NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

DEPARTMENT OF CHEMISTRY

COURSE PLAN – PART I			
Name of the programme and specialization	B. Tech. (Metallurgical and Materials Engineering)		
Course Title	Chemistry (Lab)		
Course Code	CHIR12	No. of Credits	2
Course Code of Pre-requisite subject(s)	Nil		
Session	July 2023	Section (if, applicable)	
Name of Faculty	Dr. Debashis Majhi	Department	Chemistry
Official Email	debashis@nitt.edu	Telephone No.	+91-8594841235 (M)
Name of Course Coordinator(s) (if, applicable)	Dr. Ganesh Chandra Nandi		
Official E-mail	nandi@nitt.edu	Telephone No.	+91-7034458790 (M)
Course Type (please tick appropriately)	✓ Core course	☐ Elective course	

Syllabus (approved in BoS)

Practicals:

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. Determination of the percentage of Fe in the given steel sample.
4. Estimation of Fe^{3+} by spectrophotometer.
5. Corrosion rate by polarization technique
6. Conductometric titration
7. Potentiometric titration
8. pH-metric titration
9. Percentage purity of bleaching powder
10. Determination of molecular weight of the polymer by Viscometry
11. Study of three component system.
12. Demonstration of experiments using Advanced Spectroscopic Techniques

Reference and Text Books

1. S. Rattan, *Theory and Practicals of Engineering Chemistry* Kataria, S. K., & Sons, New Delhi, 2013.
2. Practical Manual Provided by the Chemistry Department of NIT Tiruchirappalli.

COURSE OBJECTIVES

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.

MAPPING OF COs with POs

Course Outcomes	**Programme Outcomes (PO)** (Enter Numbers only)
Students will learn about the:	
1. The chemistry laboratory course will consist of experiments illustrating the principles of chemistry relevant of the study of science and engineering 2. The students will learn how to estimate various components from the corresponding bulk mixture	**1,2,3,12**

COURSE PLAN – PART II

COURSE OVERVIEW

This is a two credit course offered to I year B.Tech. MME Students. This course is a Practical Chemistry (2 credit) course. One lab session (3 h per week) will be conducted per week. This course provides a thorough understanding of the subject through hand on practice and demonstrations.

COURSE TEACHING AND LEARNING ACTIVITIES (Add more rows)

S.No.	**Week/Contact Hours**	**Topic**	**Mode of Delivery**
1	IV week of August 2023	Introduction of apparatus, General Instructions and guidelines regarding lab safety and conduct, Demonstration of experiments and Theory numerical elaboration	Experiment
2	I week of September 2023- I week of December 2023	1.Estimation of carbonate, non-carbonate and total hardness in the given water sample. 2.Estimation of dissolved oxygen in the given water sample.	Experiment

		3.Determination of the percentage of Fe in the given steel sample. 4.Estimation of Fe3+ by spectrophotometer. 5.Corrosion rate by polarization technique 6.Conductometric titration 7.Potentiometric titration 8.pH-metric titration 9.Percentage purity of bleaching powder 10.Determination of molecular weight of the polymer by Viscometry.	
3	IV Week of November	Compensatory Lab Test	Experiment

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
Practicals				
1	Assessment-I (Based on individual experiments done during lab sessions)	I week of September 2023-II week of October 2023	3h/Week	20
2	Assessment-I (Based on individual experiments done during lab sessions including compensation Lab)	III week of October 2023-IV Week of November, 2023	3h/Week	20
3	Assessment-2 (MCQ)	I week of December 2023	30 minutes	20
4	Final Assessment *	II week of December 2023	3 h	40
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.

COURSE POLICY (including compensation assessment to be specified)

Passing Marks: 35% or (Class average/2) whichever is greater.

MODE OF CORRESPONDENCE (email/ phone etc)

E-mail: debashis@nittt.edu / Phone: +91-8594841235

COMPENSATION ASSESSMENT POLICY

For those students who missed Test I and Test II due to genuine reasons, Compensation assessment will be conducted following the above schedule.

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 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 Debashis Nayak 12/09/2023 **CC- Chairperson** 12.09.2023 **HOD**

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