NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

DEPARTMENT OF CHEMISTRY

COURSE PLAN – PART I			
Name of the programme and specialization	**I B.Tech., II Semester** (Electrical and Electronic Engineering-B)		
Course Title	Chemistry (Lab)		
Course Code	CHIR 12	**No. of Credits**	2
Course Code of Pre-requisite subject(s)	Nil		
Session	January, 2021	**Section (if, applicable)**	B
Name of Faculty	Dr. Jothi Lakshmi Nallasivam	**Department**	Chemistry
Official Email	jothi@nitt.edu	**Telephone No.**	9619382366
Name of Course Coordinator(s) (if, applicable)	Dr. Jothi Lakshmi Nallasivam		
Official E-mail	jothi@nitt.edu	**Telephone No.**	9619382366
Course Type (please tick appropriately)	[√] **Core course**	[ ] **Elective course**	

Syllabus (approved by BOS)

LIST OF EXPERIMENTS

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. Corrosion rate by polarization technique
4. Determination of molecular weight of the polymer by Viscometer.
5. Demonstration experiments using Advanced Spectroscopic Techniques, (UV-Vis, FTIR, Raman)

Reference Books

1. Laboratory Manual, Department of Chemistry, National Institute of Technology, Tiruchirappalli.
2. S.K. Bhasin, S. Rani, Laboratory Manual on Engineering Chemistry, Dhanpat Rai Publishing Company, New Delhi, 2011.

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)

• 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	1,2,14

COURSE PLAN – PART II

COURSE OVERVIEW

This is a 3 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
		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. Corrosion rate by polarization technique	Experiment
2	IV week of April	4. Determination of molecular weight of the polymer by Viscometry. 5. Demonstration of experiments using Advanced Spectroscopic Techniques a. Instrumentation and Working Principles of **Infra-Red (IR) Spectroscopy** Using Salt Plates. b. Instrumentation and Working Principles of Solutions **Infra-Red (IR) Spectroscopy** c. Familiarization with the **UV-Visible Absorption Spectroscopy**	
3	I week of May	"	"
4	II week of May	"	"
5	III week of May	"	"
6	IV week of May	"	"
7	III week of June	Compensatory Lab	

COURSE ASSESSMENT METHODS				
S.No.	**Mode of Assessment**	**Week/Date**	**Duration**	**% Weightage**
1	Assessment - I (based on individual experiments done during lab session followed by **SURPRISE QUIZ-I**)	IV week of April to I week of May	3 h/week	20
2	Assessment - II (based on individual experiments done during lab session followed by **SURPRISE QUIZ-II**)	IV week of May to I week of June	3 h/week	20
3	Assessment - III (based on individual experiments done during lab session followed by **SURPRISE QUIZ-III**)	II week of June	3 h/week	20
4	Compensation Assessment*	II week of June	3 h/week	
5	Overall (Record submission on time, Presentation of the record and attendance)			10
6	Final Assessment* Viva	II week of July	3 hours	30
				Total (100)

***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: jothi@nitt.edu/ Phone: +91-9619382366

COMPENSATION ASSESSMENT POLICY (As per the institute guidelines)

For those students who missed assessment- I to II due to genuine reasons, ccompensation assessments will be conducted during III 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

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ADDITIONAL INFORMATION, IF ANY
The respective faculty will be available for consultation at times as per the intimation by the faculty
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

N. Jothi Lakshmi 08/04/2022

Dr. N. Jothi Lakshmi

Course Faculty _____ **CC- Chairperson** S. Mageshwari _____ **HOD** _____

Dr. S. MAGESHWARI

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.