



**Sri Indu College of Engineering & Technology: Sheriguda (V), R.R.Dist**

**Department of Electronics and Communication Engineering**

**Name of the Physical laboratory : Engineering chemistry Lab**

**Room No : EC-101**

**Name of the lab incharge (Faculty) (for physical lab - PL) : A. SHIVA KUMAR**

**Name of the Lab Assistant (for physical lab) :**

**Name of the faculty incharge (faculty) (for curriculum lab- CL) :**

**LAB FILE:**

<b>S.NO</b>	<b>NAME OF THE FILE</b>	<b>(Y/N)</b>
1	V, M, PEO. - HoD signed xerox copy	Y
2	PO, PSOs - HoD signed xerox copy	Y
3	PO, PSO, COs and Mapping - Prepared and signed by faculty incharge	Y
4	List of experiments as per the syllabus. - univeristy xerox copy	Y
5	List of experiments including additional experiments and their CO, PO/PSO mapping.- Prepared and signed by faculty incharge	Y
6	Class timetable highlighting the lab.- HoD signed xerox copy	Y
7	Model Practical End examination questions - Prepared and signed by faculty incharge	Y
8	Schedule of end practical examinations - HOD signed xerox copy	Y
9	List of examiners- HOD signed xerox copy	Y
10	Cycle chart to known the batch size of experiment setup - Prepared and signed by faculty incharge	Y
11	Lab occupancy chart (including names of Lab, faculty in-charges and support staff) -Prepared and signed by Lab incharge	Y
12	List of major equipment. - Prepared and signed by Lab incharge	Y
13	List of the equipment (S.No, Description,suppliers, Date of purchase, unit price, qty, total) - Prepared and signed by Lab incharge	Y
14	List of Labelling/Number code of the equipment - Prepared and signed Lab incharge	Y
15	Dos and Don'ts - Prepared and signed by Lab incharge	Y
16	List of Major/Mini projects done by the students in this lab with	

	documentation. - Prepared and signed by Lab incharge	
17	List of working models/Prototypes/products with proper documentation. - Prepared and signed by Lab incharge	
18	Physical lab floor plan with area in Sq.m - Prepared and signed by Lab incharge	Y
19	Inventery List - Prepared and signed by Lab incharge	Y

**REGISTERS/DOCUMENTS:**

S.NO	NAME OF THE REGISTERS/DOCUMENTS	(Y/N)
1	Stock register (which includes date of purchase, supplier, indent, GRN, bill number) - Prepared and signed by Lab incharge	Y
2	Maintenance register (allocate minimum one page for each equipment) - Prepared and signed by Lab incharge	Y
3	Consumables register (allocate minimum one page for each equipment)- Prepared and signed by Lab incharge	Y
4	Student log-in register - Prepared and signed by Lab incharge	Y
5	Service/Repair register - Prepared and signed by Lab incharge	Y
6	Equipment operation manual provided by the manufacturer.	Y
7	File of filled indents forms/Register - Prepared and signed by faculty incharge	Y
8	Student and Master manual prepared by the department with additional experiments. - Prepared and signed by faculty incharge	Y
9	Place two sets of well maintained records of each lab per semester. - Prepared by students and signed by faculty incharge	Y
10	Duly filled attendance register with day to day evaluation. - Prepared and signed by faculty incharge	Y

**HOD**



**Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist**

**Department of Electronics and Communication Engineering**

### **INSTITUTION VISION**

To be a premier Institution in Engineering & Technology and Management with competency, values and social consciousness.

### **INSTITUTION MISSION**

- IM<sub>1</sub>** Provide high quality academic programs, training activities and research facilities.
- IM<sub>2</sub>** Promote continuous Industry-Institute interaction for employability, Entrepreneurship, leadership and research aptitude among stakeholders.
- IM<sub>3</sub>** Contribute to the economical and technological development of the region, state and nation.

**Principal**



**Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist**

**Department of Electronics and Communication Engineering**

**DEPARTMENT VISION**

To be a centre of excellence in Electronics and Communication Engineering Education to produce professionals for ever-growing needs of society.

**DEPARTMENT MISSION**

The Department has following Missions:

- DM<sub>1</sub>** To promote and facilitate student t- centric learning.
- DM<sub>2</sub>** To involve in activities that enable overall development of stakeholders.
- DM<sub>3</sub>** To provide holistic environment with state-of-art facilities for students to develop solutions for various social needs.
- DM<sub>4</sub>** Organize trainings in embedded systems with Industry interaction.

**HOD**



**Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist**

**Department of Electronics and Communication Engineering**

**Program Educational Objectives (PEOs)**

<b>PEO1</b>	<b>Higher Studies:</b> Graduates with an ability to apply knowledge of Basic Sciences and programming skills in their career and higher education.
<b>PEO2</b>	<b>Lifelong Learning:</b> Graduates with an ability to adopt new technologies for ever changing IT industry needs through Self-Study, Critical thinking and Problem solving skills.
<b>PEO3</b>	<b>Professional Skills :</b> Graduates will be ready to work in projects related to complex problems involving multidisciplinary projects with effective analytical skills
<b>PEO4</b>	<b>Engineering citizenship:</b> Graduates with an ability to communicate well and exhibit social, technical and ethical responsibility in process or product.

**Head of the Department**



**PROGRAM OUTCOMES (POs)**

Program Outcomes	
PO1	<b>Engineering Knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	<b>Problem Analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	<b>Design / Development of Solutions:</b> 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.
PO4	<b>Conduct investigations of complex problems:</b> 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.
PO5	<b>Modern tool usage:</b> Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	<b>The engineer and society:</b> 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.
PO7	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	<b>Communication:</b> 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.
PO11	<b>Project management and finance:</b> 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.
PO12	<b>Life-long learning:</b> 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.



**Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist**

**Department of Electronics and Communication Engineering**

**Program Specified Outcomes (PSOs)**

<b>Program Specific Outcomes</b>	
<b>PSO 1</b>	To develop software projects using standard practices and suitable programming environment.
<b>PSO 2</b>	To identify, formulate and solve the real life problems faced in the society, industry and other areas by applying the skills of the programming languages, networks and databases learned.
<b>PSO 3</b>	To apply computer science knowledge in exploring and adopting latest technologies in various inter-disciplinary research activities.

**HOD**



Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist

Department of Electronics and Communication Engineering

Academic Year: 2022-23 II Semester

I Year B.Tech ECE

R22CHE1127 – ENGINEERING CHEMISTRY LAB

ACADEMIC YEAR: 2022-2023

Course Code & Name: R22CHE1127 & ENGINEERING CHEMISTRY LAB

Course outcomes:

After learning the contents of this paper the student must be able to,

Course Outcomes	Course Outcomes
C117.1	Determination of parameters like hardness of water and rate of corrosion of mild steel in various conditions. (L2-Understanding)
C117.2	Able to perform methods such as conductometry, potentiometry and pH metry in order to find out the concentrations or equivalence points of acids and bases. (L2-Understanding)
C117.3	Students are able to prepare polymers like Bakelite and nylon-6. (L3- Applying)
C117.4	Estimations saponification value, surface tension and viscosity of lubricant oils. (L5-Evaluating)

Course Articulation Matrix:

CO	Program Outcomes												Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C117.1	3	2	--	--	--	2	2	--	2	--	--	2	2	1	--
C117.2	2	1	--	--	--	2	2	--	2	--	--	2	2	2	-
C117.3	3	1	--	--	--	2	2	--	2	--	--	2	2	1	--
C117.4	2	2	--	--	--	2	2	--	2	--	--	2	2	2	-
C117	2.5	1.5	-	-	-	2	2	-	2	-	-	2	2	1.5	--

**High (3)** : Develop innovative methods to produce soft water for industrial use and potable water at cheaper cost.

**Medium (2)**:This lab is to provide knowledge on fundamentals of conductivity, surface tension, viscosity of different liquids

**Low (1)**: Applying basic knowledge related to the synthesis of drug molecules in laboratory.



**Sri Indu College of Engineering & Technology**  
**(An Autonomous Institution under UGC, New Delhi)**

Recognized under 2(f) and 12(B) of UGC Act 1956

**ESTD: 2001**

(Approved by AICTE, New Delhi & Permanently Affiliated to JNTUH, Hyderabad.)

