

SCHEME OF COURSE WORK

Course Details:

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

Course Outcomes (COs): After the completion of the course, the student will be able to:

CO No.	Course outcomes
CO1	Determine the metal ions by titrimetry (L3)
CO2	determine the strength of acids, bases and water quality parameters (L3)
CO3	explain the functioning of the instruments such as pH meters, conductivity meter and potentiometer (L3)
CO4	determine the physical properties like surface tension and viscosity (L3)
CO5	Determine the metal ions by spectrophotometer (L3)

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.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO1	Specify, analyze, design, prototype and test electronic systems that perform analog and digital signal processing.
PSO2	Analyze and design wired and wireless/RF communication systems
PSO3	Specify, design and implement prototype HW/SW for VLSI and Embedded Systems

Course Outcome versus Program Outcomes:

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
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outcomes												
CO1	3	2										
CO2	3	2										
CO3	3	2										
CO4	3	2										
CO5	3	2										

3 - Strongly correlated, 2 - Moderately correlated, 1 - Slightly correlated

Course outcomes vs Program Specific Outcomes

COs	PSO1	PSO2	PSO3
CO-1	-	-	-
CO-2	-	-	-
CO-3	-	-	-
CO-4	-	-	-
CO-5	-	-	-

Assessment Methods:	Assignment / Quiz / Seminar / Case Study / Mid-Test / End Exam
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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 ground water sample	CO 1	Q) Determine the total hardness of given 100 ml water sample	Experiment	Evaluation by checking observation and record <u>Day to Day Evaluation(25M)</u> Experiment-10M Record-5M Viva-5M
2	Determination of copper in brass	CO 1	Q) Determine the amount of copper present in given alloy sample.	Experiment	
3	Determination of active chlorine content in bleaching powder	CO 1	Q) Determine the active chlorine present in given bleaching powder solution	Experiment	
4	Determination of	CO 1	Q) Determine the	Experiment	

	chromium (VI) by hypo		amount of Cr present in given dichromate sample solution		Result=5M
5	Determination of sodium carbonate and sodium bicarbonate in a mixture	CO 2	Q) Determine the amount of carbonate and bicarbonate present in given alkaline mixture	Experiment	
6	Determination of sulphuric acid in lead-acid storage cell	CO 2	Q) Determine the strength of sulphuric acid in lead-acid storage cell	Experiment	
7	MID TEST-I				<u>MID TEST (25M)</u> Principle+Procedure =10M Experiment+calculation=5M Result-5M Viva-5M
8	Determination of strength of an acid by pH metric method	CO 3	Q) Determine the strength of an acid by pH metric method	Experiment	Evaluation by checking observation and record
9	Determination of citric acid in a citrus fruit by conductometric method	CO 3	Q) Determine the strength of citric acid by pH metric method	Experiment	
10	Determination of Fe(II) in mohr's salt by potentiometric method	CO 3	Q) Determine the amount of Fe(II) present in given mohr's salt by potentiometric method	Experiment	<u>Day to Day Evaluation(25M)</u> Experiment-10M Record-5M Viva-5M Result=5M
11	Determination of surface tension of a liquid	CO 4	Q) Determine the surface tension of given liquid	Experiment	
12	Determination of viscosity of a liquid	CO 4	Q) Determine the viscosity of given liquid	Experiment	
13	Determination of Fe(III) by spectrophotometry	CO 5	Q) Prepare Nylon-6,6 polymer	Experiment	
14	MID TEST - II				<u>MID TEST (25M)</u> Principle+Procedure =10M Experiment+calculation=5M

		ion=5M Result-5M Viva-5M
	END Exams	