BS Chemistry Semester-III					
Programme	**BS Chemistry**	**Course Code**	**Chem-261L**	**Credit Hours**	**1**
Course Title	**Applied Chemistry Lab**		**Course Type**	**Major Elective**	

Course Introduction

This course content will increase the working skills of students regarding water testing labs and cosmetic industries.

Titrimetery:

Estimation of water hardness by complexometery

Estimation of TSS and TDS in water

Determination of acidity, alkalinity, Free CO2 in water

Determine the %age purity of the Commercial sample of sodium chloride.

Soap:

Determination of Free Alkali in Soap

Determination of Combined Alkali in Soap

Determination of Volatile matter in Soap

Extraction of Fatty acids from soap

Learning Outcomes

On the completion of the course:

1. Students are expected to become familiarized with the concepts of general chemistry
2. This will enable them qualify for basic to moderate level jobs involving general knowledge of chemistry
3. The obtained knowledge shall also enable the students to enter into various entrepreneurial activities involving general introduction to chemistry
4. Students are able to understand the concept of GLP and GMP

Course Content		Assignments/Readings
Week 1	Estimation of water hardness by complexometry	Lab work / Notebook
Week 2	Estimation of water hardness by complexometry	Lab work / Notebook
Week 3	Estimation of water hardness by complexometry	Lab work / Notebook
Week 4	Estimation of TSS and TDS in water	Lab work / Notebook
Week 5	Determination of acidity in water	Lab work / Notebook
Week 6	Determination of alkalinity in water	Lab work / Notebook

Week 7	Determination of Free CO_2 in water	Written Assignment
Week 8	Determine the %age purity of a commercial sample of sodium chloride.	Lab work / Notebook
Week 9	Mid Term Examination	Lab work / Notebook
Week 10	Determination of Free Alkali in soap	Lab work / Notebook
Week 11	Determination of Free Alkali in soap	Lab work / Notebook
Week 12	Determination of Combined Alkali in soap	Lab work / Notebook
Week 13	Determination of Combined Alkali in soap	Lab work / Notebook
Week 14	Determination of Volatile matter in soap	Lab work / Notebook
Week 15	Extraction of Fatty Acids from soap	Quiz
Week 16	Review and Viva Voce	Lab work / Notebook

Textbooks and Reading Material

1. Applied Chemistry, Haq Nawaz Bhatti and Muhammad Salman, 2017, Caravan Book Publisher, Pakistan.
2. Water Supply and Sewerage, T.J.McGhee, McGraw Hill Book Co. New York.(1991)
3. Hand Book of Industrial Chemicals, By SIRI Board of Consultants and Engineers,
4. Shereve's Chemical Process Industries, 5th Ed.1975 by G.T.Austin McGraw Hill Book Co. New York.
5. Industrial chemistry, B. K. Sharma Krishna Prakashan Media (P) Ltd., Ed-15 (2006)

Teaching Learning Strategies

1. Lectures
2. Group Discussion
3. Laboratory work
4. Seminar/ Workshop

Assignments: Types and Number with Calendar

1.Written 7th week
2.Quiz 15th week

Assessment			
Sr. No.	**Elements**	**Weightage**	**Details**
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Continuous assessment includes: Classroom participation, assignments, presentations, viva voce, attitude and behavior, hands-on-activities, short tests, projects, practical, reflections, readings, quizzes.
3.	Final Assessment	40%	Written Examination at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing.