Methods

1 - Laboratory manuals will be provided to students. The modular course consists of twelve experiments performed by teams of two to three students each. The lab work is organized as follows: 1- Preparing for the experiment. The students should read and understand the laboratory protocol and read suggested reference materials prior to the lab session. In addition, some lab session time will usually be devoted to a discussion of the theory concern the experiment. 2- Running the experiment. Each team is responsible for conducting each experiment under supervision of lecturer. 3- End of the experiment. Preliminary discussion of the experimental outcomes with lecturer. 4- Report.

## Students Assessment

<u>Assessment Method</u>	<u>TIME</u>	<u>MARKS</u>
1. Mid Exam		20%
2. Attendance and discussion		10%
3. Homework and project reports		20%
4. Notebook		10%
5. Final Exam		40%

## Books and References

Course note	Lecture notes.
Essential books	1. Lab manual prepared by lab lecturer 2. Chemistry, by Chang, 9th. ed., 2007, McGraw-Hill.
Recommended books	Chemistry, by Steven S. Zumdahl, 6th ed., Houghton Mifflin College Div.
Other References (Periodical, web sites, .... etc.)	1. <a href="http://www.chem.ucla.edu/harding/notes/notes.htm">http://www.chem.ucla.edu/harding/notes/notes.htm</a> 2. <a href="http://www.sciencedirect.com">www.sciencedirect.com</a> 3. <a href="http://www.chemweb.com">www.chemweb.com</a>