



ESTD : 2007

# Sri Indu Institute of Engineering and Technology (Autonomous)

(Formerly RVR Institute of Engineering & Technology )

**An Autonomous Institution Under UGC**

NAAC Accredited. Recognized Under 2(f) of UGC Act 1956

EAMCET CODE: INDI

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

JNTUH CODE: X3



## COURSE FILE

ON

## ENGINEERING CHEMISTRY LAB

**Course Code - CH206BS**

**I B. Tech Semester-II  
A.Y. 2022-2023**

Prepared by  
**O.SUBHASHINI**  
**Asst. Professor**

Head of the Department  
Department of H&S  
SRI INDU INSTITUTE OF ENGG & TECH  
Sheriguda(VII) Ibrahimpatnam (M) R.R. Dist-501 510

PRINCIPAL  
Sri Indu Institute of Engineering & Tech.  
Sheriguda(VII), Ibrahimpatnam  
R.R. Dist. Telangana-501 510.



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JNTUH CODE: X3

<b>Name of the Physical laboratory:</b>	ENGINEERING CHEMISTRY LAB
<b>Course code</b>	CH206BS
<b>Room No</b>	D-103 & B-104
<b>Name of the lab incharge</b>	K.MOUNIKA
<b>Name of the faculty incharge</b>	O.SUBHASHINI

## Index of Lab File

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## INSTITUTE VISION & MISSION

### Vision:

To become a premier institute of academic excellence by providing the world class education that transforms individuals into high intellectuals, by evolving them as empathetic and responsible citizens through continuous improvement.

### Mission:

- **IM1:** To offer outcome-based education and enhancement of technical and practical skills.
- **IM2:** To Continuous assess of teaching-learning process through institute-industry collaboration.
- **IM3:** To be a centre of excellence for innovative and emerging fields in technology development with state-of-art facilities to faculty and students' fraternity.
- **IM4:** To Create an enterprising environment to ensure culture, ethics and social responsibility among the stakeholders.

  
Head of the Department  
Department of H&S  
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PRINCIPAL  
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# SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution under UGC)

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Khalsa Ibrahimpatnam, Sheriguda (V), Ibrahimpatnam (M), Ranga Reddy Dist., Telangana – 501 510

Website: <https://siiet.ac.in/>

## PROGRAMME OUTCOMES

**PO1: Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

**PO2: Problem Analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

**PO3: 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.

**PO4: 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.

**PO5: 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.

**PO6: The Engineer & 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.

**PO7: Environment & Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

**PO8: Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

**PO9: Individual & Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**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, give and receive clear instructions.

**PO11: Project Management & 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.

**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.

Head of the Department  
Department of H&S  
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Website: <https://siiet.ac.in/>

## SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

### B.Tech. in ELECTRONICS AND COMMUNICATION ENGINEERING

### COURSE STRUCTURE

### I YEAR SYLLABUS (BR22 Regulations)

Applicable from Academic Year: 2022-23 Batch

#### I Year I Semester

S. No.	Course Code	Course Title	L	T	P	Credits
1.	MA101BS	Matrices and Calculus	3	1	0	4
2.	AP102BS	Applied Physics	3	1	0	4
3.	CS102ES	C Programming for Engineers	3	0	0	3
4.	ME102ES	Engineering Workshop	0	1	3	2.5
5.	EN104HS	English for Skill Enhancement	2	0	0	2
6.	EC101ES	Elements of Electronics & Communication Engineering	0	0	2	1
7.	AP105BS	Applied Physics Laboratory	0	0	3	1.5
8.	EN107HS	English Language and Communication Skills Laboratory	0	0	2	1
9.	CS105ES	C Programming for Engineers Laboratory	0	0	2	1
10.	*MC101ES	Environmental Science	3	0	0	0
11.		Induction Programme				
<b>Total</b>			<b>14</b>	<b>3</b>	<b>12</b>	<b>20</b>

#### I Year II Semester

S. No.	Course Code	Course Title	L	T	P	Credits
1.	MA201BS	Ordinary Differential Equations and Vector Calculus	3	1	0	4
2.	CH203BS	Engineering Chemistry	3	1	0	4
3.	ME201ES	Computer Aided Engineering Graphics	1	0	4	3
4.	EE201ES	Basic Electrical Engineering	2	0	0	2
5.	EC201ES	Electronic Devices and Circuits	2	0	0	2
6.	CS202ES	Applied Python Programming Laboratory	0	1	2	2
7.	CH206BS	Engineering Chemistry Laboratory	0	0	2	1
8.	EE202ES	Basic Electrical Engineering Laboratory	0	0	2	1
9.	EC202ES	Electronic Devices and Circuits Laboratory	0	0	2	1
<b>Total</b>			<b>11</b>	<b>3</b>	<b>12</b>	<b>20</b>



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## ENGINEERING CHEMISTRY LABORATORY

(Course Code: CH206BS)

B.Tech. I Year II Sem.