Sheriguda(V), Ibrahimpatnam(M), R.R.Dist, TS, 501510

**Justification of CO's Vs PO's/ PSO's mapping**

**(Sub code: R22CHE1127)- Engineering Chemistry Lab**

**Course Outcome Program Outcomes Mapping using - Competencies-Performance Indicators.**

Subject Code / Name : R22CHE1127 / ENGINEERING CHEMISTRY LAB

PO/ CO	Competency		Performance Indicators		C	C	C	C
					O1	O2	O3	O4
<b>PO1: Engineering Knowledge: apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.</b>	1.1	Demonstrate competence in mathematical modeling	1.1.1	Apply mathematical techniques such as linear algebra, differential calculus, differential equations and integral calculus to solve problems	y	y	y	y
			1.1.2	Apply concepts of Complex Variable, probability, linear algebra, vector integration and transformation techniques to model and solve electronics engineering problems.	y	y	Y	y
	1.2	Demonstrate competence in basic sciences	1.2.1	Apply laws of natural science to an engineering problem	y		y	y
	1.3	Demonstrate competence in engineering fundamentals	1.3.1	Apply engineering fundamentals	y	y	y	
	1.4	Demonstrate competence in specialized engineering knowledge to the program	1.4.1	Apply electronics engineering concepts to solve engineering problems	y	y	y	y
				Average	3	2	3	2
				Average Final	3	2	3	2
	<b>PO2: Problem Analysis: identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first</b>	2.1	Demonstrate an ability to identify and formulate complex engineering problem	2.1.1	Articulate problem statements and identify objectives.	y	y	y
2.1.2				Identify engineering systems, variables, and parameters to solve a problem	y	y	y	Y

principles of mathematics, natural sciences, and engineering sciences.			2.1.3	Identify the mathematical, engineering and other relevant knowledge that applies to a given problem	y	y	Y	Y	
	2.2	Demonstrate an ability to formulate a solution plan and methodology for an engineering problem	2.2.1	Reframe complex problems into interconnected sub-problems.	y	y	Y	Y	
			2.2.2	Identify, assemble and evaluate information and resources	y	y	Y	Y	
			2.2.3	Identify existing solution/methods for solving the problem, including forming justified approximations and assumptions	y	y	Y	Y	
			2.2.4	Compare and contrast alternative solution/methods to select the best methods.	y		Y	Y	
	2.3	Demonstrate an ability to formulate and interpret a model	2.3.1	Combine scientific principles and engineering concepts to formulate model/s (mathematical or otherwise) of a system or process that is appropriate in terms of applicability and required accuracy.	y			Y	
			2.3.2	Identify assumptions (mathematical and physical) necessary to allow modeling of a system at the level of accuracy required.	y			Y	
	2.4	Demonstrate an ability to execute a solution process and analyze results	2.4.1	Apply engineering mathematics to implement solution	y				
			2.4.2	Analyze and interpret the results using contemporary tools.	y				
			2.4.3	Identify the limitations of the solution and sources/causes of error.		y			
			2.4.4	Arrive at conclusions with respect to the objectives.	y	y			
	Average					2	1	1	2
	Average Final					2	1	1	2

<b>PO3: Design &amp; 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.</b>	3.1	Demonstrate an ability to define a complex/open-ended problem in engineering terms	3.1.1	Recognize that need analysis is key to good problem definition				
			3.1.2	Able to identify and document system requirements from stakeholders.				
			3.1.3	Ability to review state of the art literature to synthesize requirements.				
			3.1.4	Extract engineering requirements from relevant engineering codes and standards defined by ISO/IEC/IEEE.				
			3.1.5	Explore and synthesize engineering requirements considering health, safety, risks, environment, cultural and societal issues				
			3.1.6	Determine design, objectives, functional requirements and arrive at specifications				
	3.2	Demonstrate an ability to generate a diverse set of alternative design solutions	3.2.1	Ability to explore design alternatives.				
			3.2.2	Build models/prototypes to develop diverse set of design solutions				
			3.2.3	Identify suitable criteria for evaluation of alternate design solutions				
	3.3	Demonstrate an ability to select optimal design scheme for further development	3.3.1	Ability to perform systematic evaluation of the degree to which several design concepts meet the criteria.				
			3.3.2	Consult with domain experts and stakeholders to select candidate engineering design solution for further development				
	3.4	Demonstrate an ability to advance an engineering design to defined end state	3.4.1	Refine a conceptual design into a detailed design within the existing constraints (of the resources)				
			3.4.2	Generate information through appropriate tests to improve or revise design				
					0	0	0	0
					-	-	-	-

<b>PO4: Conduct Investigation of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.</b>	4.1	Demonstrate an ability to conduct investigations of technical issues consistent with their level of knowledge and understanding	4.1.1	Define a problem for purpose of investigation, its scope and importance				
			4.1.2	Choose appropriate methods, algorithms, hardware/software tools and techniques of experiment design, system calibration, data acquisition, analysis and presentation				

			4.1.3	Apply appropriate hardware/software tools to conduct the experiment				
			4.1.4	Establish a relationship between measured data and underlying physical principles				
	4.2	Demonstrate an ability to design experiments to solve open ended problems	4.2.1	Design and develop experimental approach, specify appropriate equipment and procedures				
			4.2.2	Understand the importance of statistical design of experiments and choose an appropriate experimental design plan based on the study objectives				
	4.3	Demonstrate an ability to analyze data and reach a valid conclusion	4.3.1	Use appropriate procedures, tools and techniques to collect and analyze data				
			4.3.2	Critically analyze data for trends and correlations, stating possible errors and limitations				
			4.3.3	Represent data (in tabular and/or graphical forms) so as to facilitate analysis and explanation of the data, and drawing of conclusions				
			4.3.4	Synthesize information and knowledge about the problem from the raw data to reach appropriate conclusions				
					0	0	0	0
					-	-	-	-

<b>PO5: Modern Tools Usage: create, select and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.</b>	5.1	Demonstrate an ability to identify/create modern engineering tools, techniques and resources	5.1.1	Identify modern engineering tools techniques and resources for engineering activities				
			5.1.2	Create/adapt/modify/extend tools and techniques to solve engineering problems				
	5.2	Demonstrate an ability to select and apply discipline specific tools, techniques and resources	5.2.1	Identify the strengths and limitations of tools for (i) acquiring information (ii) modeling and simulating (iii) monitoring system performance, and (iv) creating engineering designs				
			5.2.2	Demonstrate proficiency in using discipline specific tools				
	5.3	Demonstrate an ability to evaluate the suitability and	5.3.1	Discuss limitations and validate tools, techniques				

		limitations of tools used to solve an engineering problem		and resources				
			5.3.2	Verify the credibility of results from tool use with reference to the accuracy and limitations, and the assumptions inherent in their use.				
					0	0	0	0
				-	-	-	-	

<b>PO6: 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.</b>	6.1	Demonstrate an ability to describe engineering roles in a broader context, e.g. pertaining to the environment, health, safety, legal and public welfare	6.1.1	Identify and describe various engineering roles; particularly as pertains to protection of the public and public interest at global, regional and local level.	y	y	y	y
	6.2	Demonstrate an understanding of professional engineering regulations, legislation and standards	6.2.1	Interpret legislation, regulations, codes, and standards relevant to professional engineering practice and explain its contribution to the protection of the public.	y	y	y	y
					2	2	2	2
					2	2	2	2

<b>PO7: Environment &amp; Sustainability: understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.</b>	7.1	Demonstrate an understanding of the impact of engineering and industrial practices on social, environmental and in economic contexts	7.1.1	Identify risks/impacts in the life-cycle of an engineering product or activity	y		y	
			7.1.2	Understand the relationship between the technical, socioeconomic and environmental dimensions of sustainability	y	y	y	y
	7.2	Demonstrate an ability to apply principles of sustainable design and development	7.2.1	Describe management techniques for sustainable development		y		y
			7.2.2	Apply principles of preventive engineering and sustainable development to an engineering activity or product relevant to the discipline	y	y	y	y
					2	2	2	2
					2	2	2	2

<b>PO8: Ethics: apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.</b>	8.1	Demonstrate an ability to recognize ethical dilemmas	8.1.1	Identify situations of unethical professional conduct and propose ethical alternatives				
	8.2	Demonstrate an ability to apply the code of ethics	8.2.1	Identify tenets of code of ethics given by the professional bodies like IEEE.				
			8.2.2	Examine and apply moral & ethical principles to known case studies				
					0	0	0	0
					-	-	-	-

<b>PO9: Individual &amp; Team work: function effectively as an individual and as a member or leader in diverse teams, and in multidisciplinary settings.</b>	9.1	Demonstrate an ability to form a team and define a role for each member	9.1.1	Recognize a variety of working and learning preferences; appreciate the value of diversity on a team	y		y	Y
			9.1.2	Implement the norms of practice (e.g. rules, roles, charters, agendas etc.) of effective team work, to accomplish a goal	y	y	y	Y
	9.2	Demonstrate effective individual and team operations--- communication, problem solving, conflict resolution and leadership skills	9.2.1	Demonstrate effective communication, problem solving, conflict resolution and leadership skills	y	y	y	Y
			9.2.2	Treat other team members respectfully	y	y		
			9.2.3	Listen to other members		y		Y
			9.2.4	Maintain composure in difficult situations	y	y	y	Y
	9.3	Demonstrate success in a team based project	9.3.1	Present results as a team, with smooth integration of contributions from all individual efforts	y		y	y
					2	2	2	2
					2	2	2	2

<b>PO10: 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.</b>	10.1	Demonstrate an ability to comprehend technical literature and document project work	10.1.1	Read, understand and interpret technical and non-technical information				
			10.1.3	Create flow in a document or presentation- a logical progression of ideas so that the main point is clear				
	10.2	Demonstrate competence in listening, speaking and presentation	10.2.1	Listen to and comprehend information, instructions, and viewpoints of others				
			10.2.2	Deliver effective oral presentations to technical and nontechnical audiences				
	10.3	Demonstrate the ability to integrate different modes of communication	10.3.1	Create engineering-standard figures, reports and drawings to complement				

				writing and presentations				
			10.3.2	Use a variety of media effectively to convey a message in a document or a presentation				
					0	0	0	0
					-	-	-	-

<b>PO11: Project management &amp; 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.</b>	11.1	Demonstrate an ability to evaluate the economic and financial performance of an engineering activity	11.1.1	Describe various economic and financial costs/benefits of an engineering activity				
			11.1.2	Analyze different forms of financial statements to evaluate the financial status of an engineering project				
	11.2	Demonstrate an ability to compare and contrast the costs/benefits of alternate proposals for an engineering activity	11.2.1	Analyze and select the most appropriate proposal based on economic and financial considerations				
	11.3	Demonstrate an ability to plan/manage an engineering activity within time and budget constraints	11.3.1	Identify the tasks required to complete an engineering activity and the resources required to complete the tasks				
			11.3.2	Use project management tools to schedule an engineering project so it is completed on time and on budget				
					0	0	0	0
					-	-	-	-

<b>PO12: 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.</b>	12.1	Demonstrate an ability to identify gaps in knowledge and a strategy to close these gaps	12.1.1	Describe the rationale for requirement for continuing professional development	y			
			12.1.2	Identify deficiencies or gaps in knowledge and demonstrate an ability to source information to close this gap	y	y	y	
	12.2	Demonstrate an ability to identify changing trends in engineering knowledge and practice	12.2.1	Identify historic points of technological advance in engineering that required practitioners to seek education in order to stay current	y	y	y	y
			12.2.2	Recognize the need and be able to clearly explain why it is vitally important to keep current regarding new developments in your field.	y	y	y	y

	12.3	Demonstrate an ability to identify and access sources for new information	12.3.1	Source and comprehend technical literature and other credible sources of information		y	y	y
			12.3..2	Analyze sourced technical and popular information for feasibility, viability, sustainability etc.	y	y	y	y
					2	2	2	2
					2	2	2	2

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	-	-	-	2	2	-	2	-	-	2
CO2	2	3	-	-	-	2	2	-	2	-	-	2
CO3	2	2	-	-	-	1	3	-	2	-	-	2
CO4	2	2	-	-	-	2	2	-	2	-	-	1
	2.166	2.166				1.66	2.16		2			1.666

**Faculty in-charge**

**SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY**  
(An Autonomous Institution under UGC, New Delhi)

B.Tech. - I Year – II Semester

L T P C  
0 0 2 1

**(R22CHE1127) ENGINEERING CHEMISTRY LABORATORY**

**Course Objectives:** The course consists of experiments related to the principles of chemistry required for engineering student. The student will learn:

- Estimation of hardness of water to check its suitability for drinking purpose.
- Students are able to perform estimations of acids and bases using conductometry, potentiometry method.
- Students will learn to prepare polymers such as Bakelite and nylon-6 in the laboratory.
- Students will learn skills related to the lubricant properties such as saponification value, surface tension and viscosity of oils.

**Course Outcomes:** The experiments will make the student gain skills on:

1. Determination of parameters like hardness of water and rate of corrosion of mild steel in various conditions.
2. Able to perform methods such as conductometry, potentiometry and pH metry in order to find out the concentrations or equivalence points of acids and bases.
3. Students are able to prepare polymers like bakelite and nylon-6.
4. Estimations saponification value, surface tension and viscosity of lubricant oils.

**List of Experiments:**

**I. Volumetric Analysis:**

1. Estimation of Hardness of water by Complexometry using EDTA .
2. Estimation of  $\text{Fe}^{+2}$  by Dichrometry.
3. Estimation of Ferrous by Permanganometry.

**II. Conductometry:** Estimation of the concentration of an acid by Conductometry.

**III. Potentiometry:**

1. Estimation of the amount of  $\text{Fe}^{+2}$  by Potentiometry.
2. Estimation of the concentration of an acid by Potentiometry.

**IV. Preparations:**

1. Preparation of Bakelite.
2. Preparation Nylon – 6.

**V. Lubricants:**

1. Estimation of acid value of given lubricant oil.
2. Estimation of Viscosity of lubricant oil using Ostwald's Viscometer.

**VI. Virtual lab experiments**

1. Construction of Fuel cell and its working.
2. Smart materials for Biomedical applications
3. Batteries for electrical vehicles.
4. Functioning of solar cell and its applications.

**REFERENCE BOOKS:**

1. Lab manual for Engineering chemistry by B. Ramadevi and P. Aparna, S Chand Publications, New Delhi (2022)
2. Vogel's text book of practical organic chemistry 5th edition
3. Inorganic Quantitative analysis by A.I. Vogel, ELBS Publications.
4. College Practical Chemistry by V.K. Ahluwalia, Narosa Publications Ltd. New Delhi (2007).



Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist

Department of Electronics and Communication Engineering

Academic Year: 2022-23 II Semester

I Year B.Tech ECE

**R22CHE1127 – ENGINEERING CHEMISTRY LAB**

**List of Experiments:**

Exp No	Name of the Experiment	Cos Mapped
1	Estimation of Hardness of water by Complexometry By EDTA.	CO 3
2	Estimation of Fe <sup>+2</sup> by Dichrometry .	CO 1, CO 2
3	Estimation of Ferrous by Permanganometry .	CO 1, CO 2
4	Estimation of the concentration of an acid by Conduotometry .	CO 1, CO2
5	Estimation of the amount of Fe <sup>+2</sup> by potentiometry .	CO 6
6	Estimation of the concentration of an acid by potentiometry .	CO 5
7	Preparation of Bakelite .	CO 4
8	Preparation of Nylon -6 .	CO1,CO2
9	Estimation of an acid value of given lubricant oil.	
10	Estimatiion of Viscosity of lubricant oil using Ostwald's viscometer .	
11	Construction of Fuel cell and its working .	
12	Smart materials for Biomedical applications .	
13	Batteries for electrical vehicles .	
14	Functioning of solar cell and its applications .	



**Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist**

**Department of Electronics and Communication Engineering**

**List of Additional Experiments:**

<b>Expt No</b>	<b>Name of the experiment</b>	<b>CO Mapped</b>
1	Preparation of aspirin	
2	Preparation of paracetmal .	
3	Preparation of hand sanitizer	
4	Conductometric titration of weak acid vs strong base	

**Course out comes (CO's):**

**C126.1.** Students can have practical observation of change in conductance with neutralization using conductometer.

**C126.2.** Students can have practical observation of change in potential difference with neutralization using potentiometer.

**C126.3.** Analyze raw water quality and its treatment methods to produce soft water and estimation of given samples.

**C126.4.** Choose the appropriate preparation methods of drug.

**C126.5.** Measure physical properties of fluids such as surface tension.

**C126.6.** Measure physical properties of fluids such as viscosity.

**Faculty in-charge**



**Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist  
Department of Electronics and Communication Engineering**



Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist  
Department of Humanities & Sciences

**I B.Tech II Semester ECE-A – TIME TABLE 2022-23**

ROOM NO: F-101

w.e.f: 03-04-2023

Time/Day	9:40am-10:30am I	10:30-11:20am II	11:20-12:10pm III	L U N C H	12:40-01:45pm IV	1:45-2:50pm V	2:50-4:00pm VI
MON	EC	APPL	BEE		←	EC LAB	→
TUE	EC	BEE	ODE&VC		←	BEE LAB	→
WED	EC	EDC	ODE&VC		←	EDC LAB	→
THU	←	CAEG	→		EDC	ODE&VC	EC
FRI	BEE	EDC	ODE&VC		←	CAEG	→
SAT	ODE&VC	EC	EDC		←	APP LAB	→

COURSE CODE	COURSE NAME	FACULTY NAME
R22MTH1211	Ordinary Differential Equations and Vector Calculus (ODE&VC)	M Leela
R22CHE1112	Engineering Chemistry (EC)	Dr S Ramu
R22MED1125	Computer Aided Engineering Graphics (CAEG)	B Santosh Kumar / L Ravi
R22EEE1114	Basic Electrical Engineering (BEE)	N Ashlesha
R22ECE1215	Electronic Devices and Circuits (EDC)	G Anitha
R22CSE1224	Applied Python Programming Laboratory (APP LAB)	D Mounika
R22CHE1127	Engineering Chemistry Laboratory (EC LAB)	Dr S Ramu
R22EEE1227	Basic Electrical Engineering Laboratory (BEE LAB)	N Ashlesha
R22ECE1229	Electronic Devices and Circuits Laboratory (EDC LAB)	G Anitha/P Manasa/N Prathibha
CLASS COORDINATOR: Ch Ashok Kumar		TIME TABLE INCHARGE: M Leela

*Ch Ashok Kumar*  
Head of the Department

*Spooh*  
Principal



**Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist  
Department of Electronics and Communication Engineering**



Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist  
Department of Humanities & Sciences

I.B.Tech II Semester ECE-B - TIME TABLE 2022-23

ROOM NO: F-102

w.e.f: 03-04-2023

Time Day	9:40am-10:30am I	10:30-11:20am II	11:20-12:10pm III	L U N C H	12:40-01:45pm IV	1:45-2:50pm V	2:50-4:00pm VI	
MON	←	EDC LAB	→		←	EC	APPL	ODE&VC
TUE	ODE&VC	EDC	EC		←	CAEG	→	
WED	←	CAEG	→		ODE&VC	BEE	BEE	
THU	←	BEE LAB	→		ODE&VC	EDC	EC	
FRI	←	EC LAB	→		ODE&VC	EC	EDC	
SAT	EDC	EC	BEE		←	APP LAB	→	

