



DEPARTMENT OF CHEMISTRY

COURSE PLAN – PART I			
Name of the programme and specialization	B.Tech. I (Electrical and Electronic Engineering-A)		
Course Title	Chemistry (Lab)		
Course Code	CHIR 12	No. of Credits	2
Course Code of Pre-requisite subject(s)	Nil		
Session	January, 2022	Section (if, applicable)	A
Name of Faculty	Dr. Baby Viswambharan	Department	Chemistry
Official Email	babyv@nitt.edu	Telephone No.	8547193736
Name of Course Coordinator(s) (if, applicable)	Dr. Baby Viswambharan		
Official E-mail	babyv@nitt.edu	Telephone No.	8547193736
Course Type (please tick appropriately)	<input checked="" type="checkbox"/> Core course	<input type="checkbox"/> Elective course	
<b>Syllabus (approved by BOS)</b>			
<b>LIST OF EXPERIMENTS</b>			
<ol style="list-style-type: none"> <li>1. Estimation of carbonate, non-carbonate and total hardness in the given water sample.</li> <li>2. Estimation of dissolved oxygen in the given water sample.</li> <li>3. Corrosion rate by polarization technique</li> <li>4. Determination of molecular weight of the polymer by Viscometer.</li> <li>5. Demonstration experiments using Advanced Spectroscopic Techniques, (UV-Vis, FTIR, Raman)</li> </ol>			
<b>Reference Books</b>			
<ol style="list-style-type: none"> <li>1. Laboratory Manual, Department of Chemistry, National Institute of Technology, Tiruchirappalli.</li> <li>2. S.K. Bhasin, S. Rani, Laboratory Manual on Engineering Chemistry, Dhanpat Rai Publishing Company, New Delhi, 2011.</li> </ol>			
<b>COURSE OBJECTIVES</b>			
To introduce the student's the experiments on (i) estimation of total hardness and (ii) dissolved oxygen in a given water sample, (iii) determination of the percentage of Fe in the given steel sample, (iv) estimation of Fe <sup>3+</sup> by spectrophotometer, (v) determination of corrosion rate by polarization technique, (vi) conductometric titration, (viii) potentiometric titration, (viii) pH-metric titration, (ix) determination of percentage purity of bleaching powder, (x) determination of molecular weight of the polymer by viscometry			
<b>MAPPING OF COs with POs</b>			
Course Outcomes	Programme Outcomes (PO) (Enter Numbers only)		





<ul style="list-style-type: none"> <li>The chemistry laboratory course will consist of experiments illustrating the principles of chemistry relevant to the study of science and engineering.</li> <li>The students will learn how to estimate various components from the corresponding bulk mixture</li> </ul>	1,2,14
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**COURSE PLAN – PART II**

**COURSE OVERVIEW**

This is a 2 credit course offered to I year B.Tech students. One lab session (3 h) will be conducted per week. Students will perform experiments illustrating the principles of chemistry relevant to the study of science and engineering and will learn how to estimate various components from the corresponding bulk mixture.

**COURSE TEACHING AND LEARNING ACTIVITIES**

S. No.	Week/Contact Hours	Topic	Mode of Delivery
1	III week of April	Demonstration of experiments	Experiment
2	IV week of April	1. Estimation of carbonate, non-carbonate and total hardness in the given water sample. 2. Estimation of dissolved oxygen in the given water sample.	Virtual Mode Experiment
	I week of May	3. Corrosion rate by polarization technique 4. Determination of molecular weight of the polymer by Viscometry.	
	II week of May	5. Demonstration of experiments using Advanced Spectroscopic Techniques Instrumentation and Working Principles of <b>Infra-Red (IR) Spectroscopy</b> Using Salt Plates. 6. Instrumentation and Working Principles of Solutions <b>Infra-Red (IR) Spectroscopy</b> 7. Familiarization with the <b>UV-Visible Absorption Spectroscopy</b>	
7	I week of June	Compensatory Lab	

**COURSE ASSESSMENT METHODS**

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Continues Assignment Based on all the experiments	IV week of April to II week of May	-	20
2	Assessment - II (Surprise Test-I (Quiz) From First three experiments	IV week of May to	60 minutes	25





3	Surprise Test-II (Quiz) From last three experiments	II week of June	60 minutes	25
4	Compensation Assessment*	II week of June	3 h/week	
5	Final Assessment*	III week of June 2022	3 hours	30
				<b>Total (100)</b>

\*mandatory; refer to guidelines on page 4

#### **COURSE EXIT SURVEY**

1. Feedback from students during class committee meetings.
2. Anonymous feedback through questionnaire at the end of the semester.

#### **COURSE POLICY**

##### **MODE OF CORRESPONDENCE (email/ phone etc.)**

E-mail: [babyv@nitt.edu](mailto:babyv@nitt.edu)/ Phone: +91-8547193736

##### **COMPENSATION ASSESSMENT POLICY (As per the institute guidelines)**

For those students who missed assessment- I to II due to genuine reasons, compensation assessments will be conducted during II week of June 2022

##### **ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)**

- At least 75% attendance in each course is mandatory.
- A maximum of 10% shall be allowed under On Duty (OD) category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

##### **ACADEMIC DISHONESTY & PLAGIARISM**

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
  - Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
  - The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.
- The above policy against academic dishonesty shall be applicable for all the programs.

##### **ADDITIONAL INFORMATION**

The respective faculty will be available for consultation at times as per the intimation by the faculty.

##### **FOR APPROVAL**

##### **ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)**

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##### **ACADEMIC DISHONESTY & PLAGIARISM**





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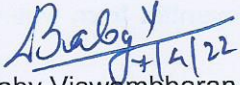
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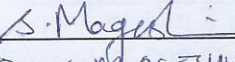
### ADDITIONAL INFORMATION, IF ANY

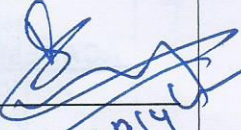
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For the course CHIR 12-Lab, the students will be evaluated based on **surprise quiz** and viva on the experiments performed to draw the internal assessments (70 Marks). The final assessment will be personal viva on all the experiments during the virtual lab slots (30 Marks).

### FOR APPROVAL

  
Dr. Baby Viswambharan  
Course Faculty \_\_\_\_\_

CC- Chairperson  HOD  
(Dr. S. Mageshwarar)

  
7/8/22





**Guidelines**

- a) The number of assessments for any theory course shall range from 4 to 6.
- b) Every theory course shall have a final assessment on the entire syllabus with at least 30% weightage.
- c) One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered.
- d) The passing minimum shall be as per the regulations.

B.Tech. Admitted in				P.G.
2018	2017	2016	2015	
35% or (Class average/2) whichever is greater.		(Peak/3) or (Class Average/2) whichever is lower		40%

- e) Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.
- f) Absolute grading policy shall be incorporated if the number of students per course is less than 10.
- g) Necessary care shall be taken to ensure that the course plan is reasonable and is objective.