Course Specifications

General Information

Course name	Applied Chemistry Lab(2)
Course number	CHEM4103
Faculty	
Department	
Course type	Major Needs
Course level	4
Credit hours (theoretical)	0
Credit hours (practical)	1
Course Prerequisites	

Course Objectives

1 - 1. Introduces students to the kinds of operations that occur in a commercial chemical laboratory. Students learn the principal techniques of industrial chemistry in making cosmetic products such as shampoos, creams, lotions, gels, textile dying and dying process and glass making. Visiting factories is scheduled during the course for observation. 2. Enable students to analyze some food products: milk, tea and coffee, and cement. 3. Enable students to analyze some industrial products such as cement and glass.

Intended Learning Outcomes

Knowledge and Understanding	* a. Gain general applications of chemistry. b. The student should be able to demonstrate knowledge of soap cosmetic formulations and food analysis.
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 communicate with scientists and nonscientists. c. Demonstrate team-working ability through group projects. d. Demonstrate time-management skills. e. 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. f. Demonstrate self-awareness and the ability to work independently and collaborate effectively with other people in a team.

Course Contents

1 - 1. Shampoo preparation. 2. Hand, hair cream and lotions preparation. 3. Hair gel preparation. 4. Milk and milk product analysis (fat, acidity, Detection of Adulterants in Milk...). 5. Tea and coffee analysis (ash and minerals contents). 6. Determination of sodium benzoate in beverages. 7. Mid Exam. 8. Cement analysis: determination of Fe in cements using Uv-Vis spectroscopy. 9. Extraction and making fragrances. 10. Textile dying and dying process. 11. Glass making and properties. 12. Polymer: Synthesis of Polystyrene and Nylon-6, 6 13. Visiting factories for observation. 14. 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. Harrys cosmeticology (2000), Ralph Gordon Harry; Martin M Rieger, 8th ed. Chemical Pub. Co. 3. AOAC International. (1995). 'Official Methods of Analysis'. 16th Ed.
Recommended books	Manual of methods of analysis of foods Milk and milk products (2015). New Delhi.
Other References (Periodical, web sites, ... etc.)	http://www.chem.ucla.edu/harding/notes/notes.htm www.siencedirect.com www.chemweb.com