COURSE CODE	COURSE NAME	FACULTY NAME
R22MTH1211	Ordinary Differential Equations and Vector Calculus (ODE&VC)	M Leela
R22CHE1112	Engineering Chemistry (EC)	A Shiva Kumar
R22MED1125	Computer Aided Engineering Graphics (CAEG)	L Ravi / B Santhosh Kumar
R22EEE1114	Basic Electrical Engineering (BEE)	N Ashlesha
R22ECE1215	Electronic Devices and Circuits (EDC)	G Anitha
R22CSE1224	Applied Python Programming Laboratory (APP LAB)	G Lavanya
R22CHE1127	Engineering Chemistry Laboratory (EC LAB)	A Shiva Kumar
R22EEE1227	Basic Electrical Engineering Laboratory (BEE LAB)	N Ashlesha
R22ECE1229	Electronic Devices and Circuits Laboratory (EDC LAB)	G Anitha/ P Manasa/ N Prathibha
CLASS COORDINATOR: Ch Ashok Kumar		TIME TABLE INCHARGE: M Leela

  
Head of the Department

  
Principal



Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist

Department of Electronics and Communication Engineering

**Engineering Chemistry Lab**

**List of model end examination questions:**

- 1 Determine Hardness of the given Water Sample by Complexometric method
- 2 Estimate the amount of ferrous ion by Dichrometry
- 3 Estimate the amount of ferrous ion by permanganometry
- 4 Determine the Strength of given Hydrochloric acid solution by conductometric method.
- 5 Estimate the amount of  $\text{Fe}^{+2}$  by potentiometry .
- 6 Determine the Strength of given Hydrochloric acid solution by potentiometry .
- 7 **Prepare a Bakelite .**
- 8 **Prepare a Nylon -6**
- 9 **Estimate the an acid value of given lubricant oil .**
- 10 Determine the Viscosity of given organic liquids by Ostwald's Method

\ Faculty in-charge



**Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist  
Department of Electronics and Communication Engineering**

**Engineering Chemistry Lab**

**Answers:**

1. The total hardness of the given water sample is 585 ppm, Temporary Hardness is 347 ppm, permanent Hardness is 238 ppm
2. The amount of ferrous ion present in ferrous sulphate solution is 2.5 grms.
3. The strength of the given HCl solution is 0.1N
4. The strength of the given HCl solution is 0.1N
5. The Viscosity of Ethanol, chloroform and acetic acid are 0.100, 0.102 and 0.106 Mill poise respectively.

**Faculty in-charge**



**Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R. Dist**  
**Department of Electronics and Communication Engineering**

DATE: //2023

**NOTICE**

This is to inform all the B.tech 1<sup>st</sup> year II<sup>st</sup> Semester students that your lab external exams (Supple & Regular) will be conducted on .....The schedule is given below

<b>Branch</b>	<b>Name Of the Laboratory</b>	<b>No of Students</b>	<b>Reg.No</b>	<b>Date Of Exam</b>	<b>TIMINGS</b>
ECE-A	Engineering chemistry Lab	65			
ECE-B	Engineering chemistry Lab	65			

**COORDINATOR**

**HOD**



**Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist  
Department of Electronics and Communication Engineering**

B-Tech I Year II Sem Engineering chemistry Lab External Exam Time Table for the Year 2022-2023

**DATE: 06-12-2022**

<b>BRANCH</b>	<b>NAME OF THE LABORATORY</b>	<b>NO. OF STUDENTS</b>	<b>REG. NO.</b>	<b>DATE OF EXAM</b>	<b>EXTERNAL EXAMINORS</b>	<b>TIMINGS</b>
ECE-A	Engineering chemistry Lab	65				
ECE -B	Engineering chemistry Lab	65				

**COORDINATOR**

**HOD**



Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist

Department of Electronics and Communication Engineering

Academic Year: 2022-23

**Lab Experiments setup Cycle chart for Lab-I (Main block)**

ECE B.Tech. - I Year – II Semester

ENGINEERING CHEMISTRY LAB (R22CHE1127)

Week batch	week-1	week-2	week-3	week-4	week-5	week-6	week-7	week-8
Batch-1	Ex-1	Ex-2	Ex-3	Ex-4	Ex-5	Ex-6	Ex-7	Ex-8
Batch-2	Ex-1	Ex-2	Ex-3	Ex-4	Ex-5	Ex-6	Ex-7	Ex-8
Batch-3	Ex-1	Ex-2	Ex-3	Ex-4	Ex-5	Ex-6	Ex-7	Ex-8
Batch-4	Ex-1	Ex-2	Ex-3	Ex-4	Ex-5	Ex-6	Ex-7	Ex-8
Batch-5	Ex-1	Ex-2	Ex-3	Ex-4	Ex-5	Ex-6	Ex-7	Ex-8
Batch-6	Ex-1	Ex-2	Ex-3	Ex-4	Ex-5	Ex-6	Ex-7	Ex-8
Batch-7	Ex-1	Ex-2	Ex-3	Ex-4	Ex-5	Ex-6	Ex-7	Ex-8
Batch-8	Ex-1	Ex-2	Ex-3	Ex-4	Ex-5	Ex-6	Ex-7	Ex-8
Batch-9	Ex-1	Ex-2	Ex-3	Ex-4	Ex-5	Ex-6	Ex-7	Ex-8
Batch-10	Ex-1	Ex-2	Ex-3	Ex-4	Ex-5	Ex-6	Ex-7	Ex-8
Batch-11	Ex-1	Ex-2	Ex-3	Ex-4	Ex-5	Ex-6	Ex-7	Ex-8

1. In this Lab per single Batch 3 students assigned
2. Per single batch apparatus is given for particular experiment.

**Faculty in charge**



Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R. Dist

Department of Electronics and Communication Engineering

Academic Year: 2022-23

**Lab Experiments setup Cycle chart for Lab-II (R&D Block)**

ECE B. Tech. - I Year – II Semester

ENGINEERING CHEMISTRY LAB (R22CHE1127)

Week batch	week-1	week-2	week-3	week-4	week-5	week-6	week-7	week-8
Batch-1	Ex-2	Ex-1	Ex-4	Ex-3	Ex-6	Ex-5	Ex-8	Ex-7
Batch-2	Ex-2	Ex-1	Ex-4	Ex-3	Ex-6	Ex-5	Ex-8	Ex-7
Batch-3	Ex-2	Ex-1	Ex-4	Ex-3	Ex-6	Ex-5	Ex-8	Ex-7
Batch-4	Ex-2	Ex-1	Ex-4	Ex-3	Ex-6	Ex-5	Ex-8	Ex-7
Batch-5	Ex-2	Ex-1	Ex-4	Ex-3	Ex-6	Ex-5	Ex-8	Ex-7
Batch-6	Ex-2	Ex-1	Ex-4	Ex-3	Ex-6	Ex-5	Ex-8	Ex-7
Batch-7	Ex-2	Ex-1	Ex-4	Ex-3	Ex-6	Ex-5	Ex-8	Ex-7
Batch-8	Ex-2	Ex-1	Ex-4	Ex-3	Ex-6	Ex-5	Ex-8	Ex-7
Batch-9	Ex-2	Ex-1	Ex-4	Ex-3	Ex-6	Ex-5	Ex-8	Ex-7
Batch-10	Ex-2	Ex-1	Ex-4	Ex-3	Ex-6	Ex-5	Ex-8	Ex-7
Batch-11	Ex-2	Ex-1	Ex-4	Ex-3	Ex-6	Ex-5	Ex-8	Ex-7

1. In this Lab per single Batch 3 students assigned
2. Per single batch apparatus is given for particular experiment.

**Faculty in charge**



Sri Indu College of Engineering & Technology :: Sheriguda (V),

Department of Electronics and Communication Engineering

Academic Year: 2022-23

**Students Batches for Lab Experiments setup Cycle chart**

ECE B.Tech. - I Year-II Semester

ENGINEERING CHEMISTRY LAB

(R22CHE1127)

<b>ECE-A Section-Batch-A1</b>			
<b>BATCHES</b>	<b>HT No.</b>	<b>Name of the Candidate</b>	<b>REMARKS</b>
batch-1	22D41A0401	A LIKHITHA	
	22D41A0402	ABBANAGONI TRISHA	
	22D41A0403	ACIREDDY SNEHALATHA	
batch-2	22D41A0404	AEMME SURYA PRAKASH	
	22D41A0405	AKA SANVITHA	
	22D41A0406	ALUGUBELLI SRAVAN KUMAR REDDY	
batch-3	22D41A0407	AMARAGONDA VIJAY	
	22D41A0408	AMBADI SHIVAMANI	
	22D41A0409	AMME RAJESH	
batch-4	22D41A0410	ANANYA BALLALA	
	22D41A0411	ARKA SUNNY BHARGAV	
	22D41A0412	BANOTH GOPICHAND NAYAK	
batch-5	22D41A0413	BANOTH THARUN KUMAR	
	22D41A0414	BINGI SRUTHI	
	22D41A0415	BODA HARIKA	
batch-6	22D41A0416	BODDU BHAVITHA	
	22D41A0417	BODDUPALLY SPOORTHI	
	22D41A0418	BODOLLA SANDEEP	
batch-7	22D41A0419	BOMMA PRANAVI	
	22D41A0420	BOPPA SHARVAN	
	22D41A0421	BOTTE ANIL	

batch-8	22D41A0422	CHAKALI VAMSHI	
	22D41A0423	CHANDANAPU CHANDRA VIKAS	
	22D41A0424	CHELIMANDLA ARAVIND KUMAR	
batch-9	22D41A0425	DAMMOJU HARSHITHA	
	22D41A0426	DEVIREDDY HARATHI	
	22D41A0427	DHANAVATH MANJULA	
batch-10	22D41A0428	DUMPETA VENKATESH	
	22D41A0429	ERAMALLA VIKRANTH GOUD	
	22D41A0430	G ANJALI	
batch- 11	22D41A0431	G B SHIVA SAI KRISHNA	
	22D41A0432	GADDAM SRIRAM	
	22D41A0433	GANJI MANOJ KUMAR	

