Punjab Association's

ANNA ADARSH COLLEGE FOR WOMEN

(Affiliated to University of Madras)

ANNA NAGAR, CHENNAI 600040

CRITERION 1

1.1.1 Curriculum Planning and Implementation

LESSON PLAN

CHEMISTRY

ANNA ADARSH COLLEGE FOR WOMEN

DEPARTMENT OF CHEMISTRY

LESSON PLAN 2021-22

ODD SEMESTER

11/2/2022

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DEPARTMENT OF CHEMISTRY
LESSON PLAN
ACADEMIC YEAR 2021 – 2022 (ODD SEMESTER

Name of the Staff: Dr. S.SHANTHI	**Department: CHEMISTRY**
Class: I M.Sc Chemistry	**Total Hours : 35**
Subject code & Subject Name: MER1B , Inorganic Chemistry I	
Academic year: 2020-21	**Semester : I**

UNIT	CHAPTER	NO. OF HOURS	TEACHING METHOD	ICT TOOLS ADOPTED
III	**Nano Material chemistry:-** Synthesis and Properties - Metallic nanoparticles – gold and silver – Nanorods and Nanotubes – Nanostructures – One, two and three dimensional – semiconductor quantum dots – carbon nanotubes, graphene – Core-shell and Quantum well structures.	10	PPT, EDUCATIONAL VIDEOS, WHITE BOARD	Google Classroom Whiteboard
IV	**Theories of coordination:** Inadequacies of VB Theory- Crystal field theory- d-orbital splitting; octahedral, tetrahedral and square planar-LFSE, spectro chemical series-	12	PPT, EDUCATIONAL VIDEOS, WHITE BOARD	Google Classroom Whiteboard
IV	Applications of crystal field theory – Spectral properties, magnetic properties-low spin and high spin complexes, thermodynamic properties and	13	PPT, EDUCATIONAL	Google Classroom Whiteboard

	structural aspects: Ligand Field Theory. MO theory – LCAO method – Sigma and pi-bonded complexes.		VIDEOS, WHITE BOARD	

S. Shanthi

Name of the Staff: Dr. S.SHANTHI	**Department: CHEMISTRY**
Class: II M.Sc Chemistry	**Total Hours : 35**
Subject code & Subject Name: MER3B , Inorganic Chemistry III	
Academic year: 2020-21	**Semester : III**

UNIT	CHAPTER	NO. OF HOURS	TEACHING METHOD	ICT TOOLS ADOPTED
I	Effect of coordination on ligand bands- Ammine, Nitro, nitrito, thiocyanato. Urea complexes, dithiocarbamato complexes, carboxylate complexes, nitrosyl complexes,.	4	PPT, EDUCATIONAL VIDEOS, WHITE BOARD	Google Classroom Whiteboard
I	cyano complexes- nitrate, sulphate and perchlorate complexes differentiation of geometric isomers Metal carbonyls, olefin complexes, sandwich complexes.	6	PPT, EDUCATIONAL VIDEOS, WHITE BOARD	Google Classroom Whiteboard
I	Raman spectroscopy of metal complexes, organometallic and simple inorganic compounds with special reference to coordination sites, isomerism	6	PPT, EDUCATIONAL VIDEOS, WHITE BOARD	Google Classroom Whiteboard
II	Classification of Transitions – Selection Rules – Free ion terms – Racah Parameter – Ligand field perturbations on the free ion terms	6	PPT, EDUCATIONAL VIDEOS, WHITE BOARD	Google Classroom Whiteboard
II	Spectra of Octahedral complexes:d^n configurations- Weak field and strong field ligands – Orgel and Tanabe-Sugano	7	PPT, EDUCATIONAL VIDEOS,	Google Classroom

	Diagrams – Evaluation of $10D_q$ Spectra of distorted octahedral complexes		WHITE BOARD	Whiteboard
II	Jahn-Teller Distorion – Tetrahedral Complexes Nephelauxetic effect – Charge Transfer Spectra.	6		Google Classroom Whiteboard

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Anna Nagar
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S. Shanthi

Name of the Staff: DR. S.SHANTHI	**Department: CHEMISTRY**
Class: III B.Sc Chemistry	**Total Hours : 12**
Subject code & Subject Name: TAT5A , Inorganic Chemistry I	
Academic year: 2020-21	**Semester : V**