L T P C

0 0 2 1

**Prerequisites:** Engineering Chemistry

**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 and pH metry methods.
- 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, surfacetension and viscosity of oils.

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

- Determination of parameters like hardness of water and rate of corrosion of mild steel in various conditions.
- 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.
- Students are able to prepare polymers like bakelite and nylon-6.
- Estimations saponification value, surface tension and viscosity of lubricant oils.

### List of Experiments:

**I. Volumetric Analysis:** Estimation of Hardness of water by EDTA Complexometry method.

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

**III. Potentiometry:** Estimation of the amount of  $\text{Fe}^{+2}$  by Potentiometry.

**IV. pH Metry:** Determination of an acid concentration using pH meter.

### V. Preparations:

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

### VI. Lubricants:

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



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**VII. Corrosion:** Determination of rate of corrosion of mild steel in the presence and absence of inhibitor.

## VIII. 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.  
College Practical Chemistry by V.K. Ahluwalia, Narosa Publications Ltd. New De



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## COURSE OUTCOMES

### Course Name: Engineering Chemistry Lab (C127)

At the End of the course, student will be able to

C127.1 Determination of parameters like hardness of water by the complexometric titrations  
(Understanding L2)

C127.2 Students can able to perform the methods such as conductometry, pH metry to find out concentration of unknown solutions. (Applying L3)

C127.3 Students can determine the Potentiometry in order to find out the concentrations of acids and bases. (Applying L3)

C127.4 Students are able to synthesise Polymers-Bakelite & Nylon-6. (Applying L3)

C127.5 Students can estimate the saponification value and viscosity of the lubricants.  
(Analyzing L4)

C127.6 They can able to demonstrate the rate of corrosion of mild steel in various conditions  
(Understanding L2)

### COs and POs & PSOs Mapping

High -3

Medium -2

Low-1

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
C127.1	2	2	-	-	-	-	1	-	-	-	-	-	-	-
C127.2	2	2	-	-	1	-	-	-	-	-	-	-	-	-
C127.3	2	1	-	1	1	-	1	-	-	-	-	-	-	-
C127.4	2	-	2	-	-	1	-	-	-	-	-	-	-	-
C127.5	2	1	-	-	-	-	1	-	-	-	-	-	-	-
C127.6	2	1	-	1	-	1	1	-	-	-	-	-	-	-
AVE	2.00	1.4	2.00	1.0	1.0	1.0	1.0	-	-	-	-	-	-	-





## MAPPING OF EXPERIMENT OUTCOMES WITH CO/PO'S/PSO

EXPERIMENT OBJECTIVES	EXPERIMENT OUTCOMES	CO	PO'S
1.To estimate the total hardness of water by EDTA method.	The students will be able to analyze the nature of salts causing hardness and to solve the engineering problems arising during steam production in boilers.	C127.1	PO1, PO2 ,PO7
2.To determine the strength of the strong acid by titration with strong base conductometrically.	The student shall be able to analyze the variation of conductance values of given acid with addition of strong base using conductivity meter.	C127.2	PO1, PO2 PO5
3.To estimate the $Fe^{+2}$ by potentiometry using $KMnO_4$ .	The student shall be able to Analyze the variation of EMF values of given acid with addition of $KMnO_4$ using potentiometer.	C127.3	PO1, PO2, PO4, PO5, PO7
4.To estimate the amount of HCl present in the given volume of test solution by $P^H$ metry.	The student shall be able to find out the concentrations of acids and bases.	C127.2	PO1, PO2 PO5
5.To prepare Bakelite polymer using Phenol and Formaldehyde.	The student shall be able to prepare the polymer of Bakelite	C127.4	PO1, PO3 PO6
6.To prepare Nylon-6,6 polymer using adipoyl chloride and hexamethylenediammine.	The student shall be able to prepare the polymer of Nylon-6,6.	C127.4	PO1, PO3 PO6
7.To determine the acid value of Coconut oil.	The student shall be able to identity and calculate the acid values of coconut oil.	C127.5	PO1, PO2 PO7



