Guru Gobind Singh Foundation's

Guru Gobind Singh College of Engineering and Research Centre, Nashik

Vision, Mission and Program Educational Objectives

Vision and Mission of the Institute

Vision

An institute striving for excellence in providing transformative academic education and stimulating environment for research to enhance skills for developing intellectuals and to inculcate quality education with social and technical knowledge which will benefit the society and industrial challenges.

Mission

- To be a technical educational institute in transforming aspiring engineers through rigorous course work and technical skills.
- To benchmark with the best global standards of quality education
- To enhance commitment of the faculty, staff and students by inculcating the spirit of inquiry, team work and professionalism
- Establish a centre of excellence to enhance academia-industry partnership, work on collaborative projects, and develop new products, services and patents.
- To develop globally competent students by enhancing indigenous technologies and inculcate entrepreneurship in them

Program Outcomes (POs) :

Engineering Graduates will be able to:

1. **Engineering knowledge :** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis :** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems :** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage :** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society :** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability :** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics :** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work :** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication :** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance :** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning :** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Guru Gobind Singh College of Engineering & Research Centre, Nashik

Basic Engineering Science [2022-23]

CO PO Desired Mapping Report

Year : FIRST YEAR - Sem-II: FE-E
Subject : Engineering chemistry - Theory
Faculty : Sonalee Deo
Course Code : 107009

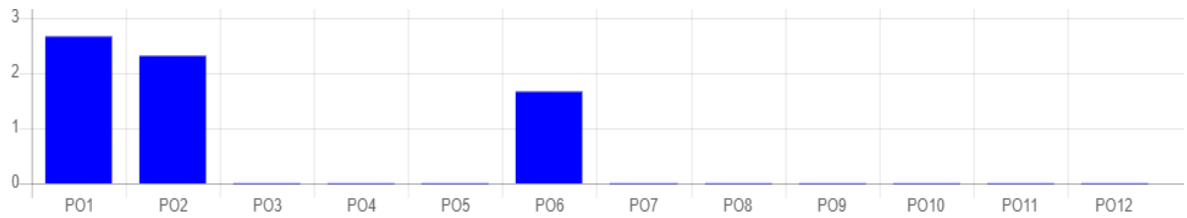
Course Outcome Details

#	Course Outcome	Description
1	CO1	To understand technology involved in analysis and improving quality of water as commodity
2	CO2	To acquire the knowledge of electro-analytical techniques that facilitates rapid and precise understanding of materials
3	CO3	To understand structure, properties and applications of speciality polymers and nano material.
4	CO4	To study conventional and alternative fuels with respect to their properties and applications.
5	CO5	To study spectroscopic techniques for chemical analysis.
6	CO6	To understand corrosion mechanisms and preventive methods for corrosion control.

Desired Attainment Details

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3					1						
CO2	3											
CO3	3	3										
CO4	2	2				2						
CO5	3											
CO6	2	2				2						
Average	2.67	2.33				1.67						

Desired Attainment Average : 2.22



Guru Gobind Singh College of Engineering & Research Centre, Nashik

Basic Engineering Science [2022-23]

Justification Report for CO-PO/PSO Desired Mapping

Year : FIRST YEAR - Sem-II: FE-E
Subject : Engineering chemistry - Theory
Faculty : Sonalee Deo
Course Code : 107009

Justification

Course Outcome	Program Outcome	Level	Justification
CO1	PO1	3	The knowledge of Water treatment: Zeolite method, Demineralization method, Reverse osmosis and Electrodialysis.
CO1	PO6	1	The student will apply contextual knowledge of water and its softening treatment.
CO2	PO1	3	The theoretical knowledge of types of reference electrode, indicator electrode, ion selective electrode
CO3	PO1	3	To understand classification, structure, properties of nanomaterial & its applications.
CO3	PO2	3	Student should be able to Identify Specialty polymers and Bio-degradable polymers from their structure.
CO4	PO1	2	To understand the knowledge of classification of fuels & its calorific values.
CO4	PO2	2	Student should be able to solve a problem (numerical) based on qualitative and quantitative analysis of coal.
CO4	PO6	2	The student will apply contextual knowledge of fuel and use alternative sources of fuel in day today life
CO5	PO1	3	The knowledge of chemical compounds based on their structure
CO6	PO1	2	Apply the knowledge of corrosion and its type. also how to prevent the metal from corrosion by various treatment method.

Course Outcome	Program Outcome	Level	Justification
CO6	PO2	2	Student able to understand what are the problems created when metal shows corrosion. and student can understand various corrosion treatment method.
CO6	PO6	2	The student will apply contextual knowledge of method of prevention of metal from corrosion.

Guru Gobind Singh College of Engineering & Research Centre, Nashik

Basic Engineering Science [2022-23]

Justification Report for CO-PO/PSO Desired Mapping

Year : FIRST YEAR - Sem-II: FE-E
Subject : Engineering Chemistry - Practical
Faculty : Sonalee Deo
Course Code : 107009

Justification

Course Outcome	Program Outcome	Level	Justification
CO1	PO1	3	Student should have knowledge of type of water and its techniques for analysis
CO1	PO2	2	Student should be able to find formula for hardness of water and from this find the type of water sample.
CO1	PO6	1	Student should be able to know the safety of water after knowing its type.
CO1	PO9	1	Students do the experiments in Individual as well as in team.
CO2	PO1	2	Students must have knowledge about basic titration method for measurement of strengths.
CO2	PO5	3	Students uses the appropriate techniques for measurement of strengths.
CO2	PO9	1	Students do the experiments in Individual as well as in team.
CO3	PO1	3	Students uses the appropriate techniques for finding viscosity using Viscometer.
CO3	PO5	2	Students uses the appropriate techniques for finding viscosity using Viscometer.
CO3	PO9	1	Students do the experiments in Individual as well as in team.

Course Outcome	Program Outcome	Level	Justification
CO4	PO1	3	Students apply the knowledge of engineering chemistry for the coal analysis.
CO4	PO5	2	Students apply basic techniques used in chemistry laboratory for analyses for sample
CO4	PO9	1	The students will be able to understand and explain scientifically the various chemistry related problems in the industry working in team.
CO5	PO1	3	The Students must have knowledge to learn safety rules in the practice of laboratory investigation.
CO5	PO5	2	Students apply basic techniques used in chemistry laboratory for analyses for sample
CO5	PO9	1	The students will be able to understand and explain scientifically the various chemistry related problems in the industry working in team.

Guru Gobind Singh College of Engineering & Research Centre, Nashik

Basic Engineering Science [2022-23]

CO PO Desired Mapping Report

Year : FIRST YEAR - Sem-II: FE-E
Subject : Engineering Chemistry - Practical
Faculty : Sonalee Deo
Course Code : 107009

Course Outcome Details

#	Course Outcome	Description
1	CO1	Apply the different methodologies for analysis of water and techniques involved in softening of water as commodity.
2	CO2	Select appropriate electro technique and method of material analysis.
3	CO3	Demonstrate the knowledge of advanced engineering materials for various engineering applications.
4	CO4	Analyze fuel and suggest use of alternative fuels.
5	CO5	Identify chemical compounds based on their structure.

Desired Attainment Details

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2				1			1			
CO2	2				3				1			
CO3	3				2				1			
CO4	3				2				1			
CO5	3				2				1			
Average	2.80	2.00			2.25	1.00			1.00			

Desired Attainment Average : 1.81