UNIT	CHAPTER	NO. OF HOURS	TEACHING METHOD	ICT TOOLS ADOPTED
II	Isomerism – Ionisation, hydrate, linkage, ligand and coordination isomerism. Stereoisomerism-geometrical and optical isomerism in 4 & 6 coordinated complexes. Theories of coordination compounds – Werner's and Sidgwick's EAN concept .	5	PPT, VIDEOS, WHITE BOARD, ASSIGNMENTS	Google Classroom Whiteboard
II	Valence Bond theory hybridisation, geometry and magnetic properties of $[Ni(CN)_4]^{2-}$, $[NiCl_4]^{2-}$, $[Fe(CN)_6]^{4-}$, $[Co(NH3)_6]^{3+}$ and $[CoF_6]^{3-}$. Crystal field theory – spectrochemical series, splitting of d- orbitals in octahedral and tetrahedral complexes, low spin & high spin complexes.	4	PPT, VIDEOS, WHITE BOARD, SEMINARS	Google Classroom Whiteboard
II	Explanation of colour and magnetic properties using CFT, comparison of VBT and CFT.	3	PPT, VIDEOS,	Google Classroom Whiteboard

			WHITE BOARD	

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S. Shanthi

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DEPARTMENT OF CHEMISTRY

LESSON PLAN – ODD SEMESTER 2021-22

III B.Sc., Physical Chemistry – (V Sem)

Name of the staff : Dr. Mrs. P. Shanthi **Total Hours : 12**

Name of the subject : Physical Chemistry **Year/ Semester : III / V**

Subject code: TAT5C

S.NO	UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
1	I	THERMODYNAMICS Equilibrium constant and free energy change	1	PPT	
2		Thermodynamic derivation of law of mass action – Equilibrium constants in terms of pressure and concentration (K_p and K_c) and their relation	2	PPT PPT	https://youtu.be/727QrMo9xu4
3		Thermodynamic interpretation of Lechatelier's principle (Concentration, temperature, pressure and addition of inert gases). Systems of variable composition – Partial molar quantities .Chemical potential – Variation of chemical	3	Seminar and Assignment PPT PPT	https://youtu.be/bNcTt3l3Q8k

		potential with T, P and X (mole fraction)			https://youtu.be/lGuDbdnXrhI
		Gibb's – Duhem equation. Van't Hoff's reaction isotherm – van't Hoff's isochore – Clapeyron equation and Clausius – Clapeyron equation – Applications	3	PPT	https://youtu.be/JOpHCOW6K2Q https://youtu.be/Tqh6sl5YMoU
		Third Law of Thermodynamics: Nernst heart theorem –Statement of third law and concept of residual entropy –Evaluation of absolute entropy from heat capacity data.	3	PPT	https://youtu.be/scKfEoHX6Ck

Dr. P. SHANTHI

R. Shanthi

S. Shanthi

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LESSON PLAN – ODD SEMESTER 2021-22

I M.Sc., Organic Chemistry – (I Sem)

Name of the staff : Dr. Mrs. P. Shanthi — Total Hours : 32

Name of the subject : Organic Chemistry — Year/ Semester : I / I

Subject code: MER1A

S.NO	UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
1	III	Aliphatic Nucleophilic Substitution reactions Kinetic Vs Thermodynamic control of product formation. Hammet equation. Derivation and free energy relationship, simple problems. Taft equation S_N1, S_N2 and S_Ni mechanism - Nucleophile and leaving groups Stero chemistry and Ion pairs. Reactivity, structural, solvent and steric effects	6	Seminar and Assignment Seminar and Assignment PPT PPT	https://youtu.be/yrvV85H737o
		Neighbouring group participation – by Aryl group, O, N, S halogens, single, double and triple bonds. Substitutions by ambident nucleophiles such as CN, NO_2, phenoxide and allkylation using dianion (EAA)	13	PPT PPT	https://youtu.be/nyjCpOYByH0 https://youtu.be/PS7fWpJ3fAo

	Acylation and alkylation of active methylene compounds		Assignment	
	Nucleophilic substitution at carbon which is doubly bonded to oxygen and nitrogen –		PPT	
	Alkylation and acylation of amines,		PPT	
	Halogen exchange,		PPT	
	Von-Braun reaction.		Seminar	
	Enamines – synthesis-alkylation and acylation of enamines,		Seminar	
	Hydrolysis of esters,		PPT	
	Claisen and Dieckmann condensations.		PPT	https://youtu.be/JDWmFDseTMw
	Aromatic nucleophilic substitution - methods of generation of benzyne intermediate and reactions of aryne intermediates.	13	PPT	https://youtu.be/b-z3peN1s1I
	Nucleophilic substitution involving diazonium ions.		PPT	
	Aromatic nucleophilic substitution of activated halides.		PPT	
	Ziegler alkylation.		Seminar and Assignment	
	Chichibabin reaction		Seminar and Assignment	

Dr. P. SHANTHI.

