

Department of Chemistry
NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

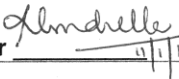
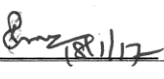
CSE -B

COURSE PLAN (For CSE B)			
Course Title	Chemistry II		
Course Code	CHIR 13	No. of Credits	4 (Theory-3 + Lab-1)
Department	Chemistry	Faculty	Dr. L. Cindrella
Programme	B.Tech. (CSE B)		
Pre-requisites Course Code	NIL		
Course Coordinator(s) (if, applicable)	Dr. L.Cindrella (Theory) Dr.S.Velmathi (Lab)		
E-mail	cind@nitt.edu velmathis@nitt.edu	Telephone No.	2503634 2503640
Course Type	<input checked="" type="checkbox"/> Core course <input type="checkbox"/> Elective course		
COURSE OVERVIEW			
<p>This course is offered to I year B.Tech. CSE B students. This 4 credit course is a combination of theory (3 credit) and practicals (1 credit). Three theory classes will be conducted per week and one lab class (3 h) will be conducted once in two weeks.</p>			
COURSE OBJECTIVE			
<p>To introduce the basic principles of electrochemistry, corrosion, Batteries, solid state and polymers to the I year B.Tech. (CSE B) students.</p>			
COURSE OUTCOMES (CO)			
<p>Students would become familiar with the</p> <ul style="list-style-type: none"> ✓ importance of electrochemistry and its applications ✓ causes, consequences and protection methods of corrosion ✓ principles, operation and uses of batteries ✓ preparation of semiconductors and its purification ✓ production and applications of polymers and composites 			
COURSE TEACHING AND LEARNING ACTIVITIES			
S.No.	Week	Topic	Mode of Delivery
1	III week of Jan	<u>Unit-I</u> Conductivity of electrolytes, specific, molar and equivalent conductivity, Nernst equation, EMF series	C&T, PPT
2	IV week of Jan	Hydrogen, calomel & glass electrodes, electrolytic & Galvanic cells, cell EMF (measurement & applications)	C&T, PPT
3	I week of Feb	Weston standard cell, reversible and irreversible cells, concentration cell, electrode and	C&T, PPT FC, TPS

		electrolyte concentration cell.	
4	II week of Feb	Unit-II Dry & wet corrosion, mechanisms, types of corrosion (DMC, DAC, stress, intergranular, atmospheric and soil)	C&T, PPT
5	III week of Feb	Passivity, polarization, over potential and its significance, factors affecting corrosion, protection from corrosion	C&T, PPT
6	IV week of Feb	Electroplating, electrolessplating, cathodic protection, chemical conversion and organic coatings	C&T, PPT FC, TPS
7	I week of March	Unit-III Different types of batteries-Primary, secondary & Flow battery. Working principle and uses of Laclanche cell, Alkaline, nicad, lithium and mercury battery	C&T, PPT
8	II week of March	Theory, working and application of fuel cell. Different types of fuel cells-H ₂ /O ₂ , propane-oxygen, PEFC and SOFC.	C&T, PPT
9	III week of March	Charging & discharging principle, operation and uses of Lead acid storage cell. Working principle of solar battery	FC, TPSC&T, PPT
10	IV week of March	Unit-IV Types of solids, Close packing of atoms and ions. BCC, FCC structures of rock salt & CsCl	C&T, PPT
11	I week of April	Introduction about spinels, Different types of spinels-normal and inverse spinels. Stoichiometric defect. Controlled valency & chalcogen semiconductors.	C&T, PPT
12	II week of April	Non-elemental semiconducting materials, Steps involved in the preparation of semiconductors. Semiconductor devices- p-n junction diodes.	C&T, PPT FC, TPS
13	III week of April	Unit-V Polymers, nomenclature, tacticity, polymerization processes, mechanisms, types of polymerization, classification	C&T, PPT
14	IV week of April	Effect of structure on properties, moulding, important polymers, synthesis & properties	C&T, PPT
15	I week of May	Molecular mass determination, Synthesis & applications of some commercially important polymers, conducting polymers	C&T, PPT FC, TPS

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
Theory				
1	TPS (Quiz)	I week of Feb	15 minutes	5
2	Test I	20.02.2017	60 minutes	15
3	TPS (Quiz)	IV week of Feb	15 minutes	5
4	TPS (Quiz)	III week of March	15 minutes	5
5	Test II	03.04.2017	60 minutes	15
6	TPS (Quiz)	IV week of Feb	15 minutes	5

7	End semester	II week of May	3 hours	50
Practical				
8	Regular class experiments	All practical classes	3 hours per experiment	25
Theory (75) + Practical (25) = Total (100)				
ESSENTIAL READINGS : Textbooks, reference books Website addresses, journals, etc				
<ol style="list-style-type: none"> 1. Engineering Chemistry, P.C. Jain & M. Jain, Dhanpat Rai Publishing Company, New Delhi, 2012 2. Principles of Physical Chemistry, B.R. Puri, L.R. Sharma & M.S. Pathania, Vishal Publishing Company, 2008 3. Textbook of Polymer Science, F.W. Billmeyer, Wiley, New York, 1991 4. Concise Inorganic Chemistry, J.D. Lee, Chapman and Hall, 5th Edn., 1996. 5. A Textbook of Engineering Chemistry, S.S. Darer & S.S. Umare, S. Chand Publishing, 2011 				
COURSE EXIT SURVEY (mention the ways in which the feedback about the course is assessed and indicate the attainment also)				
<ol style="list-style-type: none"> 1. Feedback from students during class committee meetings. 2. Anonymous feedback through questionnaire at the end of the semester. 				
COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)				
<ol style="list-style-type: none"> 1. 75% attendance (as on 5th May 2017) is compulsory for both Theory and Lab components. 2. Lab: <ol style="list-style-type: none"> A. Each experiment will be evaluated for 5 marks. B. There will be no final assessment for practical. C. One extra class will be conducted for those who missed any experiment due to ill health or OD reasons. 3. Theory: <ol style="list-style-type: none"> A. Those who have <75% attendance have to attend evening hour classes during the I week of May 2016 to become eligible to appear for assessment 7 (End semester). B. For those who missed Test I or Test II due to genuine reasons, retest will be conducted during the I week of May 2017. C. Attendance in any one the tests is compulsory for appearing in the final assessment (End Semester) 				
ADDITIONAL COURSE INFORMATION				
The faculty will be available for consultation at times as per the intimation by the faculty.				
Coordinator		CC-Chairperson		HOD
	