



DEPARTMENT OF CHEMISTRY

COURSE PLAN – PART I			
Name of the programme and specialization	B.Tech. (Mechanical Engineering)- I Sem		
Course Title	Chemistry (Lab)		
Course Code	CHIR12	No. of Credits	2
Course Code of Pre-requisite subject(s)	Nil		
Session	July 2021	Section (if, applicable)	A
Name of Faculty	Dr. M. Karthik	Department	Chemistry
Official Email	karthikm@nitt.edu	Telephone No.	+91-9944672121(M)
Name of Course Coordinator(s) (if, applicable)	Dr. M. Karthik		
Official E-mail	karthikm@nitt.edu	Telephone No.	+91-9944672121(M)
Course Type (please tick appropriately)	<input checked="" type="checkbox"/> Core course	<input type="checkbox"/> Elective course	
Syllabus (approved in BoS)			
<p>LIST OF EXPERIMENTS</p> <ol style="list-style-type: none"> 1. Estimation of carbonate, non-carbonate and total hardness in the given water sample. 2. Estimation of dissolved oxygen in the given water sample. 3. Estimation of Fe³⁺ by spectrophotometer. 4. Determination of molecular weight of the polymer by Viscometry 5. Demonstration experiments using Advanced Spectroscopic Techniques, (UV-Vis, FTIR, Raman) 6. Solvent effect on UV Spectroscopic Techniques. 7. Conductometric titration 8. Potentiometric titration 9. pH-metric titration 10. Percentage purity of bleaching powder 11. Study of three component system. 12. Corrosion rate by polarization technique <p>Reference Books</p> <ol style="list-style-type: none"> 1. Laboratory Manual, Department of Chemistry, National Institute of Technology, Tiruchirappalli. 2. S.K. Bhasin, S. Rani, Laboratory Manual on Engineering Chemistry, DhanpatRai Publishing Company, New Delhi, 2011. 3. Virtual Lab 			



COURSE OBJECTIVES

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^{3+} 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.

MAPPING OF COs with POs

Course Outcomes	Programme Outcomes (PO) (Enter Numbers only)
<ul style="list-style-type: none"> The chemistry laboratory course will consist of experiments illustrating the principles of chemistry relevant to the study of science and engineering. The students will learn how to estimate various components from the corresponding bulk mixture 	1, 4, 9, 12

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

(Add more

rows)

S.No	Week/Contact Hours	Topic	Mode of Delivery
1	II week of Jan 2022	Introduction of apparatus, General Instructions and guidelines regarding lab Safety and Conduct Estimation of carbonate, non-carbonate and total hardness in the given water sample.	Virtual Experiment
2	III week of Jan 2022	Estimation of dissolved oxygen in the given water sample.	Virtual Experiment
3	IV week of Jan 2022	Estimation of Fe^{3+} by spectrophotometer.	Virtual Experiment
4	I week of Feb 2022	Determination of molecular weight of the polymer by Viscometry	Virtual Experiment



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5	II week of Feb 2022	Demonstration experiments using Advanced Spectroscopic Techniques, (UV-Vis, FTIR, Raman)	Virtual Experiment
6	III week of Feb 2022	Solvent effect on UV Spectroscopic Techniques.	Virtual Experiment
7	IV week of Feb 2022	Conductometric Titration	Virtual Experiment
8		Potentiometric Titration	Virtual Experiment
9	I week of March	pH-metric titration	Virtual Experiment
10		Percentage purity of bleaching powder	

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No	Mode of Assessment	Week/Date	Duration	% Weightage
Theory				
1	Assessment 1 (based on individual experiments done during lab session)	II week of Jan 2022 to I week of March 2022	3 h/week	40
2	Test	II week of March	20 minutes	30
2	Final Assessment (viva-voce exam)	III week of March	10 minutes	30

Total (100 Marks)

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

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

MODE OF CORRESPONDENCE (email/ phone etc)

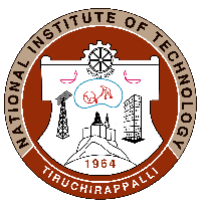
E-mail: karthikm@nitt.edu / Phone: +91-9944672121

COMPENSATION ASSESSMENT POLICY

For those students who missed assessment 1 due to genuine reasons, Compensation assessment will be conducted during III week of April.

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

- At least 75% attendance in each course is mandatory.



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- 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 programmes.

ADDITIONAL INFORMATION, IF ANY

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

FOR APPROVAL

Course Faculty _____ CC- Chairperson S Suresh HOD _____

19/01/2022



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.
2019	2018	2017	2016	
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.