R. Shanthi

S. Shanthi

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LESSON PLAN – ODD SEMESTER 2021-22

II M.Sc., Organic Chemistry – (III Sem)

Name of the staff : Dr. Mrs. P. Shanthi — Total Hours : 17

Name of the subject : Organic Chemistry — Year/ Semester : II/III

Subject code: MER3A

S.NO	UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
1	V	**Aromaticity** Huckel's rule-Aromaticity of benzenoid compounds	1	Seminar	https://youtu.be/PimKRDJtBcI
		Aromaticity of non-benzenoid and heterocyclic compounds, -Aromatic systems with pielectrons - numbers other than six non-aromatic (cyclooctatetraene etc)	4	Assignment PPT	https://youtu.be/dsQttwQXYD8
		Anti-aromatic systems (cyclobutadiene etc)- with more than 10 pi electrons Annulenes up to C_{18} (synthesis not expected)	4	PPT	https://youtu.be/gblUbKUGCf0
		Steroids-Introduction Structural elucidation of cholesterol (by chemical degradation). Conversion of cholesterol to progestrone, esterone and testosterone	4	Seminar PPT	
		Structural elucidation of cholesterol (by chemical degradation). Conversion of cholesterol to progestrone, esterone and testosterone	4	PPT PPT	https://youtu.be/Bl5qc9-W8DM

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R. Shanthi

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LESSON PLAN – ODD SEMESTER 2021-22

I M.Sc., Inorganic Chemistry – **(I Sem)**

Name of the staff : **T.Sobana Premlatha** Total Hours : **24**

Name of the subject : Inorganic Chemistry Year/ Semester : **I / I**

Subject code: **MER1B**

S.NO	UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
1	**Unit III**	**Unit III**: Nano Material chemistry:-Synthesis and Properties - Metallic nanoparticles – gold and silver – Nanorods and Nanotubes	8	PPT, Whiteboard	https://youtu.be/k61wjab7iUs https://youtu.be/Z51R49OOqAA
2		Nanostructures – One, two and three dimensional – semiconductor quantum dots – carbon nanotubes **Unit V**: Stability and stereo isomerism of coordination complexes:- Stereochemical aspects; Stereoisomerism in inorganic complexes; isomerism arising out of ligand and ligand conformation; chirality and nomenclature of chiral complexes; optical rotatory dispersion and circular dichroism.	12	PPT, Whiteboard, Blackboard and Chalk	https://youtu.be/UGBCgjkSTto https://youtu.be/CHR613QPx6A https://youtu.be/m19YvcVu37U
3		Graphene – Core-shell and Quantum well structures.	4	PPT, Whiteboard, Blackboard and Chalk	https://youtu.be/RdcFBdQu5_o

T. Sobana Premlatha

R. Shanthi

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LESSON PLAN – ODD SEMESTER **2021-22**

II M.Sc., Bioorganic Chemistry – **(III Sem)**

Name of the staff : **T.Sobana Premlatha** Total Hours : **24**

Name of the subject : Bioorganic Chemistry Year/ Semester : **II / III**

Subject code: **MERBF**

O	UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
1	Unit II	Unit II: (Chemistry and metabolism of Amino acids and Proteins:- Amino acids: Various classifications, essential amino acids, physical properties (amphoteric nature and isoelectric point) and reactions.	4	Online PPT, Whiteboard	https://youtu.be/NIvhyULL3s0
		Proteins: Classifications (based on shape, composition and solubility), physical properties. Primary structure. End group analysis (N-terminal analysis- Edman method, dansyl chloride method.	6	PPT, Whiteboard, Blackboard and Chalk	https://youtu.be/FkjilyNaT3M https://youtu.be/jkV4JsLN_ao www.sciencedirect.com chem.libretexts.org
		C - terminal analysis- hydrazinolysis and bio - chemical methods) Biological functions of proteins, Deamination, transamination reactions, Urea cycle. Cholesterol (structure elucidation not needed), biological importance and chemical properties.	6	PPT, Whiteboard, Blackboard and Chalk	https://youtu.be/Sao0NaY4IL0 https://youtu.be/K3rVr_SfXo8
	Unit IV	Unit IV: Nucleic Acids:- Purine and pyrimidine basis, nucleaosides, nucleaotides, polynucleartides, various types of DNA and RNA structures. Biological functions of RNA and DNA. Genetic Code.	8	PPT, Whiteboard, Blackboard and Chalk	https://youtu.be/0lZRAShqft0 https://youtu.be/gJiDeKS_T7A https://youtu.be/mtGebNkwtCo https://youtu.be/P-Ry4rRdDbk https://youtu.be/ftyM-LcELSI