<b>ECE-A Section-Batch-A2</b>			
<b>BATCHES</b>	<b>HT No.</b>	<b>Name of the Candidate</b>	<b>REMARKS</b>
batch-1	22D41A0434	GANJI SAI TEJA	
	22D41A0435	GANNEBOINA AADITYA	
	22D41A0436	GOTTIPATI VENKATESWARLU	
batch-2	22D41A0437	GUJJETI GANESH KARTHIKEYA	
	22D41A0438	JATAVATH MUNI	
	22D41A0439	JURRU SURESH	
batch-3	22D41A0440	K SATHISH KUMAR	
	22D41A0441	KADEM MAITHILI	
	22D41A0442	KAMBALAPALLY MANIKANTA REDDY	
batch-4	22D41A0443	KAMSANI NISHITHA	
	22D41A0444	KANCHARLA NANDITHA	
	22D41A0445	KANDURI AKSHAYA REDDY	
batch-5	22D41A0446	KANUKULA VAMSHI	
	22D41A0447	KANUKULA VARDHAN	
	22D41A0448	KARANGULA ROSHINI	
batch-6	22D41A0449	KARNATI TEJASWINI	

	22D41A0450	KATAM RAKESH	
	22D41A0451	KATHERAPAKA SNEHA	
batch-7	22D41A0452	KETHAVATH MOUNIKA	
	22D41A0453	KOMMU SHIVANI	
	22D41A0454	KONGARA RITHIKA	
batch-8	22D41A0455	KOPPU RAMYASRI	
	22D41A0456	KOPPULA SHIVA KUMAR	
	22D41A0457	KORRA PAVAN KUMAR	
batch-9	22D41A0458	KOTAPATI SRINIVASULU	
	22D41A0459	KOTHAGOLLA MANASA	
	22D41A0460	KOTHAKAPU JAI ADITYA REDDY	
batch- 10	22D41A0461	KUNDARAPU BHANU PRASANNA	
	22D41A0462	LADE SOWJANYA	
	22D41A0463	LAXMI NAARASIMHA	
batch- 11	22D41A0464	MADDI MANISHA	

Faculty in charge



**Sri Indu College of Engineering & Technology :: Sheriguda (V),  
Department of Electronics and Communication Engineering**

Academic year:2022-2023

**Students Batches for Lab Experiments setup Cycle chart**

ECE B.Tech. - I Year – II Semester

ENGINEERING CHEMISTRY LAB

(R22CHE1127)

<b>ECE-B Section-Batch-B1</b>			
<b>BATCHES</b>	<b>HT No.</b>	<b>Name of the Candidate</b>	<b>REMARKS</b>
batch-1	22D41A0465	MADHAGONI RUTHIKA GOUD	
	22D41A0466	MADHAGOUNI DIVYA	
	22D41A0467	MALLREDDY ANANYA	
batch-2	22D41A0468	MANCHIRYALA MANASWINI	
	22D41A0469	MAREDDY NAVEEN REDDY	
	22D41A0470	MAROJU PRAVALIKA	
batch-3	22D41A0471	MOHAMMED MATEEN	
	22D41A0472	MOHD ABDUL RIYAN	
	22D41A0473	MUDDAM SAI KOUSHIK	
batch-4	22D41A0474	MUNUGAPATI SRILAKSHMI	
	22D41A0475	NAGILLA SRAVANI	
	22D41A0476	NAGULA KEERTHI	
batch-5	22D41A0477	NALLA RANJITH REDDY	
	22D41A0478	NALLA SIDDARDHA REDDY	
	22D41A0479	NALLA USHASRI	
batch-6	22D41A0480	NALLAVELLI KALYAN BABU	
	22D41A0481	NARLAGIRI JAGADEESHWAR	
	22D41A0482	NENAVATH PRIYANKA	
batch-7	22D41A0483	OGGU AYODHYA	
	22D41A0484	PAJJURI HARSHITHA	
	22D41A0485	PALLEPATI SAI SHIVA DIKSHITH	
batch-8	22D41A0486	PANDI HARSHITHA	
	22D41A0487	PANUGANTI BHARATH	
	22D41A0488	PASUPULA SINDHUJA	
batch-9	22D41A0489	PATHULOTHU KRISHNA	

	22D41A0490	PEDDAVENA ANVESH	
	22D41A0491	PEDDI ANJALI	
batch-10	22D41A0492	PITTALA NANDINI	
	22D41A0493	POVAKU SHIVANI	
	22D41A0494	PURUSHOTHAM SATHWIK	
batch- 11	22D41A0495	PUTCHAKAYALA MALLIKARJUNA RAO	
	22D41A0496	PUTTA KAVERI	
	22D41A0497	RAGANAMONI SHIVA SHANKER	
	22D41A0498	RAMADAS HARSHMITHA	

<b>ECE-B Section-Batch-B2</b>			
BATCHES	HT No.	Name of the Candidate	REMARKS
batch-1	22D41A0499	RAMAVATH NAVEENA	
	22D41A04A0	RAMAVATH RAGHAVENDRA	
	22D41A04A1	RAYAPU SUDHEER REDDY	
batch-2	22D41A04A2	SAIPREETAM VINNAKOTA	
	22D41A04A3	SANDHYA JUPALLY	
	22D41A04A4	SANUVALA KARTHIK	
batch-3	22D41A04A5	SAYNI NITHIN KUMAR	
	22D41A04A6	SEELAM SIVA NAGA LAKSHMI	
	22D41A04A7	SHAIK ABID	
batch-4	22D41A04A8	SURAM SRIJA	
	22D41A04A9	SURAPALLY NANDINI	
	22D41A04B0	TANGALAPALLY NARSAIAH	
batch-5	22D41A04B1	TENAGA SAI HANSIKA	
	22D41A04B2	THAMMISHETTY SHREEJA	
	22D41A04B3	THANGALLAPALLY AKHILA	
batch-6	22D41A04B4	THOKALA SAI CHANDANA	
	22D41A04B5	THOTAPALLI SAI SUBRAMANYAM	

	22D41A04B6	TIRUGAMALLA MUKESH KUMAR	
batch-7	22D41A04B7	TOTAPALLI SUSHMA	
	22D41A04B8	TURPU SREEJA	
	22D41A04B9	UDUTHALA RAVI GOUD	
batch-8	22D41A04C0	VADDEGONI NAGARAJU	
	22D41A04C1	VADLAMUDI VIJAY KUMAR	
	22D41A04C2	VADLAMUDI YASWANATH	
batch-9	22D41A04C3	VALIJALA MAHENDER	
	22D41A04C4	VANAPOSA KRANTHI KUMAR	
	22D41A04C5	VEGINATI RAVI KUMAR	
batch-10	22D41A04C6	VEMIREDDY VENKATA SAHITHI	
	22D41A04C7	YADALA SAI	
	22D41A04C8	YERRABOIENA VASANTH KUMAR	
batch-11	22D41A04C9	PATI SHIVA KUMAR REDDY	
	22D41A0499	RAMAVATH NAVEENA	
	22D41A04A0	RAMAVATH RAGHAVENDRA	

**Faculty in charge**

**Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist**

**Department of Electronics and Communication Engineering**



**EC LAB Occupancy TIME TABLE-Lab-I**

Time/D ay	9:40am- 10:30am I	10:30- 11:20am II	11:20- 12:10pm III	L U N C H	12:40- 01:45pm IV	1:45- 2:50pm V	2:50-4:00pm VI	
MON								
TUE								
WED								
THURS								
FRI								
SAT								

LAB OCCUPANCY		Physical Lab in charge: <b>U.SAHITYA</b>
		Lab-1(Main block)
A Section	Faculty Incharge:	
	Lab assistant:	
B Section	Faculty Incharge:	
	Lab assistant:	

**Lab Incharge**

**Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist**

**Department of Electronics and Communication Engineering**

**EC LAB Occupancy TIME TABLE-Lab-II**

Time/D ay	9:40am- 10:30am I	10:30- 11:20am II	11:20- 12:10pm III		12:40- 01:45pm IV	1:45- 2:50pm V	2:50-4:00pm VI
--------------	-------------------------	-------------------------	--------------------------	--	-------------------------	----------------------	-------------------



<b>MON</b>	<b>EC LAB (ECE B)</b>					
<b>TUE</b>						
<b>WED</b>						
<b>THURS</b>				<b>EC LAB (ECE A)</b>		
<b>FRI</b>						
<b>SAT</b>						

<b>LAB OCCUPANCY</b>		<b>Physical Lab in charge:A.SHIVA KUMAR</b>
		<b>Lab-II (R&amp;D block)</b>
<b>A Section</b>	<b>Faculty Incharge:</b>	
	<b>Lab assistant:</b>	
<b>B Section</b>	<b>Faculty Incharge:</b>	
	<b>Lab assistant:</b>	

**Lab Incharge**



**Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist**

**Department of Electronics and Communication Engineering**

**ENGINEERING CHEMISTRY Lab**

**List of Major Equipment (above Rs.5,000)**

**As on 1<sup>st</sup> April 2023**

<b>S. No.</b>	<b>Name of the Equipments</b>	<b>Quantity</b>
1	CONDUCTIVITY METER	14
2	POTENTIO METER	14
3	COLORIMETER	6
4	WATER BATH 6 HOLES	4
5	ELECTRONIC BALANCES	3

