



Alva's Education Foundation (R), Moodbidri.

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

(Affiliated to Visvesvaraya Technological University, Belagavi, Approved by AICTE, New Delhi)

Shobhavana Campus, Mijar-574225, Moodbidri, D.K., Karnataka

Phone: 08258-262725, Fax: 08258-262726

ACADEMIC YEAR- 2022-23

(ODD SEMESTER)

FACULTY INCHARGE	Dr. Sakshi S Kamath
Semester & Section	First semester, A Section
Date of Commencement	01-12-2022
Last working day of the Semester	31-03-2023

Source Materials List

1. Wiley Engineering Chemistry, Wiley India Pvt.Ltd.NewDelhi,2013-2ndEdition.
2. Engineering Chemistry,Satyaprakash&ManishaAgrawal,KhannaBookPublishing,Delhi
3. A Text Book of Engg. Chemistry,ShashiChawla,DhanpatRai&Co.(P)Ltd.
4. Essentials of Physical Chemistry, Bahl&Tuli,S.ChandPublishing
5. Applied Chemistry,SunitaRattan,Kataria5.EngineeringChemistry,Baskar,Wiley
6. Engineering Chemistry-I,D.Groukrishana,VikasPublishing
7. A Text book of Engineering Chemistry,SSDara&Dr.SSUmare,SChand&CompanyLtd.,12thEdition,2011.
8. A Text Book of Engineering Chemistry,R.V.GadagandNityanandaShetty,I.K.InternationalPublishinghouse. 2ndEdition,2016.
9. Text Book of Polymer Science, F.W.Billmeyer,JohnWiley&Sons,4thEdition,1999.
10. Nanotechnology A Chemical Approach to Nanomaterials,G.A.Ozin&A.C.Arsenault,RSCPublishing,2005
11. Laboratory Manual Engg. Chemistry, Anupma Rajput, Dhanpat Rai&Co.

Subject/Course Name- Applied Chemistry for CSE stream/BCHES102

Lesson Planned				Lesson Execution		
Period	Date	Topic	Source material needed	Topic	Date	Source material referred
1.	12-12-22	MODULE 1: Sensors and Energy Systems-General introduction	1-10	MODULE 3: Corrosion and Electrode System- general introduction	12-12-22	1-10
2.	14-12-22	Sensors: Introduction, working, principle and applications of Conductometric sensors, Electrochemical sensors.	1-10	Corrosion Chemistry: Introduction, electrochemical theory of corrosion,	12-12-22	1-10
3.	15-12-22	Thermometric sensors and Optical sensors (Colorimetry).	1-10	Types of corrosion- differential metal and differential aeration.	14-12-22	1-10
4.	16-12-22	Sensors for the measurement of dissolved oxygen (DO). Electrochemical sensors for the pharmaceuticals.	1-10	Corrosion control-galvanization, anodization and sacrificial anode method.	16-12-22	1-10
5.	17-12-22	Electrochemical gas sensors for Sox and NOx.	1-10	Corrosion Penetration Rate (CPR) - Numericals	17-12-22	1-10
6.	19-12-22	Disposable sensors in the detection of biomolecules and pesticides.	1-10	Electrode system: Introduction to reference electrode Calomel electrode-construction, working and applications	18-12-22	1-10
7.	21-12-22	Energy Systems: Introduction to batteries, construction, working and applications of	1-10	Ion selective electrode-construction, working and applications	21-12-22	1-10



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		Lithium ion and Sodium ion batteries				
8.	22-12-22	Quantum Dot Sensitized Solar Cells (QDSSC's)-Principle, Properties and Applications	1-10	pH determination using glass electrode	28-12-22	1-10
9.	23-12-22	MODULE 2: Materials for Memory and Display Systems-general introduction	1-10	Concentration cells and Numericals	29-12-22	1-10
10.	24-12-22	Memory Devices: Introduction, Basic concepts of electronic memory, History of Organic /polymer electronic memory devices, Classification of electronic memory devices	1-10	Analytical Techniques: Introduction, principle and instrumentation of Conductometry; its application in the estimation of weak acid.	30-12-22	1-10
11.	26-12-22	Types of organic memory devices	1-10	Potentiometry; its application in the estimation of iron.	31-12-22	1-10
12.	28-12-22	Display Systems: Photoactive and electro active materials	1-10	MODULE 4: Polymers & green fuels-general introduction	2-1-23	1-10
13.	29-12-22	Nano materials and organic materials used in optoelectronic devices	1-10	Polymers: Introduction, Molecular weight- Number average, weight average- Numericals	4-1-23	1-10
14.	30-12-22	Nano materials and organic materials used in optoelectronic devices	1-10	Synthesis, properties and applications of Kevlar	5-1-23	1-10
15.	31-12-22	Liquid crystals (LC's) - Introduction, classification, properties and application in Liquid Crystal Displays (LCD's)	1-10	Conducting polymers- Synthesis and conducting mechanism of polyacetylene and commercial applications.	6-1-23	1-10
16.	2-1-23	Properties and application of Organic Light Emitting Diodes (OLED's) and Quantum Light Emitting Diodes (QLED's), Light emitting electro chemical cells.	1-10	Green Fuels: Introduction, construction and working of solar photovoltaic cell, advantages, and disadvantages	7-1-23	1-10
17.	4-1-23	MODULE 3: Corrosion and Electrode System- general introduction	1-10	Generation of energy (green hydrogen) by electrolysis of water and its advantages.	14-1-23	1-10
18.	5-1-23	Corrosion Chemistry: Introduction, electrochemical theory of corrosion,	1-10	MODULE 5: E-waste management-general introduction	18-1-23	1-10
19.	6-1-23	Types of corrosion- differential metal and differential aeration.	1-10	Introduction, sources of e-waste, Composition, Characteristics, and Need of e- waste management.	19-1-23	1-10
20.	7-1-23	Corrosion control- galvanization, anodization and sacrificial anode method.	1-10	Toxic materials used in manufacturing electronic and electrical products,	20-1-23	1-10
21.	9-1-23	Corrosion Penetration Rate (CPR) - Numericals	1-10	Health hazards due to exposure of e-waste	21-1-23	1-10