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LESSON PLAN – ODD SEMESTER **2021-22**

II M.Sc., Inorganic Chemistry – **(III Sem)**

Name of the staff : **T.Sobana Premlatha** Total Hours : **36**

Name of the subject : Inorganic Chemistry Year/ Semester : **II / III**

Subject code : **MER3B**

S.NO	UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
1	**Unit V**	(Unit V: X-ray diffraction and Microscopy application: Basic Principles of diffraction – Bravis Lattices- Use of X-ray power diffraction data in identifying inorganic crystalline solids.)	6	Online PPT, Whiteboard	https://youtu.be/WcImy34NPVQ
2		Single crystal diffraction in crystal structure analysis. Optical Microscopy, Electron Microscopy – SEM and TEM.	8	PPT, Whiteboard, Blackboard and Chalk	https://youtu.be/DBiEc8KM1e0
3	**Unit III**	X-ray Flourescence Spectroscopy – structure determination. **(Unit III**: NMR, NQR and Mossbauer:- NMR, NQR, Mossbauer spectra: NMR spectra of 31 P, 19 F	10	PPT, Whiteboard, Blackboard and Chalk	https://youtu.be/RqBAW-uFHK0 https://youtu.be/8V5hiGSu-Ik https://youtu.be/9zimhww51WI
4		NMR shift reagents, NQR- Nitrosyl compounds	8	PPT, Whiteboard, Blackboard and Chalk	https://youtu.be/-UKKGgoJX0g
5		Mossbauer of Fe and Sn systems.	4	PPT, Whiteboard, Blackboard and Chalk	https://youtu.be/W6C8iB893KU

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R. Shanthi

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LESSON PLAN – ODD SEMESTER **2021-22**

III B.Sc., Inorganic Chemistry – **(V Sem)**

Name of the staff : **T.Sobana Premlatha** Total Hours : **15**

Name of the subject : Inorganic Chemistry Year/ Semester : **III / V**

Subject code : **TAT 5A**

S.NO	UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
1	**UNIT I**	**UNIT I: CHEMISTRY OF f-BLOCK ELEMENTS (15 hrs)** General characteristics of f-block elements – Comparative account of lanthanides and actinides	3	Online PPT, Whiteboard	https://youtu.be/n7DEGU8vR58 https://youtu.be/6fRxAjMdMvE
2		– Occurrence, Oxidation states, Magnetic properties, Colour and spectra –	4	Online PPT, Whiteboard, Blackboard and chalk	https://youtu.be/uFtvzzB3gU0
3		Lanthanides and Actinides Separation by ion-Exchange and Solvent extraction methods – Lanthanide contraction-	5	Online PPT, Whiteboard, Blackboard and chalk	https://youtu.be/UpvFEizrNQU
4		Chemistry of thorium and Uranium-Occurrence, Ores, Extraction, properties and uses – Preparation, Properties and uses of ceric ammonium sulphate, thorium dioxide and uranyl acetate.	3	Online PPT, Whiteboard, Blackboard and chalk	https://youtu.be/m45zQlEQJws https://youtu.be/jALkPZJmLNk https://youtu.be/IUNuVH0HgQ4

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DEPARTMENT OF CHEMISTRY
LESSON PLAN
ACADEMIC YEAR 2021 – 2022 (ODD SEMESTER)

Name of the Staff : Dr.E.Thamarai selvi **Total hours : 35**

Name of the subject : Physical Chemistry II **Year / Semester: II M.Sc/ III Semester**