**Lab In charge**



**Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist**

**Department of Electronics and Communication Engineering**

**Engineering chemistry Lab-1(Main block)**

**List of Equipments**

**As on 1<sup>st</sup> April 2023**

<b>S.NO</b>	<b>Name of Equipment</b>	<b>Supplier</b>	<b>Date of Purchase</b>	<b>Quantity</b>	<b>Unit Cost(Rs0</b>	<b>Total (Rs)</b>
1.	Burettes 50ml	Dwaraka Scientific	22/05/2018	53	295.00	14750.00
2.	Pipettes 20ml	Dwaraka Scientific	11/03/2017	33	60.00	1980.00
3.	Pipettes 10ml	Dwaraka Scientific	11/03/2017	20	59.00	1180.00
4.	Pipettes 2ml	Dwaraka Scientific	05/10/2012	15	82.00	1230.00
5.	Pipettes 1ml	Dwaraka Scientific	05/10/2012	7	71.00	497.00
6.	Pipettes 5ml	Dwaraka Scientific	05/10/2012	4	94.00	376.00
7.	Measuring Cylinder 10ml	Dwaraka Scientific	11/03/2017	15	65.00	975.00
8.	Measuring Cylinder 50ml	Dwaraka Scientific	11/03/2017	17	120.00	2040.00
9.	Measuring Cylinder 100ml	Dwaraka Scientific	11/03/2017	23	180.00	4140.00
10.	Measuring Cylinder 500ml	Dwaraka Scientific	05/10/2012	2	600.00	1200.00
11.	Measuring Cylinder 1litre	Dwaraka Scientific	05/10/2012	1	100.00	100.00
12.	Burette stands with clamp.	Dwaraka Scientific	11/03/2017	20	210.00	4200.00
13.	Porcelain tiles	Dwaraka Scientific	11/03/2017	20	50.00	1000.00
14.	Iodination flask 250ml	Dwaraka Scientific	05/10/2012	20	184.00	3680.00
15.	Rubber cork	Dwaraka Scientific	22/05/2018	60	50.00	3000.00

16.	RB Flask 250ml	Vijay Enterprises	05/10/2012	10	150.00	1500.00
17.	RB Flask 100ml	Vijay Enterprises	05/10/2012	7	112.00	784.00
18.	Glass rods	Dwaraka Scientific	11/03/2017	28	37.00	1036.00
19.	Refluxing condensers	Vijay Enterprises	05/10/2012	4	310.00	1240.00
20.	Funnel	Dwaraka Scientific	22/05/2018	29	40.00	1160.00
21.	Thermometer	Vijay Enterprises	05/10/2012	10	70.000	700.00
22.	Standard flasks 100ml	Dwaraka Scientific	22/05/2018	36	145.00	5220.00
23.	Conical flasks 250 ml	Dwaraka Scientific	31/10/2013	41	63.00	2583.00
24.	Conical flasks 100 ml	Dwaraka Scientific	05/10/2012	10	82.00	820.00
25.	Conical flasks 500 ml	Dwaraka Scientific	05/10/2012	9	103.00	927.00
26.	Distilled water bottles	Vijay Enterprises	11/03/2017	33	45.00	1485.00
27.	Heating Mantles	Vijay Enterprises	05/10/2012	1	1550.00	1550.00
28.	Test tubes	Dwaraka Scientific	05/10/2012	50	10.00	500.00
29.	Copper water bath	Vijay Enterprises	01/12/2012	4	220.00	880.00
30.	Boiling tubes	Dwaraka Scientific	05/10/2012	70	27.00	1890.00

31.	Beakers 100ml	Dwaraka Scientific	22/05/2018	36	51.00	1836.00
32.	Beakers 250ml	Dwaraka Scientific	22/05/2018	50	59.00	2950.00
33.	Beakers 500ml	Dwaraka Scientific	11/03/2017	13	80.00	1040.00
34.	Stalganometer	Dwaraka Scientific	22/05/2018	46	58.00	2668.00
35.	Ostwald's Viscometer	Dwaraka Scientific	22/05/2018	36	58.00	2088.00
36.	Electronic Balance	Vijay Enterpris	22/05/2018	2	7500.00	15000.00
37.	Conductivity meters	Dwaraka Scientific	18/11/2016	7	7100.00	49700.00
38.	Potentiometers	Dwaraka Scientific	22/5/2018	7	7440.00	52080.00
39.	Colorimeter	Vijay Enterpris es	11/03/2017	3	6000.00	18000.00
40.	Water bath-6 holes	Dwaraka Scientific	11/03/2017	2	4800.00	9600.00
41.	Common balances	Vijay Enterpris es	05/10/2012	2	2550.00	5100.00
42.	Condenser pipes	Vijay Enterpris es	05/10/2012	2	83.00	166.00
43.	Test tube stands	Dwaraka Scientific	05/10/2012	7	35.00	245.00
44.	Test tube holders	Dwaraka Scientific	05/10/2012	19	09.00	171.00
45.	Iron mesh	Dwaraka Scientific	01/12/2012	9	12.00	108.00
46.	Spatula	Dwaraka Scientific	11/03/2017	30	35.00	1050.00
47.	Droppers	Dwaraka Scientific	11/03/2017	35	15.00	525.00

48.	Reagent bottles	Vijay Enterprises	05/10/2012	10	30.00	300.00
49.	Stop Clocks	Dwaraka Scientific	22/05/2018	22	650.00	14300.00

**Lab In-charge**



Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist

Department of Electronics and Communication Engineering

Engineering chemistry Lab-II(R&D Block)

List of Equipments

As on **1<sup>st</sup>** April 2023

S.NO	Name of Equipment	Supplier	Date of Purchase	Quantity	Unit Cost(Rs0	Total (Rs)
1.	Burettes 50ml	Dwaraka Scientific	22/05/2018	62	295.00	18290.00
2.	Pipettes 20ml	Dwaraka Scientific	11/03/2017	33	60.00	1980.00
3.	Pipettes 10ml	Dwaraka Scientific	11/03/2017	20	59.00	1180.00
4.	Pipettes 2ml	Dwaraka Scientific	05/10/2012	15	82.00	1230.00
5.	Pipettes 1ml	Dwaraka Scientific	05/10/2012	7	71.00	497.00
6.	Pipettes 5ml	Dwaraka Scientific	05/10/2012	4	94.00	376.00
7.	Measuring Cylinder 10ml	Dwaraka Scientific	11/03/2017	15	65.00	975.00
8.	Measuring Cylinder 50ml	Dwaraka Scientific	11/03/2017	17	120.00	2040.00
9.	Measuring Cylinder 100ml	Dwaraka Scientific	11/03/2017	23	180.00	4140.00
10.	Measuring Cylinder 500ml	Dwaraka Scientific	05/10/2012	2	600.00	1200.00
11.	Measuring Cylinder 1litre	Dwaraka Scientific	05/10/2012	1	100.00	100.00
12.	Burette stands with clamp.	Dwaraka Scientific	11/03/2017	20	210.00	4200.00

13.	Porcelain tiles	Dwaraka Scientific	11/03/2017	20	50.00	1000.00
14.	Iodination flask 250ml	Dwaraka Scientific	05/10/2012	20	184.00	3680.00
15.	Rubber cork	Dwaraka Scientific	22/05/2018	60	50.00	3000.00
16.	RB Flask 250ml	Vijay Enterprises	05/10/2012	10	150.00	1500.00
17.	RB Flask 100ml	Vijay Enterprises	05/10/2012	7	112.00	784.00
18.	Glass rods	Dwaraka Scientific	11/03/2017	28	37.00	1036.00
19.	Refluxing condensers	Vijay Enterprises	05/10/2012	4	310.00	1240.00
20.	Funnel	Dwaraka Scientific	22/05/2018	29	40.00	1160.00
21.	Thermometer	Vijay Enterprises	05/10/2012	10	70.000	700.00
22.	Standard flasks 100ml	Dwaraka Scientific	22/05/2018	44	145.00	6380.00
23.	Conical flasks 250 ml	Dwaraka Scientific	31/10/2013	45	63.00	1890.00
24.	Conical flasks 100 ml	Dwaraka Scientific	05/10/2012	10	82.00	820.00
25.	Conical flasks 500 ml	Dwaraka Scientific	05/10/2012	9	103.00	927.00
26.	Distilled water bottles	Vijay Enterprises	11/03/2017	33	45.00	1485.00
27.	Heating Mantles	Vijay Enterprises	05/10/2012	1	1550.00	1550.00
28.	Test tubes	Dwaraka	05/10/2012	50	10.00	500.00

