Year (Semester)	Course Title	Course Code	L-T-P-Credits
1stYear (1st and 2ndSemester)	Chemistry Laboratory	CHL 101	0-0-2-2
Evaluation Policy	**Continuous Assessment**		**End-Term**
	60 Marks		40 Marks

Pre-requisites: None.

Course Outcomes: At the end of the course, the student will be able to:

CO1	Acquire practical knowledge of determination of various parameters of water
CO2	Experimentally learn about synthesis of polymeric materials.
CO3	Gain the knowledge about analysis of fuels and lubricants.
CO4	Use instrumental methods for chemical analysis.

Detailed Syllabus:

Module No.	Contents	Hours
Module 1	1. To determine the total, permanent and temporary hardness of water by EDTA method. 2. To determine alkalinity of given water samples/alkali mixtures by warder's Method. 3. To estimate percentage of available chlorine (free chlorine) in bleaching powder/water.	**08**
Module 2	1. Synthesis of Urea formaldehyde resin. 2. Synthesis of Phenol formaldehyde resin. (Demonstration)	**04**
Module 3	1. Proximate analysis of coal. 2. To determine the acid value of given lubricating oil. 3. To determine the aniline point of given lubricating oil. 4. Estimation of viscosity of lubricating oil by viscometer.	**10**
Module 4	1. Estimation of strength of HCl by pH Meter. (Demonstration) 2. To verify Beer–Lambert law for coloured solution and to determine the concentration of a given unknown solution. (Demonstration).	**06**

Books Recommended:

1. Dara S.S., A Textbook on Experiments and Calculations in Engineering Chemistry, S Chand & Company Publication, 9th Edition, 2015
2. Mangla B., Sachdeva R., Sethi B., Engineering Practical Chemistry, Manakin Press, 1st Edition, 2018.
3. Rattan S., Theory and Practicals of Engineering Chemistry, S.K. Kataria and Sons publication, 1st Edition 2013.
4. Jaspal D., Malviya A., Engineering Chemistry Practical Book, Alpha science International Ltd., 1st Edition, 2015.
5. Thakur A., Practical Engineering Chemistry, Narosa Publication, 1st Edition, 2018.