



DEPARTMENT OF CHEMISTRY

COURSE PLAN – PART I			
Name of the programme and specialization	Physical Chemistry Lab		
Course Title	Chemistry (Lab)		
Course Code	CH621	No. of Credits	2
Course Code of Pre-requisite subject(s)	Nil		
Session	July 2022	Section (if, applicable)	
Name of Faculty	Deepak R J Adithya K	Department	Chemistry
Official Email	404119002@nitt.edu 404119001@nitt.edu	Telephone No.	+91-9633257108 +91-8281243565
Name of Course Coordinator(s) (if, applicable)	Deepak R J Adithya K		
Official E-mail	404119002@nitt.edu 404119001@nitt.edu	Telephone No.	+91-9633257108 +91-8281243565
Course Type (please tick appropriately)	<input checked="" type="checkbox"/> Core course <input type="checkbox"/> Elective course		
Syllabus (approved in BoS)			
Practicals:			
1. Kinetic study of hydrolysis of ester			
2. Kinetics of iodination of acetone by spectrophotometer.			
3. Conductometric precipitation titration of BaCl ₂ Vs Na ₂ SO ₄ .			
4. Determination of partition coefficient and equilibrium constant for KI + I ₂ → KI ₃ ⁻			
5. Adsorption of oxalic acid on activated charcoal.			
6. Determination of heat of solution and heat of fusion.			
7. Study of three component system			
8. Study of chain linkages in PVA and its molecular weight determination by viscometry.			
9. Partial molar volume of NaCl.			
10. Buffer preparation and pH-metric titration.			
11. Conductometric titration of mixture of acids.			
12. Potentiometric titrations.			



REFERENCE BOOKS

1. C. Garland, J. Nibler and D. Shoemaker, *Experiments in Physical Chemistry*, McGraw-Hill Education; 8th Edn., 2008.
2. Manual provided by the Department of Chemistry Department, NIT Tiruchirappalli.

COURSE OBJECTIVES

To conduct various experiments, to analyze the role of reaction conditions and to interpret the data.

MAPPING OF COs with POs

Course Outcomes	Programme Outcomes (PO) (Enter Numbers only)
Upon completing the course, the student will be able to,	1, 2, 3, 6, 7, 8, 9, 10
CO1. Design and conduct experiments.	1, 2, 3, 6, 7, 8, 9, 10
CO2. Optimize the reaction conditions for the intended product.	1, 2, 3, 6, 7, 8, 9, 10
CO3. Use different instrumental methods of analysis and estimation	1, 2, 3, 6, 7, 8, 9, 10
CO4. Analyse and interpret the data.	1, 2, 3, 6, 7, 8, 9, 10

COURSE PLAN – PART II

COURSE OVERVIEW

This is a two credit course offered to IInd year B.Tech. MSc. Chemistry Students. This course is a Practical Chemistry (2 credit) course. Two Practical classes (6 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
-------	--------------------	-------	------------------



NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

1	IV week of August	Kinetic study of hydrolysis of ester	Practicals
2	V week of August	Kinetics of iodination of acetone by spectrophotometer	Practicals
3	I week of September	Conductometric precipitation titration of BaCl_2 Vs Na_2SO_4 .	Practicals
4	II week of September	Determination of partition coefficient and equilibrium constant for $\text{KI} + \text{I}_2 \rightarrow \text{KI}_3^-$	Practicals
5	III week of September	Adsorption of oxalic acid on activated charcoal	Practicals
6	IV week of September	Determination of heat of solution and heat of fusion	Practicals
7	I week of October	Study of three component system	Practicals
8	II week of October	Study of chain linkages in PVA and its molecular weight determination by viscometry	Practicals
9	III week of October	Partial molar volume of NaCl	Practicals
10	IV week of October	Buffer preparation and pH-metric titration.	Practicals
11	IV week of March	Conductometric titration of mixture of acids and precipitation titration	Practicals
12	I week of November	Potentiometric titrations.	Practicals
COURSE ASSESSMENT METHODS (shall range from 4 to 6)			



S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
Practicals				
1	Assessment I (Based on Regular Laboratory Experiments)	Throughout the Semester	6 hours/Week	40
2	Quiz/Assignment	II week of November	30 minutes	10
4	Final Assessment	III week of November	3 hours	50
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)				
MODE OF CORRESPONDENCE (email/ phone etc) E-mail: 404119002@nitt.edu / 404119001@nitt.edu				
COMPENSATION ASSESSMENT POLICY For those students who missed any Lab experiment during Assessment I, Compensation assessment will be conducted during II Week of November.				
ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed) <ul style="list-style-type: none">➤ 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 <ul style="list-style-type: none">➤ Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.				



NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

- 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 Deepak 23/8/22 Deepak R.J. CC- Chairperson [Signature] HOD [Signature]
Adithyan K