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8. To determine the viscosity of the given coconut oil and ethanol.	The students shall be able to Determine and calculate the Viscosity coefficient values of coconut oil and ethanol.	C127.5	PO1, PO2 PO7
9. To determine the rate of corrosion of mild steel in acidic medium in the absence and presence of an inhibitor and calculate the efficiency of the Inhibitor.	The student can able to understand the efficiency and function of inhibitor in the Process of corrosion.	C127.6	PO1, PO2 PO4, PO6 PO7
ADDITIONAL EXPERIMENTS			
10. To determine the strength of the weak acid by titration with strong base conductometrically.	The student shall be able to analyze the variation of conductance values of given weak acid with addition of strong base using conductivity meter.	C127.2	PO1, PO2 PO5
11. To determine the surface tension of a given liquid at room temperature using stalagmometer by drop number method.	The student shall be able to determine and calculate the surface tension values of reference liquid and given liquid	C127.5	PO1, PO2 PO7



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<https://siiet.ac.in/>

**Class:** ECE

**Semester:** II **W.E.F**-03-04-2023

**LH:-D-209**

	I 9:40- 10:30	II 10:30 - 11:20	III 11:20- 12:10	12:10- 12.45	IV 12.45- 1.35	V 1.35- 2.25	VI 2.25- 3.15	VII 3.15-4.00	
<b>MON</b>	EC	BEE	ODE	<b>L U N C H</b>	EDC LAB			EC(T)/ODE(T)	
<b>TUE</b>	ODE	EC	EDC		CAEG PRACTICE			LIBRARY	
<b>WED</b>	EC/BEE LAB				EDC	BEE	ODE	BEE(T)/EDC(T)	
<b>THU</b>	APPLIED PYTHON LAB				ODE	BEE	EC	APPLIED PYTHON(T)	
<b>FRI</b>	ODE	EC	EDC		EC/BEE LAB			ODE(T)/EC(T)	
<b>SAT</b>	CAEG PRACTICE				EDC	BEE	BEE	EDC(T)/ BEE(T)	

Course Code	Course Name	Name of the Faculty	Course Code	Course Name	Name of the Faculty
MA201BS	ODE- Ordinary Differential Equations & Vector Calculus	T.THIRUPATHI REDDY	CH206BS	EC LAB- Engineering Chemistry Lab	O.SHUBHASHINI/K.MO UNIKA
CH203BS	EC- Engineering Chemistry	O.SHUBHASHINI	EE202ES	BEE LAB- Basic Electrical Engineering	MP.REENA/G.BHARGA VI
ME201ES	CAEG- Computer Aided	MVB.KALYAN	CS202ES	APPLIED PYTHON Programming	B.RAJASHWARI/D.SWAPN A
EE201ES	BEE-Basic Electrical Engineering	MP.REENA	EC202ES	EDC LAB- Electronic Devices & Circuits Laboratory	G.ANUSHA/P.RAJENDR A
EC201ES	EDC- Electronic Devices & Circuits	G.ANUSHA			

*[Signature]*  
Class In-Charge

*[Signature]*  
Time Table Coordinator



*[Signature]*  
Head of The Department  
Sri Indu Institute of Enngg. & Tech  
Main Road, Sheriguda(V)  
Ibrahimpatnam(M), R.R. Dist.  
Telangana-501 510



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**X3**

**BR22**

## **Lab External Question paper**

Year & Semester: I-II

Branch: ECE

Subject Name: Engineering Chemistry Lab

Faculty Name: O.SUBHASHINI

### **EXTERNAL EXAM QUESTION PAPER**

1. Estimate the total hardness of water by complexometric method using EDTA. [ CREATING L6]
2. Estimate of an HCL by conductometric titration. [ EVALUATING L5]
3. Estimate of Fe+2 by Potentiometry using by kmno4. [ EVALUATING L5]
4. Determine the acid concentration by using PH meter. [ EVALUATING L5]
5. Estimate of an acetic acid by conductometric titration. [ EVALUATING L5]
6. Ditermine the viscosity of a given liquid by using Ostwald's viscometer. [ EVALUATING L5]
7. Write about preparation of Bakelite. [ REMEMBARING L1]
8. Write about preparation of Nylon 6,6. [ REMEMBARING L1]
9. Determine the acid value of coconut oil. [ REMEMBARING L1]
10. Determine the surface tension of a given liquid by using stalagmometer. [ REMEMBARING L1]





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## EC Lab External Time Table Examination Branch


A.Y.: 2022-23

SEM-II

DATE	Day	Branch	Session	HT.No	Total No of Students
21-8-2023	MONDAY	ECE & CIVIL	FN	22X31A0401 TO 22X31A0464 22X31A0101 TO 22X31A0103	67
22-8-2023	TUESDAY	IOT	FN	22X31A6901 TO 22X31A6963	63
23-8-2023	WEDNESDAY	AI&ML-B	FN	22X31A6651 TO 22X31A6697	47
24-8-2023	THURSDAY	AI&ML-B	FN	22X31A6601 TO 22X31A6650	50
25-8-2023	FRIDAY	AI&DS	FN	22X31A7201 TO 22X31A7264	64