Subject Code : MER3C

UNIT	CHAPTER	NO. OF HOURS	METHODOLOGY	ICT TOOLS ADOPTED
I	Approximation methods – Introduction – Variation treatment Perturbation method – first order – second order perturbation. Application of variation and perturbation treatment to hydrogen and Helium atoms. R-S coupling and Term symbols- Slater orbitals- Hatree – Folk Self consistent Field method	10	Online PPT	https://youtu.be/4Rw3BDI3Io4 https://youtu.be/jVzSv8xTgCc
V	Born – Oppenheimer approximation- VB theory – MO theory for di and polyatomic molecules- Concept of hybridization- Huckel theory for conjugated molecules	10	Online PPT	https://youtu.be/YA4E6WxzcSI https://youtu.be/TSYMKtNE8xo https://youtu.be/Wf6dMnydGxM
IV	Mean Ionic activity and activity coefficient, concept of Ionic strength , Debye Huckel theory of strong electrolytes – activity coefficient of strong electrolytes – Debye Huckel – Bronsted equation – Debye – Huckel Limiting law- debye Huckel - Bronsted equation	8	PPT, Chalk & Board	https://youtu.be/2o43z4tn0Eo https://youtu.be/2JarRPfeW0s
IV	Redox reaction – cell potential- galvanic cell- Electrolytic cell – Nernst Equation- Electrode Equilibrium- thermodynamic electrodes and electrode potential- electrochemical cells and electromotive force	7	PPT, Chalk & Board	

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LESSON PLAN
ACADEMIC YEAR 2021 – 2022 (ODD SEMESTER)

Name of the Staff : Dr.E.Thamarai selvi **Total hours : 35**

Name of the subject : Physical Chemistry I **Year / Semester: I M.Sc/ I Semester**

Subject Code : MER1C

UNIT	CHAPTER	NO. OF HOURS	METHODOLOGY	ICT TOOLS ADOPTED
III	Group Theory – Introduction – symmetry elements and symmetry operations- Concept of groups – subgroups – class – order – abelian and non abelian groups	10	Online PPT	chemTube3D.com https://youtu.be/asom6mx0-BI
III	Point group – determination of point groups for various molecules – product of symmetry operations – group multiplication table	5	Online PPT	https://youtu.be/KoV8rBm6_Fo https://youtu.be/_NItk0w508Y
IV	Reducible and irreducible representation – direct product representation – Great Orthoganality Theorem Character Table – construction of C_{2v} and C_{3v} character table	5	PPT, Chalk & Board	
IV	Hybrid orbitals in non linear molecules – Determination of representation of vibrational modes in non linear molecules	10	PPT, Chalk & Board	
IV	Symmetry selection rule for IR , raman and electronic spectra – Apllications of group theory	5	PPT, Chalk & Board	

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DEPARTMENT OF CHEMISTRY
LESSON PLAN
ACADEMIC YEAR 2021 – 2022 (ODD SEMESTER)

Name of the Staff : Dr.E.Thamarai selvi **Total hours : 30**

Name of the subject : Polymer Chemistry **Year / Semester: III B.Sc/ V Semester**

IT	CHAPTER	NO. OF HOURS	METHODOLOGY	ICT TOOLS ADOPTED
	Introduction to polymers –general characteristics of polymers in comparison with common organic compounds. Basic concept of monomers and polymers. Classification of polymers – natural and synthetic polymers. Distinction between plastics, elastomers and fibres. Types of polymers thermoplastics and thermosetting plastics.	8	Online PPT	Google Classroom, Online White Board
	Geometrical structures of polymer molecules - microstructures – chemical structures – geometrical structures – Cross-linked polymers – stereoregular polymers Mechanism of polymerization: chain polymerization, free radical polymerization, ionic and coordination polymerization. Polyaddition and polycondensation polymerization, ring opening and group transfer polymerization.	6	Online PPT	https://youtu.be/dmG4mZ8sGHc https://youtu.be/40pmDbuzDIw https://youtu.be/1rwMdhU2jWk Google Classroom, Online White Board
	Molecular weight of polymers – number average, weight average and viscosity average. Determination of polymer molecular weights – Osmometry (membrane, vapour phase) ,Viscometry methods. Light scattering and ultra centrifugation methods. Molecular weight and degree of polymerization – practical significance of polymer molecular weight.	6	Online PPT	https://youtu.be/NLH3Nr10wsA https://youtu.be/C9IMPLLbloE Google Classroom, Online White Board
	Glass transition temperature – transition and associated properties – factors affecting Glass transition temperature- importance - glass transition temperature of copolymers.	5	PPT , Chalk & Board	

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	Polymer crystallinity – crystallisability – effect of crystallinity on properties .			
	Natural polymers - Rubber, Silk, Cellulose – structure and applications Supramolecular polymers – introduction – properties – applications.	5	PPT , Chalk & Board	

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DEPARTMENT OF CHEMISTRY
LESSON PLAN
ACADEMIC YEAR 2021 – 2022 (ODD SEMESTER)

