

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING****Course Code / Name : U15CH101/CHEMISTRY****Class (Year / Programme / Department / Section): I/BE/CSE/A&B****LESSON PLAN**

UNIT -1 (BATTERIES AND FUEL CELLS)				
Session No	Topic	Duration in Minutes	Teaching Aid	Book Referred
1	Electro chemistry	45	BB	R2
2	Basics-Types of electrodes	45	BB	R2
3	Standard Hydrogen electrode	45	BB	R2
4	Calomel electrode - Batteries and fuel cells	45	BB	R2
5	basic concepts - characteristics	45	BB	R2
6	classical batteries (Pb-Acid) - modern batteries (Ni-Metal Hydride)	45	BB	R2
7	Lithium batteries (LiTiS ₂)- Hydrogen-Oxygen fuel cells	45	BB	R2
8	merits of fuel cells and applications of batteries - Solar cell - functions and applications.	45	BB	R2
UNIT -2 (NANO MATERIAL)				
1	Introduction – Basics - distinction between molecules	45	BB	R2
2	nanoparticles and bulk materials	45	BB	R2
3	size-dependent properties. Structures of Nanomaterials	45	BB	R2
4	Nanomaterials-Nanoparticles - Synthesis	45	BB	R2
5	Precipitation, sol gel method, laser ablation, spray pyrolysis	45	BB	R2
6	Chemical vapour deposition, Arc-discharge method; properties and applications	45	BB	R2
UNIT -3 (POLYMERS AND CONDUCTING POLYMERS)				
1	Definitions - classification of Polymers - types of polymerization	45	BB	R1
2	Mechanism of polymerization - Plastics	45	BB	R1
3	Introduction-Types - thermo set - thermo plastics	45	BB	R1
4	preparation, properties and applications of (PE, PMMA, PC, Bakelite	45	BB	R1
5	Urea formaldehyde) - Conducting polymers	45	BB	R1
6	conduction mechanism of poly acetylene, polypyrrole and polyaniline	45	BB	R1
UNIT -4(THERMODYNAMICS)				
1	The Laws of thermodynamics	45	BB	R1
2	Enthalpy – Entropy – free energy change	45	BB	R1
3	–Helmholtz and Gibbs free energy functions	45	BB	R1
4	Criteria for the spontaneity of the reaction	45	BB	R1
5	reaction-reversible and irreversible reaction Clausius	45	BB	R1
6	Clapeyron equation	45	BB	R1
7	Maxwell's relations	45	BB	R1

8	Maxwell's relations – Van't Hoff isotherm	45	BB	R1
9	isochore – problems	45	BB	R1
UNIT -5(CORROSION AND ITS CONTROL)				
1	Corrosion-Types-ChemicalCorrosion	45	PPT	R1
2	ElectrochemicalCorrosion(galvanic and Differential aeration)-	45	PPT	R1
3	Factors influencing corrosion – Material selection and design aspects	45	PPT	R1
4	aspects-control methods of corrosion	45	PPT	R1
5	Sacrificial anodic and impressed current cathodic protection-Protective coatings	45	PPT	R1
6	Pilling Bedworth rule- electro plating (Au on Cu) - electro less plating (Ni).	45	PPT	R1