FN: 9:40am to 12:25pm

  
Head of the Department  
Department of H&S  
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## EC Lab External Time Table Examination Branch


A.Y:2022-2023

SEM-II

Date	Day	Branch	Session	HT.NO	Total No. of Students	Remarks	
						Internal examiner	External examiner
21-08-2023	MONDAY	ECE & CIVIL	FN	22X31A0401 TO 22X31A0464 22X31A0101 TO 22X31A0103	67	O.SUBHASHINI	D.Swathi 7032248997 Asst.prof BIIET
22-08-2023	TUESDAY	IOT	FN	22X31A6901 TO 22X31A6963	63	V.MOUNIKA	Dr.Nagaveni 9959073712 Assoc.prof BIIET
23-08-2023	WEDNESDAY	AI&ML-B	FN	22X31A6651 TO 22X31A6697	47	O.SUBHASHINI	Dr.Rinki kumar 7488730602 Asst.prof BIIET
24-08-2023	THURSDAY	AI&ML-A	FN	22X31A6601 TO 22X31A6650	50	V.MOUNIKA	Dr.Litun swain 9489576721 Asst.prof BIIET
25-08-2023	FRIDAY	AI&DS	FN	22X31A7201 TO 22X31A7264	64	K.MOUNIKA	Dr.Shahroora sameen 9149454924 Asst.prof BIIET

FN: 9:40AM to 12:25PM

  
Head of the Department  
Department of H&S  
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## LAB OCCUPANCY CHART

### ENGINEERING CHEMISTRY LAB

Class :I B.Tech

Semester-II

LH:B-104

	I 9:40-10:30	II 10:30 -11:20	III 11:20-12:10	12:10- 12.45	IV 12.45-1.35	V 1.35-2.25	VI 2.25-3.15	VII 3.15- 4.00
MON	I BTECH II SEM AI&ML-A			L U N C H				
TUE	I BTECH II SEM AI&DS				I BTECH II SEM AI&ML-B			
WED	I BTECH II SEM ECE				I BTECH II SEM IOT			
THU	MAINTAINANCE							
FRI								
SAT								

  
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## LAB OCCUPANCY CHART

### ENGINEERING CHEMISTRY LAB


Class :I B.Tech

Semester-II

LH: D-103

	I 9:40-10:30	II 10:30 -11:20	III 11:20-12:10	12:10- 12.45	IV 12.45-1.35	V 1.35-2.25	VI 2.25-3.15	VII 3.15- 4.00
MON	MAINTAINANCE							
TUE								
WED								
THU					I BTECH II SEM AI&DS			
FRI	I BTECH II SEM AI&ML-A				I BTECH IISEM ECE			
SAT	I BTECH II SEM IOT				I BTECH II SEM AI&ML-B			

  
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## ENGINEERING CHEMISTRY LAB

### Do's

1. Attend all the practical classes with
  - a) Observation note book
  - b) Chemistry practical manual
  - c) A neat hand kerchief
2. Follow the instructions of your Lecturer carefully.
3. Read the experiment perfectly before starting.
4. Take the required apparatus and clean them.
5. The observations should be in noted in the note book immediately.
6. Clean the apparatus immediately after the experiment and return to the concerned lab incharge.
7. Do the calculation and get the signature of Lecturer on the observation note book.
8. Always throw the pieces of papers, broken glass pieces etc., in a waste basket only.
9. The observations and calculations should be recorded neatly in the record book and submit the same of the lecturer.

### Don'ts

1. Don't handle the apparatus roughly; it leads in damage (or) breakage.
2. Don't perform the experiment with incomplete knowledge, it may lead you in confusion.
3. Don't use excess amount of chemicals (or) reagents.
4. Don't consult your fellow student, if you have doubt in the experiment, consult Lecturer only.
5. Don't throw any solid matter in the sink. Don't waste the chemical or reagent.
6. Don't taste any chemical and inhale poisonous gases.
7. Don't waste the water. If it is not required, the tap must be closed.
8. Don't leave the laboratory unless your work bench is clean and all the apparatus is returned to the attender.