Name of the Staff : Dr.E.Thamarai selvi **Total hours : 20**

Name of the subject : Physical Chemistry **Year / Semester: III B.Sc/ V Semester**

Subject Code : TAT5C

UNIT	CHAPTER	NO. OF HOURS	METHODOLOGY	ICT TOOLS ADOPTED
III	Definition of terms in the phase rule – Derivation and application to one component system water and sulphur – super cooling, sublimation. Two component systems – solid-liquid equilibria, simple eutectic (lead-silver), desilverisation of lead –Compound formation with congruent melting point. (Mg-Zn) and incongruent melting print (Na-K). Solid solutions – (Ag- Au) – freezing mixtures – KI-H_2O system and $CuSO_4$-H_2O systems	10	Online PPT	Google Classroom, Online White Board
V	Electrical transport and conductance in metal and in electrolytic solution. Specific conductance and equivalent conductance. Measurement of equivalent conductance. Using Kohlraush's bridge. Arrhenius theory of electrolytic dissociation and its limitations. Weak and strong electrolyte according to Arrhenius theory Ostwald's dilution laws– applications and limitation. Variation of equivalent conductance with concentration. Migration of ion-ionic mobility.	9	Online PPT	Google Classroom, Online White Board
V	Kohlraush's law and its applications. The elementary treatment of the Debye-Huckel Onsager equation for strong electrolytes. Evidence for ionic atmosphere. The conductance at high fields (Wein effect) and high frequencies (Debye-Falkenhagen effect). Transport number & Hittorf's rule. Determination by moving boundary method. Application of conductance measurements – Determination of Λ_o of strong electrolytes. Determination of Ka of weak acids. Determination of solubility product of a sparingly soluble salt. Conductometric titrations.	9	PPT, chalk & Board	

R. Shanthi

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CHENNAI-40

S. Shanthi

ANNA ADARSH COLLEGE FOR WOMEN

Department of Chemistry

Academic year 2021-22

Odd Semester

Name of the staff: Sandhya Jayachandran **Total Hours: 21**

Name of the subject: Organic Chemistry **Year/ Semester: III/V**

Subject code: TAT5B

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
I	Phenols : Nomenclature, synthesis of phenol from benzene sulphonic acid, chlorobenzene and cumene, Acidity of phenols – explanation on the basis of resonance stabilization	7	PPT	Google classroom, Whiteboard
II	Chemistry of carbonyl compounds – Nomenclature, structure of carbonyl compounds, acidity of alpha hydrogen atom, Keto-enol tautomerism, proofs of the two forms, Mechanism of nucleophilic addition reaction with HCN, ROH, $NaHSO_3$, ammonia, and its derivatives	7	PPT, CHALK AND BOARD	https://youtu.be/8ZnOie4XugI Google classroom, Whiteboard
II	Mechanism of Meerwin – pondorfVerley reduction, Clemmensonrediction, Wolf- Kishner reduction, Aldol condensation, Claisen – Schmidt reaction, Cannizaro reaction, Haloform reaction, Perkin and Benzoin condensation reaction Chemistry of carboxylic acids and its derivatives : Acidity of carboxylic acids,	7	PPT, CHALK AND BOARD	https://youtu.be/m8P_zQdH010 Google classroom, Whiteboard

SANDHYA JAYACHANDRAN

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CHENNAI-40

ANNA ADARSH COLLEGE FOR WOMEN

Department of Chemistry

Academic year 2021-2022

Name of the staff: Sandhya Jayachandran **Total Hours:25**

Name of the subject: General Chemistry **Year/ Semester: II/III**

Subject code: SD23A

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
V	Nuclear substitution and Elimination reaction – nucleophilic Substitution : SN1, SN2 and SNi reactions- Mechanisms	4	PPT	https://youtu.be/yrvV85H737o Google classroom, Whiteboard
V	Effect of solvent, structure of substrate, nucleophilicity of reagent, (nucleophile), nature of leaving group. Elimination reaction : E1, E2 AND E1CB reactions and mechanisms	4	PPT, CHALK AND BOARD	https://youtu.be/B494VE1IVfo Google classroom, Whiteboard
V, III	Hofmann and Saytzeff rules. Elimination vs Substitution. Benzene and Polynuclear Hydrocarbons : Aromaticity- Huckel's rule with respect to benzene, naphthalene, anthracene, Phenanthrene and 5&6 membered heterocyclic compound	5	PPT, CHALK AND BOARD	Google classroom, Whiteboard
II	Electrophilic substitution reactions – Electrophilic substitution reaction mechanism in benzene, general mechanism of Nitration, Sulphonation and Halogenation reaction, Mechanism of Friedel-Crafts alkylation and acylation reaction. Orientation (directive influence) and reactivity in monosubstituted benzenes.	7	PPT, CHALK AND BOARD	https://youtu.be/qCBlnA6DZdo Google classroom, Whiteboard
II	Polynuclear hydrocarbons – Preparation, Properties and uses of Naphthalene, Anthracene and Phenanthrene	5	PPT, CHALK AND BOARD	https://youtu.be/vxPgyR75D6M Google classroom, Whiteboard

