

SCHEME OF COURSE WORK

Course Title	Engineering Chemistry		
Course Code	22BC1101	L T P C	3 0 0 3
Program:	B.Tech.		
Specialization:	Computer Science and Engineering		
Semester	I		
Prerequisites	Fundamentals of chemistry		
Courses to which it is a prerequisite	For CSE&IT		

Course Outcome (CO): At the end of the Course the students shall be able to:

The students will be able to:		Cognitive Level
CO-1	Recall the principles; explain the working and design of energy storage devices.	Apply
CO-2	Compare different types of cells and explain the merits of fuel cells..	Apply
CO-3	List various sources of renewable energy and applications of solar energy	Understand
CO-4	Classify the polymers and can apply to specific purposes	Apply
CO-5	Distinguish between nanoclusters & nanowires, Molecular Machines & Switches	Understand

Program Outcomes (POs):

A graduate of Information Technology will be able to

1	Ability to apply the knowledge of mathematics, science, engineering fundamentals and principles of Information Technology to solve problems in different domains.
2	Ability to analyze a problem, identify and formulate the computing requirements

	appropriatetoitssolution
3	Abilityto design&develop software applicationsthatmeet thedesired specifications withintherealisticconstraintstoservetheneedsof thesociety.
4	Abilitytodesignandconduct experiments,aswellasto analyze andinterpretdata
5	Abilityto use appropriate techniques&tools to solveengineeringproblems.
6	Abilitytoapplytheknowledgeto analyzeandunderstand societal, health,safety, legal,andculturalissues relevanttothe InformationTechnologypractices
7	Abilitytoanalyzethelocalandglobalimpactof computingon individualaswell as on society
8	Abilitytodemonstrateprofessional ethicalpracticesand socialresponsibilitiesin globaland societal contexts
9	Abilityto function effectivelyasan individual,and as amember or leader indiverse andmultidisciplinaryteams.
10	Abilitytocommunicateeffectivelywith theengineeringcommunityandwith society atlarge
11	Abilityto understand engineeringand management principles andapplytheseto one'sownwork,asamemberandleaderin ateam,tomanageprojects.
12	Abilityto recognizethe need forupdatingtheknowledgein thechosenfieldand imbibinglearningtolearn skills.

CourseOutcome-PO matrix

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO3
CO-1	3	3	2	2	2				2						
CO-2	3	3	2	2	2				2						
CO-3	3	3	2	2	2				2			2			
CO-4	3	3	2	2	2				2			2			
CO-5	3	3	2	2	2				2			2			

CourseOutcome-Assessment

Week	TOPIC/CONTENTS	Course Outcomes	Sample questions	TEACHING-LEARNING STRATEGY	Assessment Method & Schedule
1	Electrode potential, type of cells	CO1	Q) Derive Nernst equation for electrode potential.	□ Lecture / Discussion □ Problem solving	Assignment-I (Week - 4) Midtest-I (Week-9)
2	Construction and working principles of glass electrode	CO1	Q) Explain the determination of p^H of solution using glass electrode	□ Lecture / Discussion □	Assignment-I (Week - 4) Mid test-I (Week-9)
3.	Reference electrodes	CO1	Q) Describe the construction and working of Calomel electrode	□ Lecture / Discussion	Assignment-I (Week - 4) Mid test-I (Week-9)
4	Batteries-primary batteries	CO2	Q) Explain the construction and working of Dry cell	□ Lecture / Discussion	Quiz-I (Week-7) Mid test-I (Week-9)
5	Batteries-secondary Batteries	CO2	Q) Describe the principle and working of Lithium ion battery	□ Lecture / Discussion	Quiz-I (Week-7) Mid test-I (Week-9)
6	Fuel cells/alkaline fuel cells	CO2	Q) Explain the principle and construction of alkaline fuel cell	□ Lecture / Discussion	Quiz-I (Week-7) Midtest -I (Week-9)
7	Sources of renewable energy	CO3	Q) Discuss various sources of renewable energy	□ Lecture / Discussion □	Mid test-I (Week-9)
8	Solar energy, photovoltaic cell	CO3	Q) Explain the principle and construction of photovoltaic cell	□ Lecture / Discussion	Mid test-I (Week-9)
9	MIDEXAM				
10	Band theory of solids	CO3	Q) Describe Band theory of solids	□ Lecture / Discussion	Assignment-II (Week-13) Midtest-II (Week-18)
11	Polymerisation, Types of polymerization and mechanism	CO4	Q) Differentiate addition polymerization from	□ Lecture / Discussion	Assignment-II (Week-13)

			condensation polymerization.	n	Midtest-II (Week-18)
12	Plastics, types, differences, Synthesis of plastics	CO4	Q) Differentiate thermoplastic and thermosetting polymers	<ul style="list-style-type: none"> ▫ Lecture /Discussion ▫ Problem solving 	Assignment-II (Week-13) Mid test-II (Week-18)
13	Elastomers- preparation, properties and application	CO4	Q) Write the preparation, properties and application of synthetic elastomeric.	<ul style="list-style-type: none"> ▫ Lecture /Discussion 	Assignment-II (Week-13) Midtest-II (Week-18)
14	Conducting polymers- preparation, properties and application	CO4	Q) Write the preparation, properties and applications of polyaniline.	<ul style="list-style-type: none"> ▫ Lecture /Discussion ▫ Problem solving 	Assignment-II (Week-13) Mid Test-II (Week-18)
15	Nanomaterials	CO5	Q) Write a note on nanoclusters	<ul style="list-style-type: none"> ▫ Lecture /Discussion ▫ Problem solving 	Quiz-II (Week-16) Mid Test-II (Week-18)
16	Synthesis of nanomaterials	CO5	Q) Explain the synthesis of nanomaterials by sol-gel method	<ul style="list-style-type: none"> ▫ Lecture /Discussion 	Quiz-II (Week-16) Mid Test-II (Week-18)
17	Molecular machines	CO5	Q) Explain the applications of molecular machines	<ul style="list-style-type: none"> ▫ Lecture /Discussion 	Mid Test-II (Week-18)
18	MIDTEST-II				
19/20	ENDEXAM				