

KONGUNADU ARTS AND SCIENCE COLLEGE(AUTONOMOUS)

Re-Accredited by NAAC with 'A⁺' Grade (4th Cycle)

College of Excellence awarded by UGC

Coimbatore – 641 029.



LESSON PLAN

PG & Research Department of Chemistry

Batch : 2022-24

Semester : II

Name of the Staff: Dr. K. Kalpanadevi

Name of the Subject: Core Paper 4 – Organic Chemistry II

S.NO	HOUR	PORTIONS TO BE COVERED	MODE OF INSTRUCTIONS/DELIVERY (CHALK & TALK/ PPT/FLIPPED CLASS etc)
		UNIT IV: ORGANIC PHOTOCHEMISTRY	Chalk and talk, flipped class
1	1 hour	Laws of photochemistry	
2	1 hour	Quantum yield, physical and chemical actinometry	
3	2 hours	Jablonski diagram, photophysical processes – Fluorescence, phosphorescence, internal conversion and intersystem crossing	
4	1 hour	Photosensitization and quenching	
5	2 hours	Typical photochemical reactions – Norrish type I and type II reactions	
6	1 hour	Patterno-Buchi reaction	
7	1 hour	Photoreduction	
8	1 hour	Photo oxidation	
9	1 hour	Cis-trans isomerization	
10	2 hours	Photochemistry of arenes	
11	2 hours	Di- π methane rearrangement	
Total	15 hours		

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LESSON PLAN

Department of Chemistry (PG & Research)

Batch : 2021-23

Semester : IV

Name of the Staff: Dr. K. Kalpanadevi

Name of the Subject: Core Paper 8 – Physical Chemistry III

S.NO	HOUR	PORTIONS TO BE COVERED	MODE OF INSTRUCTIONS/DELIVERY (CHALK & TALK/ PPT/ FLIPPED CLASS etc)
		UNIT III – STATISTICAL THERMODYNAMICS II	Chalk and talk, flipped class
1	1 hour	Quantum statistics-Introduction	
2	1 hour	Distribution laws	
3	2 hours	Maxwell-Boltzmann distribution law	
4	1 hour	Evaluation of α and β in M.B. distribution law	
5	1 hour	Bose-Einstein distribution law	
6	1 hour	Entropy of Bose-Einstein gas	
7	1 hour	Bose-Einstein Condensation	
8	1 hour	Fermi-Dirac distribution law	
9	1 hour	Entropy of a Fermi-Dirac gas	
10	2 hours	Plank distribution law for black-body radiation	
11	1 hour	Heat capacities of solids	
12	1 hour	Einstein's theory of heat capacities of solids	
13	1 hour	Debye's theory of heat capacities of solids	
Total	15 hours		

S.NO	HOUR	PORTIONS TO BE COVERED	MODE OF INSTRUCTIONS/DELIVERY (CHALK & TALK/ PPT/ FLIPPED CLASS etc)
		UNIT IV – STATISTICAL THERMODYNAMICS III	Chalk and talk, flipped class
1	1 hour	Partition function – definition, Ensembles - micro canonical and canonical ensembles	
2	1 hour	Equipartition principle	
3	2 hours	Relation between molecular partition function and canonical partition functions	
4	1 hour	Relation between the total partition function of a molecule and the separate partition function	
5	2 hours	Translational partition function	
6	2 hours	Rotational partition function	
7	1 hour	Effect of molecular symmetry on rotational partition function- ortho and para hydrogen	
8	2 hours	Vibrational partition function	
9	1 hour	Electronic partition function	
10	2 hours	Evaluation of thermodynamic properties E, H, S, A, G, C _p and C _v from monoatomic and diatomic ideal gas molecule partition function	
Total	15 hours		

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LESSON PLAN

Department of Chemistry (PG & Research)

Batch : 2021-23

Semester : III

Name of the Staff: Dr. K. Kalpanadevi

Name of the Subject: Core Paper 8 – Inorganic Chemistry III

S.NO	HOUR	PORTIONS TO BE COVERED	MODE OF INSTRUCTIONS/DELIVERY (CHALK & TALK/ PPT/ FLIPPED CLASS etc)
		UNIT V – Inorganic Polymers	Chalk and talk, flipped class
1	2 hours	Chains – catenation, silicones	
2	1 hour	Silicates, isopoly and heteropoly anions	
3	1 hour	Sulphur-nitrogen chains	
4	1 hour	Rings – Borazine,	
5	1 hour	Cyclophosphazenes (synthesis, structure, bonding and properties)	
6	1 hour	Sulphur, nitrogen ring compounds,	
7	1 hour	Homocyclic rings – sulphur rings and cyclophosphines	
8	1 hour	Cages – phosphorus cage compounds	
9	2 hours	Boron Cage Compounds – Diborane	
10	1 hour	Wade's theory – closo, nido and arachno structures of boranes and carboranes	
11	1 hour	Clusters - dinuclear, trinuclear	
12	1 hour	Tetranuclear, hexanuclear clusters	
13	1 hour	Organometallic clusters	
Total	15 hours		

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LESSON PLAN

Department of Chemistry (PG & Research)

Batch : 2022-24

Semester : I

Name of the Staff: Dr. K. Kalpanadevi

Name of the Subject: Major Elective – Green and Nano Chemistry

S.NO	HOUR	PORTIONS TO BE COVERED	MODE OF INSTRUCTIONS/DELIVERY (CHALK & TALK/ PPT/ FLIPPED CLASS etc)
		UNIT IV – NANOCHEMISTRY I	Chalk and talk, flipped class
1	2 hours	Introduction- definition of nanoscience, nanotechnology, nanochemistry, nanomaterials, nanoscale, Classification of nanomaterials – 0D, 1D, 2D and 3D nanomaterials,	
2	1 hour	Quantum dots, fullerenes	
3	1 hour	Carbon nanotubes - types	
4	1 hour	Nanocomposites - types	
5	2 hours	Properties of nanomaterials – electrical, magnetic, optical and mechanical properties,	
6	1 hour	Bottom-up and Top-down approaches	
7	1 hour	Physical methods of preparation of nanomaterials – plasma arcing	
8	1 hour	Chemical vapour deposition	
9	2 hours	Electrodeposition	
10	2 hours	Sol-gel synthesis	
11	1 hour	Ball-milling	
Total	15 hours		

S.NO	HOUR	PORTIONS TO BE COVERED	MODE OF INSTRUCTIONS/DELIVERY (CHALK & TALK/ PPT/ FLIPPED CLASS etc)
		UNIT V – NANOCHEMISTRY II	Chalk and talk, flipped class
1	2 hours	Chemical methods of preparation of nanomaterials – Chemical reduction – borohydride	
2	1 hour	Citrate and polyol reduction	
3	1 hour	Co-precipitation, high temperature thermal decomposition	
4	1 hour	Liquid-liquid interface reaction	
5	2 hours	Characterization Techniques – principle, instrumentation and applications of - Scanning Electron Microscopy (SEM)	
6	1 hour	Scanning Tunnelling Microscope (STM)	
7	1 hour	Transmission Electron Microscopy (TEM)	
8	1 hour	Atomic Force Microscopy (AFM)	
9	1 hour	Powder X-Ray Diffraction (XRD),	
10	2 hours	Applications of Nanomaterials - catalysis, environmental	
11	1 hour	Biomedical (drug delivery) applications	
12	1 hour	Environmental hazards of nanomaterials	
Total	15 hours		

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