		Scientific				
29.	Copper water bath	Vijay Ent	01/12/2012	4	220.00	880.00
30.	Boiling tubes	Dwaraka Scientific	05/10/2012	70	27.00	1890.00
31.	Beakers 100ml	Dwaraka Scientific	22/05/2018	48	51.00	2448.00
32.	Beakers 250ml	Dwaraka Scientific	22/05/2018	50	59.00	2950.00
33.	Beakers 500ml	Dwaraka Scientific	11/03/2017	13	80.00	1040.00
34.	Stalganometer	Dwaraka Scientific	22/05/2018	50	58.00	2900.00
35.	Ostwald's Viscometer	Dwaraka Scientific	22/05/2018	40	58.00	2320.00
36.	Electronic Balance	Vijay Enterpris	22/05/2018	2	7500.00	15000.00
37.	Conductivity meters	Dwaraka Scientific	18/11/2016	7	7100.00	49700.00
38.	Potentiometers	Dwaraka Scientific	22/5/2018	7	7440.00	52080.00
39.	Colorimeter	Vijay Enterpris es	11/03/2017	3	6000.00	18000.00
40.	Water bath-6 holes	Dwaraka Scientific	11/03/2017	2	4800.00	9600.00
41.	Common balances	Vijay Enterpris es	05/10/2012	3	2550.00	7650.00
42.	Condenser pipes	Vijay Enterpris es	05/10/2012	2	83.00	166.00
43.	Test tube stands	Dwaraka Scientific	05/10/2012	7	35.00	245.00
44.	Test tube holders	Dwaraka Scientific	05/10/2012	19	09.00	171.00
45.	Iron mesh	Dwaraka	01/12/2012	9	12.00	108.00

		Scientific				
46.	Spatula	Dwaraka Scientific	11/03/2017	30	35.00	1050.00
47.	Droppers	Dwaraka Scientific	11/03/2017	35	15.00	525.00
48.	Reagent bottles	Vijay Enterprises	05/10/2012	10	30.00	300.00
49.	Stop Clocks	Dwaraka Scientific	22/05/2018	22	650.00	14300.00

**Lab Incharge**



**Engineering Chemistry Lab**

**List of Lab Equipment and its unique IDs**

<b>Lab -I (Main block)</b>	<b>Lab -II (R&amp;D block)</b>
SICET/H&S/ECL/Burettes-50ml/1-53	SICET/H&S/ECL/Burettes-50ml/1-45
SICET/H&S/ECL/Pipettes-20ml/1-33	SICET/H&S/ECL/Pipettes-20ml/1-30
SICET/H&S/ECL/Pipettes-10ml/1-20	SICET/H&S/ECL/Pipettes-10ml/1-30
SICET/H&S/ECL/Pipettes- 2ml/1-15	SICET/H&S/ECL/Pipettes- 2ml/1-10
SICET/H&S/ECL/Pipettes- 1ml/1-7	SICET/H&S/ECL/Pipettes- 1ml/1-7
SICET/H&S/ECL/Pipettes- 5ml/1-4	SICET/H&S/ECL/Pipettes- 5ml/1-5
SICET/H&S/ECL/M.C-10ml/1-15	SICET/H&S/ECL/M.C-10ml/1-15
SICET/H&S/ECL/M.C-50ml/1-17	SICET/H&S/ECL/M.C-50ml/1-15
SICET/H&S/ECL/M.C-100ml/1-13	SICET/H&S/ECL/M.C-100ml/1-15
SICET/H&S/ECL/M.C-500ml/1-2	SICET/H&S/ECL/M.C-500ml/1-2
SICET/H&S/ECL/M.C-1L/1	SICET/H&S/ECL/M.C-1L/1-2
SICET/H&S/ECL/B.S/1-20	SICET/H&S/ECL/B.S/1-20
SICET/H&S/ECL/P.T/1-20	SICET/H&S/ECL/P.T/1-20
SICET/H&S/ECL/I.F/1-20	SICET/H&S/ECL/I.F/1-20
SICET/H&S/ECL/Rubber Bulbs/1-60	SICET/H&S/ECL/Rubber Bulbs/1-30
SICET/H&S/ECL/R.B.F 250ml/1-10	SICET/H&S/ECL/R.B.F 250ml/1-10
SICET/H&S/ECL/R.B.F 100ml/1-7	SICET/H&S/ECL/R.B.F 100ml/1-7
SICET/H&S/ECL/Glass Rods/1-28	SICET/H&S/ECL/Glass Rods/1-28
SICET/H&S/ECL/R. Condensers/1-4	SICET/H&S/ECL/R. Condensers/1-4
SICET/H&S/ECL/Funnels/1-29	SICET/H&S/ECL/Funnels/1-29
SICET/H&S/ECL/Thermometer/1-10	SICET/H&S/ECL/Thermometer/1-10

SICET/H&S/ECL/S.F-100ml/1-36	SICET/H&S/ECL/S.F-100ml/1-44
SICET/H&S/ECL/C.F-250ml/1-41	SICET/H&S/ECL/C.F-250ml/1-45
SICET/H&S/ECL/C.F-100ml/1-10	SICET/H&S/ECL/C.F-100ml/1-10
SICET/H&S/ECL/C.F-500ml/1-9	SICET/H&S/ECL/C.F-500ml/1-9
SICET/H&S/ECL/D.W.B/1-30	SICET/H&S/ECL/D.W.B/1-30
SICET/H&S/ECL/Heating Mantle/1-1	SICET/H&S/ECL/ Heating Mantle /1
SICET/H&S/ECL/Test Tubes/1-50	SICET/H&S/ECL/Test Tubes/1-50
SICET/H&S/ECL/C.W.B/1-4	SICET/H&S/ECL/C.W.B/1-4
SICET/H&S/ECL/Boiling Tubes/1-70	SICET/H&S/ECL/Boiling Tubes/1-70
SICET/H&S/ECL/Beakers 100ml/1-36	SICET/H&S/ECL/Beakers 100ml/1-48
SICET/H&S/ECL/Beakers 250ml/1-50	SICET/H&S/ECL/Beakers 250ml/1-50
SICET/H&S/ECL/Beakers 500ml/1-13	SICET/H&S/ECL/Beakers 500ml/1-13
SICET/H&S/ECL/Stalganometer/1-46	SICET/H&S/ECL/Stalganometer/1-50
SICET/H&S/ECL/O.Viscometer/1-36	SICET/H&S/ECL/O.Viscometer/1-40
SICET/H&S/ECL/E.Balance/1-2	SICET/H&S/ECL/E.Balance/1-2
SICET/H&S/Conductivity Meter/1-7	SICET/H&S/Conductivity Meter/1-7
SICET/H&S/Potential Meter/1-7	SICET/H&S/Potential Meter/1-7
SICET/H&S/Colorimeter/1-6	SICET/H&S/Colorimeter/1-6
SICET/H&S/Water Bath/1-2	SICET/H&S/Water Bath/1-2
SICET/H&S/Common Balance/1-2	SICET/H&S/Common Balance/1-3
SICET/H&S/Condenser Pipes/1-2	SICET/H&S/Condenser Pipes/1-2
SICET/H&S/Test Tube Stands/1-7	SICET/H&S/Test Tube Stands/1-7
SICET/H&S/Test Tube Holders/1-19	SICET/H&S/Test Tube Holders/1-19
SICET/H&S/Iron Mesh/1-9	SICET/H&S/Iron Mesh/1-9
SICET/H&S/Spatulas/1-30	SICET/H&S/Spatulas/1-30
SICET/H&S/Droppers/1-35	SICET/H&S/Droppers/1-35
SICET/H&S/Reagent Bottles/1-10	SICET/H&S/Reagent Bottles/1-10
SICET/H&S/Stop Clocks/1-22	SICET/H&S/Stop Clocks/1-22



**Department of Electronics and Communication Engineering**

**Engineering Chemistry Lab**

**General Guidelines:**

1. Conduct yourself in a responsible manner at all times in the laboratory.
2. Be familiar with your lab assignment **before** you come to lab. Follow all written and verbal instructions carefully. If you do not understand a direction or part of a procedure, ask the teacher before proceeding.
3. Never work alone. No student may work in the laboratory without an instructor present.
4. When first entering a science room, do not touch any equipment, chemicals, or other materials in the laboratory area until you are instructed to do so.
5. Do not eat food, drink beverages, or chew gum in the laboratory. Do not use laboratory glassware as containers for food or beverages.
6. Perform only those experiments authorized by the instructor. Never do anything in the laboratory that is not called for in the laboratory procedures or by your instructor.

Carefully follow all instructions, both written and oral. Unauthorized experiments are prohibited.

7. Safety goggles and aprons must be worn whenever you work in lab. Gloves should be worn whenever you use chemicals that cause skin irritations or need to handle hot equipment. Wear clothes that cover the maximum amount of skin.
8. Know the locations and operating procedures of all safety equipment including the first aid kit, eyewash station, safety shower, spill kit, fire extinguisher, and fire blanket. Know where the fire alarm and the exits are located.
9. Be alert and proceed with caution at all times in the laboratory. Notify the instructor immediately of any unsafe conditions you observe.
10. Dispose of all chemical waste properly. Never mix chemicals in sink drains. Sinks are to be used only for water and those solutions designated by the instructor. Solid chemicals, metals, matches, filter paper and all other insoluble materials are to be disposed of in the proper waste containers, not in the sink. Check the label of all waste containers twice before adding your chemical waste to the container. Cracked or broken glass should be placed in the special container for "Broken Glass."
12. Keep hands away from your face, eyes, mouth, and body while using chemicals. Wash your hands with soap and water after performing all experiments. Clean (with detergent powder), rinse, and dry all work surfaces and equipment at the end of the experiment.
13. Experiments must be personally monitored at all times. You will be assigned a laboratory station to work. Do not wander around the room, distract other students, or interfere with the laboratory experiments of others.

14. Students are never permitted in the science storage rooms or preparation areas unless given specific permission by their instructor.

15. Know what to do if there is a fire drill during a laboratory period; containers must be closed, gas valves turned off, fume hoods turned off, and any electrical equipment turned off.

