



DEPARTMENT OF CHEMISTRY

COURSE PLAN – PART I			
Name of the programme and specialization	B. Tech. (Mechanical Engineering)		
Course Title	Chemistry (Lab)		
Course Code	CHIR12	No. of Credits	2
Course Code of Pre-requisite subject(s)	Nil		
Session	July 2019	Section (if, applicable)	A
Name of Faculty	Dr. Ganesh Chandra Nandi	Department	Chemistry
Official Email	nandi@nitt.edu	Telephone No.	+91-7034458790 (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)	<input checked="" type="checkbox"/> Core course <input type="checkbox"/> 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. Analysis of Water Samples	
2. Analysis of the Purity of Metal Samples	
3. Different methods of Titrimetric Chemical Analysis	
4. Chemical Purity Determination of Common Chemicals	
5. Analysis of Polymers	

COURSE PLAN – PART II

COURSE OVERVIEW

This is a two credit course offered to I year B.Tech. Mechanical Engineering Students. This course is a Practical Chemistry (2 credit) course. Four Practical classes (4 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	III week of August	Introduction of Chemical Laboratory Experiments	Practicals
2	IV week of August	Conductometric titration	Practicals
3	I week of September	Potentiometric titration	Practicals
4	II week of September	pH-metric titration	Practicals
5	III week of September	Percentage purity of bleaching powder	Practicals
6	IV week of September	Determination of molecular weight of the polymer by Viscometers	Practicals
7	I week of October	Estimation of carbonate, non-carbonate and total hardness in the given water sample.	Practicals
8	II week of October	Estimation of dissolved oxygen in the given water sample.	Practicals
9	III week of October	Determination of the percentage of Fe in the given steel sample.	Practicals
10	IV week of October	Estimation of Fe^{3+} by spectrophotometer.	Practicals
11	IV week of March	Corrosion rate by polarization technique	Practicals
12	I week of November	Study of three component system.	Practicals



13	II week of November	Demonstration of experiments using Advanced Spectroscopic Techniques	Practicals	
COURSE ASSESSMENT METHODS (shall range from 4 to 6)				
S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
Practicals				
1	Test-I	I week of October	30 minutes	5
2	Test-2	I week of November	30 minutes	5
3	Regular Laboratory Experiments	Throughout the Semester	Throughout the Semester	50
CPA	Compensation Assessment*	26.11.2019-29.11.2019	30 minutes	5
4	Final Assessment *	II week of December	3 hours	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)				
<u>MODE OF CORRESPONDENCE (email/ phone etc)</u>				
E-mail: nandi@nitt.edu / Phone: +91-7034458790				
<u>COMPENSATION ASSESSMENT POLICY</u>				
For those students who missed Test I and Test II due to genuine reasons, Compensation assessment will be conducted during 26.11.2019 - 29.11.2019.				

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  CC- Chairperson  HOD 



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	(Class Average/2) whichever is	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.