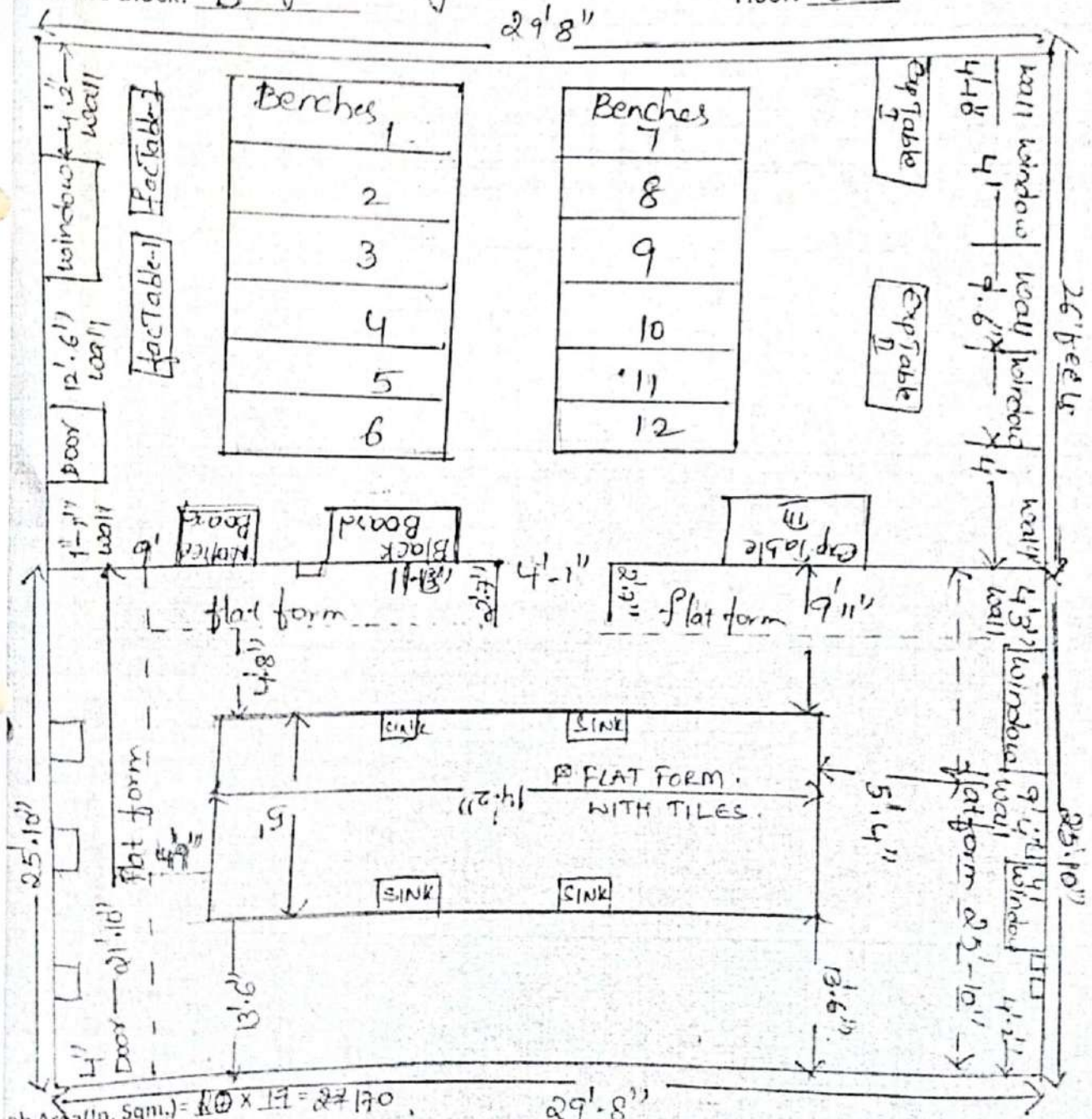


**SRI INDU INSTITUTE OF ENGINEERING & TECHNOLOGY**  
 Sheriguda (V), Ibrahimpatnam (M), R.R. Dist-501 510  
**DEPARTMENT OF HUMANITIES AND SCIENCES**

PHYSICAL LAB FLOOR PLAN

NAME: Engineering chemistry  
 Block of the Block: B V

ROOM NO: B-104  
 Floor: I



Lab Area (In. Sqm.) =  $10 \times 17 = 27.170$   
 Lab Area (In. Sft.) =  $30 \times 52 = 1560$