SANDHYA JAYACHANDRAN

PRINCIPAL
ANNA ADARSH COLLEGE FOR WOMEN
ANNA NAGAR, CHENNAI- 600 040

ANNA ADARSH COLLEGE FOR WOMEN
9th Main Road,
Anna Nagar

ANNA ADARSH COLLEGE FOR WOMEN

Department of Chemistry

Academic year 2021-2022

Name of the staff: Sandhya Jayachandran **Total Hours:15**

Name of the subject: General Chemistry **Year/ Semester: I/I**

Subject code: SD21A

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
V	Hybidisation and shapes of molecules – methane, Ethane	3	PPT	Google Classroom
V	Hybidisation of Ethylene. Acetylene, Benzene	3	PPT, CHALK AND BOARD	White Board
V	Electron Displacement effects – Inductive Effect, Electromeric Effect, Mesomeric Effect, Hyperconjugation effect.	4	PPT, CHALK AND BOARD	White Bboard
V	Steric effect. Cleavage of bonds – Homolytic and heterolytic fissions, Reactive intermediates – Carbocations, Carbanions and free radicals – their formation and stability	3	PPT, CHALK AND BOARD	Google Classroom WHITE BOARD
V	Nomenclature of Organic compounds – IUPAC system of nomenclature of compounds containing upto 8 Carbon atoms – mono and bifunctional compounds.	2	PPT, CHALK AND BOARD	Google Classroom WHITE BOARD

SANDHYA JAYACHANDRAN

R. Shanthi

PRINCIPAL
ANNA ADARSH COLLEGE FOR WOMEN
ANNA NAGAR, CHENNAI-600 040

ANNA ADARSH COLLEGE FOR WOMEN
9th Main Road, Anna Nagar
CHENNAI-40

ANNA ADARSH COLLEGE FOR WOMEN

Department of Chemistry

Academic year 2021-22

Name of the staff: Sandhya Jayachandran **Total Hours:28**

Name of the subject: Organic Chemistry **Year/ Semester: I/I**

Subject code: MER1A

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
I	Stereochemistry : Introduction to optical activity and chirality, Stereomers – definition based on symmetry and energy criteria, Rotamers,Constitutionallyunsymmetrical molecules/ chiral compounds, eg.Erythro and threo compounds Geometrical isomerism, E,Z nomenclature of olefins, geometrical and optical isomerism of disubstituted cyclopropane, cyclobutane and cyclopentanes	7	PPT	https://youtu.be/frtnEDTSzi8 Google classroom, Whiteboard
I	Prochiral carbons, Elements of chirality – Molecules with carbon, nitrogen, sulphur based chiral centres. Configuration and Conformational isomers, Absolute configuration – enantiomers, Diastereoisomers, R,S nomenclature, D L notation, Cahn Ingold Prelog rules for nomenclature of compounds. Interconversion of Sawhorse, Newman and Fischer projections	6	PPT, CHALK AND BOARD	https://youtu.be/mGsWm9YvgRc Google classroom, Whiteboard
I	Stereoisomerism due to molecular dissymmetry, Allenes, Biphenyls, Spiro compounds, trans cyclooctene, cyclononene, and molecules with helical structures, Enantiotopic, Homotopic, and Diastereotopic hydrogens in compounds, upto ten carbons only. Stereospecific and stereoselective reactions, molecules with more than one asymmetric centres – Definition of Diastereomer – constitutionally symmetrical compounds	7	PPT, CHALK AND BOARD	https://youtu.be/ws4m6q_Znbs Google classroom, Whiteboard
IV	Aromatic nucleophilic substitution – methods of generation of benzyne intermediate and reactions of aryne intermediates.	4	PPT	Google classroom WHITE BOARD
IV	Nucleophilic substitution involving diazonium ions. Aromatic nucleophilic substitution of activated halides. Zeigler alkylation. Chichibabin reaction	4	CHALK AND BOARD	Google Classroom WHITE BOARD

