

SCHEME OF COURSEWORK

Course Details:

Course Title	ENGINEERING CHEMISTRY LAB								
Course Code	22BC1102	L	T	P	C	0	0	3	1.5
Program:	B.Tech								
Specialization:	Computer Science and Engineering								
Semester	I								
Prerequisites	Fundamentals of chemistry								
Courses to which it is a prerequisite	CSE, ECE,EEE&IT.								

Course Outcomes (COs):

CO No.	Course outcomes	Cognitive level
CO1	Determine the metal ions by titrimetry	Apply
CO2	determine the strength of acids, bases and water quality parameters	Understand and Apply
CO3	explain the functioning of the instruments such as pH meters, conductivity meter and potentiometer	Apply
CO4	determine the physical properties like surface tension and viscosity	Understand and Apply
CO5	prepare polymeric resins and nanoparticles	Apply

Program Outcomes (POs):

A graduate of Electronic and Communication Engineering will be able to

PO-1	Graduates will be able to apply the knowledge of mathematics, science, engineering fundamentals to solve complex electronics and communication engineering problems.
PO-2	Graduates will attain the capability to identify, formulate and analyze problems related to electronics and communication engineering and substantiate the conclusions using the first principles of sciences and engineering.
PO-3	Graduates will be in a position to design solutions for electronics and communication engineering problems and design system components and processes that meet the specified needs with appropriate consideration for public health and safety.

PO-4	Graduates will be able to perform analysis and interpretation of data by using research methods such as design of experiments to synthesize the information and to provide valid conclusions.
PO-5	Graduates will be able to select and apply appropriate techniques from the available resources and modern electronics and communication engineering and software tools, and will be able to predict and model complex engineering activities with an understanding of the practical limitations.
PO-6	Graduates will be able to carry out their professional practice in electronics and communication engineering by appropriately considering and weighing the issues related to society and culture and the consequent responsibilities.
PO-7	Graduates will be able to understand the impact of the professional engineering solutions on environmental safety and legal issues.
PO-8	Graduates will transform into responsible citizens by resorting to professional ethics and norms of the engineering practice.
PO-9	Graduates will be able to function effectively in individual capacity as well as a member in diverse teams and in multidisciplinary streams.
PO-10	Graduates will be able to communicate fluently on complex engineering activities with the engineering community and society, and will be able to prepare reports and make presentations effectively.
PO-11	Graduates will be able to demonstrate knowledge and understanding of the engineering and management principles and apply the same while managing projects in multidisciplinary environments.
PO-12	Graduates will engage themselves in independent and life-long learning in the broadest context of technological change while continuing professional practice in their specialized areas of electronics and communication engineering.

Course Outcome versus Program Outcomes:

Course outcomes	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
CO1	3	3													
CO2	3	3													
CO3	3	3	2						2			2			
CO4	3	3													
CO5	3	3	3						3			3			

S-Strongly correlated, M-Moderately correlated, Blank-No correlation

Assessment Methods:	Assignment/Quiz/ Seminar/ CaseStudy /Mid-Test/ EndExam
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Course Outcome-Assessment

Week	TOPIC / CONTENTS	Course Outcomes	Sample questions	TEACHING - LEARNING STRATEGY	Assessment Method & Schedule
1	Determination of total hardness of a groundwater sample	CO1	Q) Determine the total hardness of given 100ml water sample	Experiment	Evaluation by checking observation and record <u>Day to Day Evaluation(10M)</u> Experiment-4M Record-2M Result-2M Viva-2M <u>MID TEST(25M)</u> Procedure-5M Experiment-10M Result-5M Viva-5M
2	Determination of copper in brass	CO1	Q) Determine the amount of copper present in given alloy sample.	Experiment	
3	Determination of active chlorine content in bleaching powder	CO1	Q) Determine the active chlorine present in given bleaching powder solution	Experiment	
4	Determination of chromium(VI) by hypso	CO1	Q) Determine the amount of Cr present in given dichromate sample solution	Experiment	
5	Determination of sodium carbonate and sodium bicarbonate in mixture	CO2	Q) Determine the amount of carbonate and bicarbonate present in given alkaline mixture	Experiment	
6	Determination of sulphuric acid in lead-acid storage cell	CO2	Q) Determine the strength of sulphuric acid in lead-acid storage cell	Experiment	
7	MIDTEST-I				

8	Determination of strength of an acid by	CO ₃	Q) Determine the strength of an acid by	Experiment	
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	pHmetricmethod		pHmetricmethod		Evaluation bycheckingobs ervationandrec ord
9	Determination of citricacid in a citrus fruit byconductometricmeth od	CO3	Q) Determine thestrength of citric acidbypHmetricmeth od	Experiment	<u>Day to DayEvaluation(1 0M)</u> Experiment- 4MRecord- 2MResult-2M Viva-2M
10	DeterminationofFe(II)i n mohr's salt bypotentiometricmetho d	CO3	Q)Determinethea mount of Fe(II)present in givenmohr'ssaltb y potentiometricmethod	Experiment	
11	Determination ofsurfacetensionof aliquid	CO4	Q) Determine thesurface tension ofgivenliquid	Experiment	
12	Determination ofviscosityofaliqui d	CO4	Q)Determinethe viscosity of givenliquid	Experiment	
13	Preparationofnylonp olymer	CO5	Q)PrepareNylon- 6,6polymer	Experiment	
14	Mid Test-II				
15	Determination ofFe(III) byspectrophotome try	CO3	Q) Determine theamount of Fe(III)present in givencement sample byspectrophotomet ricmethod	Experiment	
16	Preparationofgoldn anoparticles	CO5	Q)Preparegoldn anoparticles	Experiment	
ENDExams					