LAB In charge

*[Signature]*  
 Head of the Department

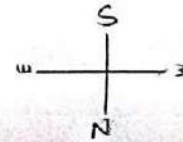




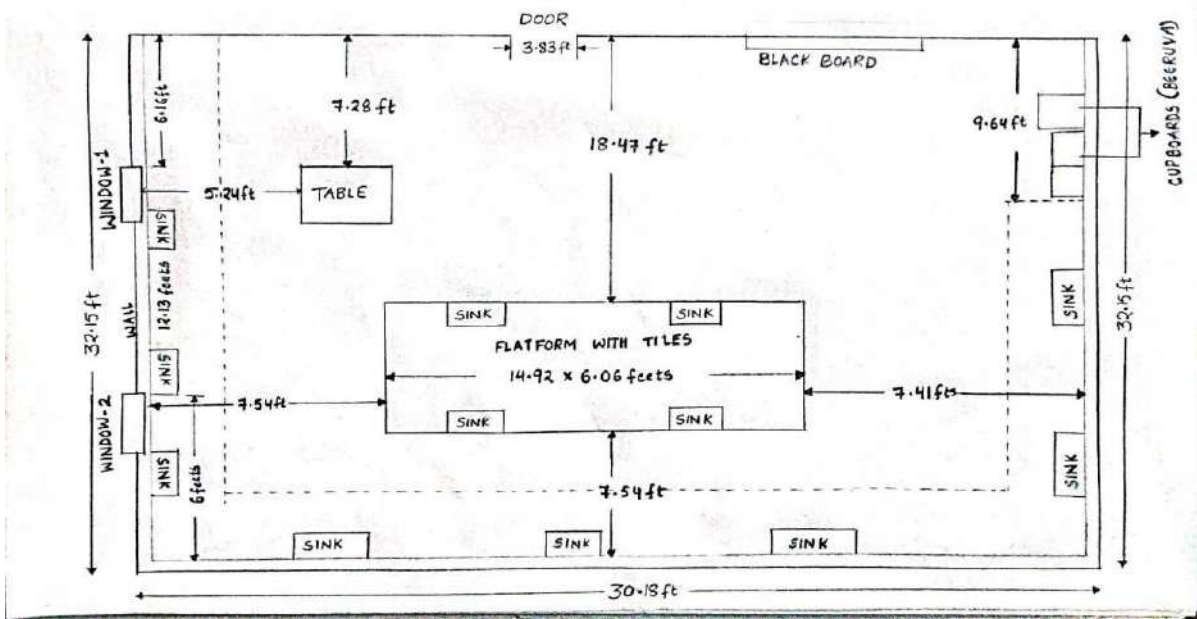
PHYSICAL LAB FLOOR-1 PLAN

ROOM NO - D103

CHEMISTRY LAB



Window dimensions = 4x4 feet



Lab area in sq.m =  $9.198 \times 9.80 = 90.14$

Lab area in sq.ft =  $30.18 \times 32.15 = 970.287$

*Qul*  
LAB in charge

*Ya*  
Head of the Department  
Department of H&S  
SRI INDU INSTITUTE OF ENGG & TECH  
Sheriguda (V) Ibrahimpatnam (M) R.R. Dist-501 510



# SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution under UGC)

Accredited by NAAC with A+ Grade, Recognized under 2(f) of UGC Act 1956

(Approved by AICTE, New Delhi and Affiliated to JNTUH, Hyderabad)

Khalsa Ibrahimpatnam, Sheriguda (V), Ibrahimpatnam (M), Ranga Reddy Dist., Telangana – 501 510

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## Lab manual link

<https://drive.google.com/file/d/1-kd3ieekIp3ipx4CgNmOaQkWM6KYWiTc/view?usp=sharing>

# SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Humanities and Sciences



## Course Outcome Attainment (Internal Examination-1)

Name of the faculty :	O.SUBHASHINI	Academic Year:	2022-23
Branch & Section:	ECE	Examination:	INTERNAL -I
Lab Course Name:	ENGINEERING CHEMISTRY	Year/semester	I/II

S.No	HT No.	R+O+A	V+V	E+E+R	
					<b>R+O+A : RECORD+OBSERVATION+ATTANDANCE</b>
<b>Max. Marks ==&gt;</b>		<b>10</b>	<b>10</b>	<b>10</b>	
1	22X31A0401	10	7	9	
2	22X31A0402	10	9	10	<b>V+V: VIVA VOICE</b>
3	22X31A0403	10	4	8	
4	22X31A0404	10	6	4	
5	22X31A0405	10	9	10	<b>E+E+R:EXPERIMENT WRITE UP+EXECUTION+RES ULT</b>
6	22X31A0406	10	10	9	
7	22X31A0407	8	4	10	
8	22X31A0408	10	6	10	
9	22X31A0409	10	10	10	
10	22X31A0410	10	10	10	
11	22X31A0411	10	4	10	
12	22X31A0412	6	3	6	
13	22X31A0413	8	3	10	
14	22X31A0414	10	9	10	
15	22X31A0415	8	9	8	
16	22X31A0416	9	6	6	
17	22X31A0417	6	3	6	
18	22X31A0418	8	5	10	
19	22X31A0419	10	10	9	
20	22X31A0420	8	3	4	
21	22X31A0421	10	10	9	
22	22X31A0422	AB	AB	AB	
23	22X31A0423	10	6	9	
24	22X31A0424	6	3	5	
25	22X31A0425	8	3	9	
26	22X31A0426	10	9	10	
27	22X31A0427	8	5	10	
28	22X31A0428	9	3	8	
29	22X31A0429	9	7	6	
30	22X31A0430	5	2	7	
31	22X31A0431	8	3	5	
32	22X31A0432	8	3	5	
33	22X31A0433	10	6	9	
34	22X31A0434	AB	AB	AB	
35	22X31A0435	9	2	10	
36	22X31A0436	9	8	7	
37	22X31A0437	AB	AB	AB	
38	22X31A0438	AB	AB	AB	
39	22X31A0439	10	8	10	
40	22X31A0440	8	2	10	
41	22X31A0441	10	9	10	
42	22X31A0442	10	5	10	
43	22X31A0443	9	7	8	
44	22X31A0444	10	5	5	
45	22X31A0445	10	8	10	
46	22X31A0446	9	9	10	
47	22X31A0447	8	4	8	
48	22X31A0448	9	7	9	
49	22X31A0449	10	10	10	
50	22X31A0450	9	6	10	
51	22X31A0451	10	2	8	
52	22X31A0452	10	10	9	
53	22X31A0453	10	9	10	
54	22X31A0454	10	8	8	
55	22X31A0455	10	10	10	
56	22X31A0456	10	4	5	
57	22X31A0457	10	6	10	
58	22X31A0458	10	10	9	
59	22X31A0459	10	10	10	
60	22X31A0460	9	3	8	
61	22X31A0461	9	5	5	
62	22X31A0462	10	9	9	
63	22X31A0463	10	9	9	
64	22X31A0464	8	3	8	