16. If you spill acid or any other corrosive chemical on you skin or clothes, immediately wash area with large amounts of water (remember that small amounts of water may be worse than no water at all). After this, get the teacher's attention. The spill kit will be used for spills on floor or counter-top.

17. At the end of the laboratory session see that: a) main gas outlet valve is shut off b) the water is turned off c) desk top, floor area, and sink are clean d) all equipment is cool, clean, and arranged.

### **Clothing**

18. When chemicals, heat, or glassware are used, students must wear laboratory goggles.

There will be no exceptions to this rule! Contact lenses should not be worn in the laboratory unless you have permission from your instructor.

19. Dress properly during a laboratory activity. Wear **Apron (white colour)** in lab session and wear cotton.

22. If you or your lab partner is hurt, immediately yell to get the instructor's attention.

### **Handling Chemicals**

23. All chemicals in the laboratory are to be considered dangerous. Do not touch, taste, or smell any chemical unless specifically instructed to do so. The proper technique for smelling chemical fumes (when instructed to do so by the teacher) is to gently fan the air above the chemical towards your face. Breathe normally.

24. Check the label on chemical bottles twice before removing any of the contents. Take only as much chemical as you need. Smaller amounts often work better than larger amounts.

Label all containers and massing papers holding dry chemicals.

25. **Never return unused chemicals to their original containers.**

26. Never use mouth suction to fill a pipette. Use a pipette bulb or pipette filler.

27. Acids must be handled with extreme care. **ALWAYS ADD ACID SLOWLY TO**

**WATER**, with slow stirring and swirling, being careful of the heat produced, particularly with sulfuric acid.

28. Handle flammable hazardous liquids over a pan to contain spills. Never dispense flammable liquids anywhere near an open flame or source of heat.

29. Never take chemicals or other materials from the laboratory area.

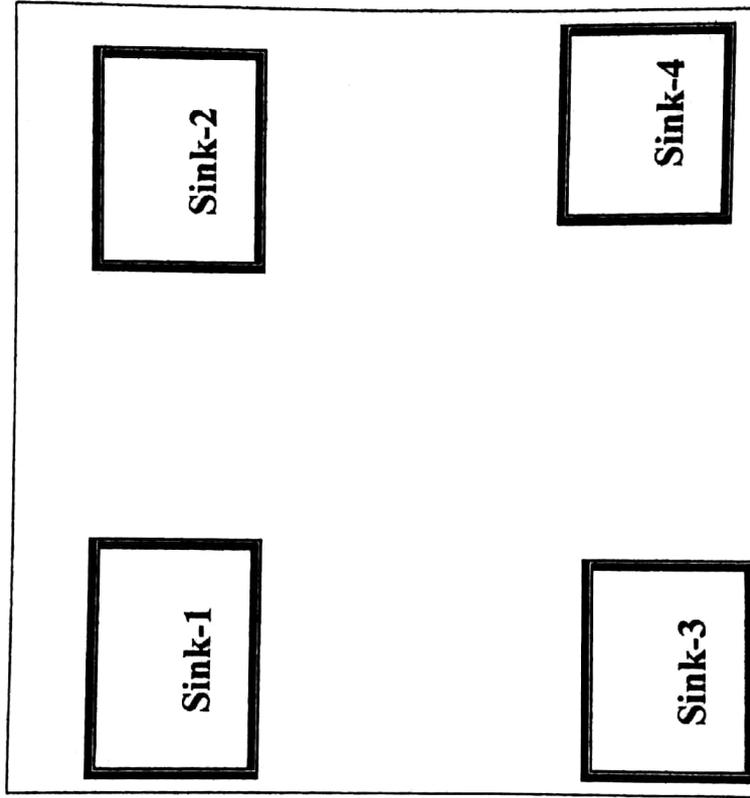
30. Take great care when transferring acids and other chemicals from one part of the laboratory to another. Hold them securely and in the method demonstrated by the teacher as you walk.

**Lab Incharge**



Sri Indu College of Engineering & Technology :: Sheriguda(V), R.R.Dist  
Department of Electronics & Communication Engineering

**ENGINEERING CHEMISTRY LAB-II LAB LAYOUT - 392 M**



19.5 m

Area : 392 M

Lab capacity : 30 Students

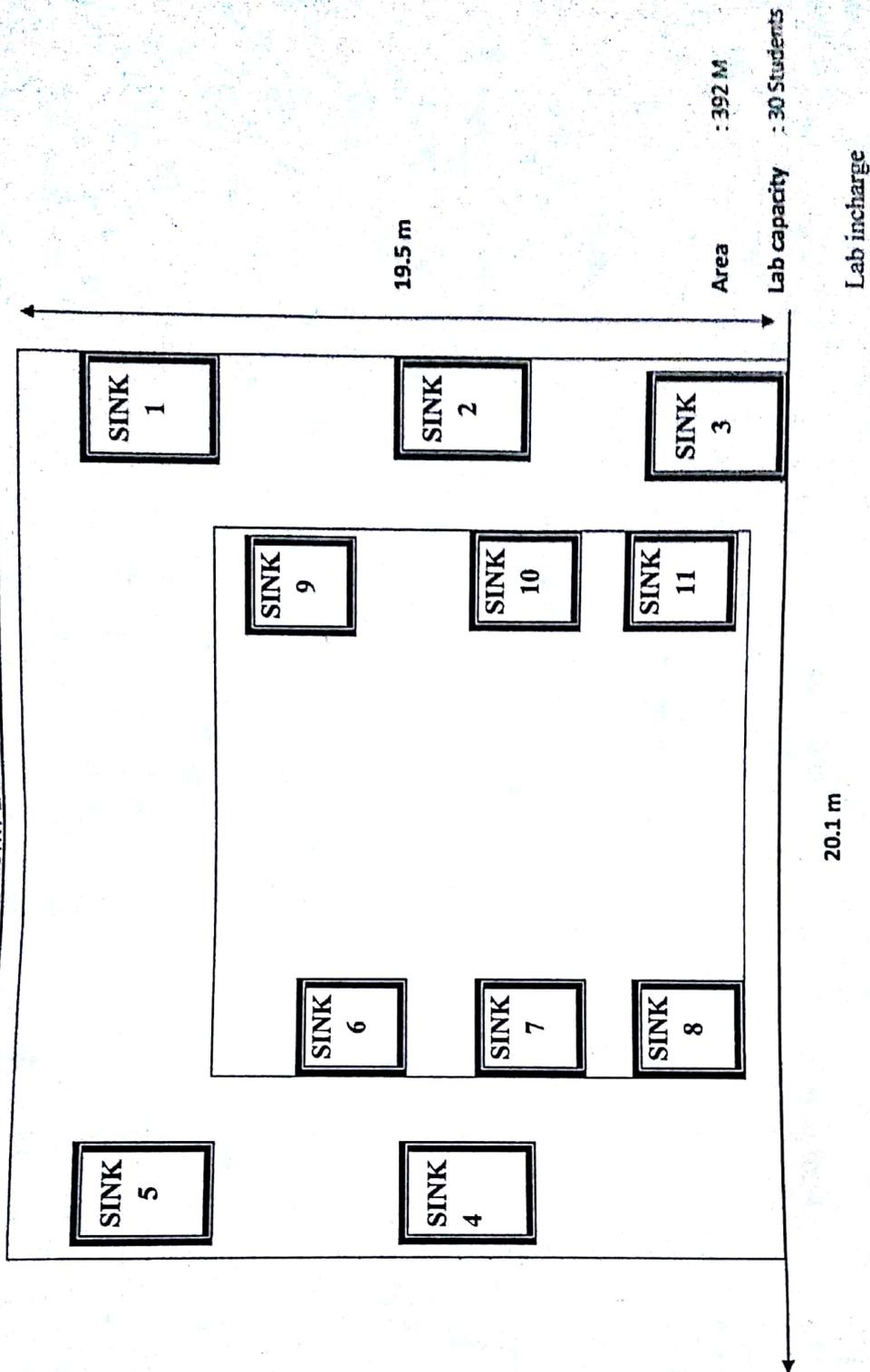
20.1 m

Lab incharge



Sri Indu College of Engineering & Technology :: Sheriguda(V), R.R.Dist  
Department of Electronics & Communication Engineering

**ENGINEERING CHEMISTRY LAB-II LAB LAYOUT - 392 M**





Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist

**Department of Electronics and Communication Engineering**

**ENGINEERING CHEMISTRY LAB-1(Main Block)**

**INVENTORY LIST**

<b>S.no</b>	<b>Name of the inventory item</b>	<b>Quantity</b>
1	College vision and mission board	1
2	List of equipments board	1
3	Scientist photos	3
4	Electrical switches board	12
5	Tube lights	2
6	Fans	4
7	Safety guide line board	1
8	Program outcomes board	1
9	Notice board	1
10	Periodic table Board	1

**Lab incharge**



**Sri Indu College of Engineering & Technology :: Sheriguda (V), R.R.Dist**

**Department of Electronics and Communication Engineering**

**ENGINEERING CHEMISTRY LAB-II(R&D Block)**

**INVENTORY LIST**

<b>S.no</b>	<b>Name of the inventory item</b>	<b>Quantity</b>
1	Institute vision and mission board	1
2	List of equipments board	1
3	Scientist photos	3
4	Electrical switches board	10
5	Tube lights	2
6	Fans	4
7	Safety guide line board	1
8	Program outcomes board	1
9	Notice board	1
10	Periodic table Board	1

Lab incharge

