Course Specifications

General Information

Course name	Applied Chemistry Lab(1)
Course number	CHEM4104
Faculty	
Department	
Course type	Major Needs
Course level	4
Credit hours (theoretical)	0
Credit hours (practical)	1
Course Prerequisites	

Course Objectives

1 - 1. Teaching students methodologies and technology for preparations of toilet and bar soaps, and shaving soap in addition to tallow rendering. 2. Teaching students methodologies for preparation liquid and powder detergents. 3. Determination of acid value, peroxide value, iodine value and saponification value of oils and fat. 4. Students analyze a commercial detergent at the end of the course. 5. Visiting factories is scheduled during the course for observation.

Intended Learning Outcomes

Knowledge and Understanding	* a. Gain general applications of chemistry. b. The student should be able to demonstrate knowledge of soap making and detergents formulations.
Intellectual Skills	* a. Interpret issues in chemistry with reference to the practices of the international scientific community. b. Analysis, creative thinking and problem solving
Professional Skills	* a. Managing b. Ability to identify the problem c. Ability to estimate cost d. Ability to diagnose
General Skill	* a. Ability to Use of technological tools. b. Ability to Computing. c. Ability to communicate with scientists and nonscientists. d. Demonstrate team-working ability through group projects. e. Demonstrate time-management skills. f. 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. Determination of acid value of oil and fat. 2. Determination of peroxide value of oil and fat. 3. Determination of saponification value of olive oil. 4. Determination of iodine value of oil and fat. 5. Tallow rendering. 6. Soap making (CP). 7. Mid Exam. 8. Dish washing liquid detergent and liquid soap. 9. Dish washing detergent paste and floor detergent paste 10. Laundry detergents. 11. Tooth paste. 12. Determination the active ingredient of detergents. 13. Analysis of Commercial Bleach. 14. Visiting factories for observation. 15. Final Exam.

Teaching and Learning Methods

1 - Laboratory manuals will be provided to students. The modular course consists of ten 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 instructor. 3- End of the experiment. Preliminary discussion of the experimental outcomes with instructor. 4- Report.

Students Assessment

Assessment Method	TIME	MARKS
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. Modern Technology of Soaps, Detergents and Toiletries: With Formulae and Project Profiles 2nd Edition, by P. K. Chattopadhyay, National Institute of Industrial Re, 2003.
Recommended books	Handbook On Soaps, Detergents & Acid Slurry 2nd Edition. By Niir Board Assia Pacific Business Press Inc.
Other References (Periodical, web sites, ... etc.)	http://www.chem.ucla.edu/harding/notes/notes.htm www.siencedirect.com www.chemweb.com