Target set by the faculty / HoD	6.00	6.00	6.00				
Number of students performed above the target	59	35	52				
Number of students attempted	64	64	64				
Percentage of students scored more than target	92%	55%	81%				
<b>CO Mapping with Exam Questions:</b>							
	CO - 1	Y	Y	Y			
	CO - 2	Y	Y	Y			
	CO - 3	Y	Y	Y			
	CO - 4						
	CO - 5						
	CO - 6						
<b>CO Attainment based on Exam Questions:</b>							
	CO - 1	92%	92%	81%			
	CO - 2	92%	92%	81%			
	CO - 3	92%	92%	81%			
	CO - 4						
	CO - 5						
	CO - 6						
	CO	<b>Intrnal practica</b>	<b>E+E+R</b>	<b>Overall</b>	<b>Level</b>	<b>Attainment Level</b>	
	CO-1	92%	81%	87%	3	1	40%
	CO-2	92%	81%	87%	3	2	50%
	CO-3	92%	81%	87%	3	3	60%
	CO-4						
	CO-5						
	CO-6						
	<b>Attainment (Internal 1 Examination) =</b>				<b>3</b>		

# SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY



Department of Humanities and Sciences

## Course Outcome Attainment (Internal Examination-2)

Name of the faculty :	O.SUBHASHINI	Academic Year:	2022-23
Branch & Section:	ECE	Examination:	Internal-II
Lab Course Name:	ENGINEERING CHEMISTRY	Year/semester	I/II

S.No	HT No.	R+O+A	V+V	E+E+R	ppt
<b>Max. Marks =&gt;</b>		<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>
1	22X31A0401	10	7	10	10
2	22X31A0402	10	10	9	10
3	22X31A0403	10	9	10	10
4	22X31A0404	10	7	5	10
5	22X31A0405	10	9	10	10
6	22X31A0406	10	9	10	10
7	22X31A0407	9	6	6	10
8	22X31A0408	10	8	10	10
9	22X31A0409	10	10	10	10
10	22X31A0410	10	10	10	10
11	22X31A0411	10	5	8	10
12	22X31A0412	10	4	7	10
13	22X31A0413	9	4	9	10
14	22X31A0414	10	9	10	10
15	22X31A0415	9	8	7	10
16	22X31A0416	9	5	8	10
17	22X31A0417	8	4	7	10
18	22X31A0418	8	5	8	10
19	22X31A0419	10	9	9	10
20	22X31A0420	8	4	8	10
21	22X31A0421	10	9	10	10
22	22X31A0422	AB	AB	AB	10
23	22X31A0423	10	6	8	10
24	22X31A0424	8	4	4	10
25	22X31A0425	8	7	10	10
26	22X31A0426	10	9	10	10
27	22X31A0427	10	5	10	10
28	22X31A0428	9	5	7	10
29	22X31A0429	9	7	7	10
30	22X31A0430	8	4	4	10
31	22X31A0431	8	4	5	10
32	22X31A0432	9	3	10	10
33	22X31A0433	10	6	10	10
34	22X31A0434	10	9	10	10
35	22X31A0435	8	6	5	10
36	22X31A0436	8	6	7	10
37	22X31A0437	AB	AB	AB	10
38	22X31A0438	AB	AB	AB	10
39	22X31A0439	9	9	10	10
40	22X31A0440	8	4	8	10
41	22X31A0441	10	10	10	10
42	22X31A0442	9	9	10	10
43	22X31A0443	10	5	10	10
44	22X31A0444	10	5	10	10
45	22X31A0445	10	3	10	10
46	22X31A0446	9	7	10	10
47	22X31A0447	8	5	8	10
48	22X31A0448	9	6	7	10
49	22X31A0449	9	9	10	10
50	22X31A0450	9	9	10	10
51	22X31A0451	9	6	7	10
52	22X31A0452	8	8	7	10
53	22X31A0453	10	10	10	10
54	22X31A0454	10	7	10	10
55	22X31A0455	10	10	10	10
56	22X31A0456	8	4	8	10
57	22X31A0457	10	8	10	10
58	22X31A0458	10	10	10	10
59	22X31A0459	10	10	10	10
60	22X31A0460	8	7	7	10
61	22X31A0461	8	5	7	10
62	22X31A0462	9	9	10	10
63	22X31A0463	10	9	9	10
64	22X31A0464	8	6	10	10

