APPLIED CHEMISTRY(GS-103)

Pre-requisite: None
Credit Hours 02
Contact Hours 32

RECOMMENDED BOOK(S)

Applied Chemistry: A Textbook For Engineers And Technologists By: O.V. Roussak H. D. Gesser: 2013 Edition: Springer

REFERENCE BOOK(S)

Chemistry, The Central Science, Theodore L. Brown Et Al. 13th Edition (2014)
Physical Chemistry (3rd Edt.) By Thomas Engel And Philip Reid : Prentice Hall, (2013)
Chemistry For Engineering Students (William H. Brown And Lawrence S. Brown), Cengage Learning; 2 Edition (2010)

COURSE OBJECTIVES

This course will represent mechanical engineering students to applied nature of chemistry by learning the fundamentals like balancing chemical equation, formulating a solution to a problem using these equations. Furthermore this course will relate chemistry to industrial application like processing of Plastics, refining of fossil fuel and petroleum products, adhesive, electrochemical nature of corrosion and its protection with paints and coatings. Treatment of waste/industrial water will also be covered. Advance topics like Nanochemistry and its applications and chemistry involved in silicon extraction and its application in electronic industry will also be introduced

S. No.	CLO/PLOS MAPPING	DOMAIN	PLO
1	**Demonstrate** working knowledge of applied chemistry and its application to mechanical engineering field.	C3	01
2	**Identify** chemical compounds with harmful effects on environment and propose their control.	C1	07
3	**Apply** the acquired knowledge to identify, formulate and **Solve** engineering problems of chemical nature in field of mechanical engineering.	C3	02

COURSE CONTENTS

Physical Chemistry: Properties of various groups and periods of periodic table. Sources, production and uses of the major chemicals with relevance to Pakistan.

Thermo-chemistry: Chemical Thermodynamics, Hess's Law, heat of formation and reaction, relation between H and U, measurement of heat reaction, Bomb calorimeter

Electrochemistry: Laws of electrolysis, E.M.F. Series, corrosion (Theories, inhibition & protection), batteries.

Industrial Chemistry: Industrial chemistry introduction, Manufacture and uses of various hydrocarbons. Lubricants and oils.Production and application of paints, rubbers and fuels.Environmental pollution and control.Water Treatment Methods: Water softening, treatment of water for industrial purposes.