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22	11-1-23	Electrode system: Introduction in reference electrode Calomel electrode construction, working and applications	1-10	Different approaches of recycling separation, thermal treatments	27-1-23	1-10
23	12-1-23	Ion selective electrodes: construction, working and applications	1-10	Hydrometallurgical extraction, pyro metallurgical methods, direct recycling.	28-1-23	1-10
24	13-1-23	pH determination using glass electrode	1-10	Extraction of gold from E-waste.	30-1-23	1-10
25	14-1-23	Concentration cells and Numericals	1-10	Role of stakeholders in environmental management of e-waste (producers, consumers, recyclers, and statutory bodies)	8-2-23	1-10
26	18-1-23	Analytical Techniques: Introduction, principle and instrumentation of Conductometry; its application in the estimation of weak acid.	1-10	MODULE 1: Sensors and Energy Systems-General introduction	9-2-23	1-10
27	19-1-23	Potentiometry; its application in the estimation of iron.	1-10	Sensors: Introduction, working, principle and applications of Conductometric sensors, Electrochemical sensors.	10-2-23	1-10
28	20-1-23	MODULE 4: Polymers & green fuels-general introduction	1-10	Thermometric sensors and Optical sensors (Colorimetry).	11-2-23	1-10
29	21-1-23	Polymers: Introduction, Molecular weight- Number average, weight average- Numericals	1-10	Sensors for the measurement of dissolved oxygen (DO). Electrochemical sensors for the pharmaceuticals.	13-2-23	1-10
30	1-2-23	Synthesis, properties and applications of Kevlar	1-10	Electrochemical gas sensors for Sox and NOx.	15-2-23	1-10
31	2-2-23	Conducting polymers- Synthesis and conducting mechanism of polyacetylene and commercial applications.	1-10	Disposable sensors in the detection of biomolecules and pesticides.	16-2-23	1-10
32	3-2-23	Green Fuels: Introduction, construction and working of solar photovoltaic cell, advantages, and disadvantages	1-10	Energy Systems: Introduction to batteries, construction, working and applications of Lithium ion and Sodium ion batteries	1-3-23	1-10
33	6-2-23	Generation of energy (green hydrogen) by electrolysis of water and its advantages.	1-10	Quantum Dot Sensitized Solar Cells (QDSSC's)-Principle, Properties and Applications	2-3-23	1-10
34	8-2-23	MODULE 5: E-waste management-general introduction	1-10	MODULE 2: Materials for Memory and Display Systems-general introduction	3-3-23	1-10
35	9-2-23	Introduction, sources of e-waste, Composition, Characteristics, and Need of e-waste management.	1-10	Memory Devices: Introduction, Basic concepts of electronic memory, History of Organic/polymer electronic memory devices, Classification of electronic memory devices	04-3-23	1-10
36	10-2-23	Toxic materials used in manufacturing electronic and electrical products,	1-10	Types of organic memory devices	06-3-23	1-10



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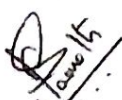
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37.	11-2-23	Health hazards due to exposure of e-waste	1-10	Display Systems: Photoactive and electro active materials	02-3-23	1-10
38.	13-2-23	Different approaches of recycling separation, thermal treatments	1-10	Nano materials and organic materials used in optoelectronic devices	09-3-23	1-10
39.	15-2-23	Hydrometallurgical extraction, pyro metallurgical methods, direct recycling.	1-10	Nano materials and organic materials used in optoelectronic devices	10-3-23	1-10
40.	16-2-23	Extraction of gold from E-waste.	1-10	Liquid crystals (LC's) - Introduction, classification, properties and application in Liquid Crystal Displays (LCD's)	11-3-23	1-10
41.	17-2-23	Role of stakeholders in environmental management of e-waste (producers, consumers, recyclers, and statutory bodies).	1-10	Properties and application of Organic Light Emitting Diodes (OLED's) and Quantum Light Emitting Diodes (QLED's), Light emitting electro chemical cells.	13-3-23	1-10
42.	20-2-23	Conductometric estimation of acid mixture	11	Conductometric estimation of acid mixture	Conducted according to the time table (2 batches-1 lab slot for each batch per week)	11
43.	22-2-23	Potentiometric estimation of FAS	11	Potentiometric estimation of FAS		11
44.	01-3-23	Determination of pKa using pH sensors	11	Determination of pKa using pH sensors		11
45.	02-3-23	Estimation of total hardness of water using EDTA method	11	Estimation of total hardness of water using EDTA method		11
46.	03-3-23	Estimation of Copper present in electroplating effluent by optical sensor	11	Estimation of Copper present in electroplating effluent by optical sensor		11
47.	04-3-23	Determination of viscosity co-efficient of the lubricant	11	Determination of viscosity co-efficient of the lubricant		11
48.	06-3-23	Estimation of iron in TMT bar using external indicator	11	Estimation of iron in TMT bar using external indicator		11
49.	08-3-23	Determination of COD of industrial waste water sample	11	Determination of COD of industrial waste water sample		11
50.	09-3-23	Demonstration experiments (any two)	11	Demonstration experiments (any two)		11
51.	10-03-2023	Revision until last working day		15-03-2023 to last working day (31-03-2023)- revision classes conducted		


Faculty in-charge


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