R+O+A : RECORD+OBSERVATION+ATTANDANCE

V+V: VIVA VOICE

E+E+R:EXPERIMENT WRITE UP+EXECUTION+RESULT



Target set by the faculty / HoD	6.00	6.00	6.00	6.00					
Number of students performed above the target	61	41	56	64					
Number of students attempted	64	64	64	64					
Percentage of students scored more than target	95%	64%	88%	100%					
<b>CO Mapping with Exam Questions:</b>									
	CO - 1								
	CO - 2								
	CO - 3								
	CO - 4	Y	Y	Y	Y				
	CO - 5	Y	Y	Y	Y				
	CO - 6	Y	Y	Y	Y				
<b>CO Attainment based on Exam Questions:</b>									
	CO - 1								
	CO - 2								
	CO - 3								
	CO - 4	95%	64%	88%	88%				
	CO - 5	95%	64%	88%	88%				
	CO - 6	95%	64%	88%	88%				
	CO	Intrnal practica	E+E+R	ppt	Overall	Level	Attainment Level		
	CO-1						1	40%	
	CO-2						2	50%	
	CO-3						3	60%	
	CO-4	80%	88%	88%	85%	3			
	CO-5	80%	88%	88%	85%	3			
	CO-6	80%	88%	88%	85%	3			
	Attainment (Internal 2 Examination) =					3			



# SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY



Department of Humanities and Sciences

## Course Outcome Attainment

Name of the faculty	O.SUBHASHINI	Academic Year:	2022-23
Branch & Section:	ECE	Year / Semester:	I/II
Lab Course Name:	ENGINEERING CHEMISTRY		
<b>Course Outcomes</b>	<b>1st Internal Exam</b>	<b>2nd Internal Exam</b>	<b>Internal Exam</b>
			<b>University Exam</b>
			<b>Attainment Level</b>
<b>CO1</b>	3.00		3.00
<b>CO2</b>	3.00		3.00
<b>CO3</b>	3.00		3.00
<b>CO4</b>		3.00	3.00
<b>CO5</b>		3.00	3.00
<b>CO6</b>		3.00	3.00
<b>Internal &amp; University Attainment:</b>			3.00
<b>Weightage</b>			40%
<b>CO Attainment for the course (Internal, University)</b>			1.20
<b>CO Attainment for the course (Direct Method)</b>			1.80
<b>CO Attainment for the course (Direct Method)</b>			3.00
<b>Overall course attainment level</b>			<b>3.00</b>



# SRI INDU INSTITUTE OF ENGINEERING & TECHNOLOGY

Department of Humanities and Sciences

## Program Outcome Attainment (from Course)

Name of Faculty:	O.SUBHASHINI	Academic Year:	2022-23
Branch & Section:	ECE	Year / Semester:	I/II
Course Name:	ENGINEERING CHEMISTRY		

### CO-PO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2					1							
CO2	2	2			1									
CO3	2	1		1	1		1							
CO4	2		2			1								
CO5	2	1					1							
CO6	2	1		1		1	1							
<b>Course</b>	<b>2.00</b>	<b>1.40</b>	<b>2.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>							

CO	Course Outcome Attainment
	3.00
CO1	3.00
CO2	3.00
CO3	3.00
CO4	3.00
CO5	3.00
CO6	3.00
<b>Overall course attainment level</b>	<b>3.00</b>

### PO-ATTAINMENT

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO Attainment	2.00	1.40	2.00	1.00	1.00	1.00	1.00					

CO contribution to PO - 33%, 67%, 100% (Level 1/2/3)