SANDHYA JAYACHANDRAN

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ANNA ADARSH COLLEGE FOR WOMEN
ANNA NAGAR, CHENNAI-600 040

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Anna Nagar
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Department of Chemistry

Academic year 2021-22

Name of the staff: Sandhya Jayachandran **Total Hours:35**

Name of the subject: Organic Chemistry **Year/ Semester: II/III**

Subject code: MER3A

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
II	Organic Photochemistry and Aromaticity – Aromaticity of benzenoid, non benzenoid and heterocyclic compounds,	4	PPT	White board
II	Huckel's rule – Aromatic systems with pi electrons – numbers other than six, nonaromatic (cyclo octatetraene etc) and anti aromatic systems (cyclobutadiene etc) – with more than ten pi electrons – Annulenes upto C 18.	3	PPT, CHALK AND BOARD	Google Classroom WHITE BOARD
II	Photochemistry of ketones, photooxygenation, photoreduction, photocycloaddition.	3	PPT, CHALK AND BOARD	White Board
II	Paterno- Buchi reaction, Di pi methane rearrangement. Cis-trans isomerisation, Barton reaction.	3	PPT, CHALK AND BOARD	White Board
II	Photo – Fries reaction, Photochemistry of cyclohexa dienones, Synthesis of Vitamin D	2	PPT, CHALK AND BOARD	Google Classroom WHITE BOARD
V	Orbital Symmetry and correlation – pericyclic reactions – classification, Electrocyclic, Cycloaddition reactions.	4	PPT, CHALK AND BOARD	Google Classroom WHITE BOARD
V	Woodward-Hoffmann rules, FMO Analysis of Electrocyclic, Cycloaddition and Sigmatropic reactions.	4	PPT, CHALK AND BOARD	White Board
V	Correlation diagram for Cycloaddition reaction, butadiene, cyclobutene systems and interconversion of hexatriene to Cyclohexadiene.	6		White Board
V	Structure of Bulvalene, Fluxional molecules – MO treatment on Cope, Claisen rearrangements, Diels Alder and Ene reaction.	6		Google Classroom WHITE - BOARD

SANDHYA JAYACHANDRAN

PRINCIPAL
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CHENNAI-600 040

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CHENNAI-40

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Department of Chemistry

Academic year 2021-22

Name of the staff: Sandhya Jayachandran **Total Hours:18**

Name of the subject: Bio Organic Chemistry **Year/ Semester: II/III**

Subject code: MERBF

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
I	Chemistry and metabolism of Carbohydrates – definition, classification and biological role of carbohydrates	4	PPT	White Board
I	Monosaccharides linear and ring structures (Haworth formula) of ribose, glucose, fructose and mannose, physical and chemical properties of glucose and fructose	3	PPT, CHALK AND BOARD	Google Classroom WHITE BOARD
I	Disaccharides – Ring structures (Haworth formula) – occurrence, physical and chemical properties of maltose, lactose, sucrose.	3	PPT, CHALK AND BOARD	White Board
I	Polysaccharides – Starch, glycogen and cellulose – structure and properties. Glycolysis of carbohydrates	3		Google Classroom WHITE BOARD

SANDHYA JAYACHANDRAN

J. Shanthi

R. Shanthi

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Department of Chemistry

Academic year 2021-2022

II M.Sc Chemistry

Name of Staff: K.Priya Sudha

Total Hours: 20

Name of Subject:Inorganic Chemistry

Semester:III

Subjeect Code:MER3B

Year: II

Unit	Chapters	Hours	Methodology	ICT tools adopted
IV	Application of ESR spectroscopy to coordination complexes ESR introduction-Zeeman equation, g value, nuclear hyperfine splitting Interpretation of ESR spectrum of simple carbon centered free radicals. Anisotropy in g value.	4	Online teaching	GCR PPT Video Links Sharing of video of working of esr spectrometer https://www.youtube.com/watch?v=vAvX4CqVOBU
IV	Hyperfine splitting constant. Interpretation of ESR spectrum of simple carbon centered free radicals. McConnels equation,	4	Online teaching	GCR PPT

	Kramer's theorem,			
IV	ESR of transition metal complex of copper, manganese and vanadyl complex	4	Online teaching	GCR PPT
IV	Application of ESR and Photoelectron spectroscopy to coordination complexes Photoelectron spectroscopy – UPS and XPS- Photoelectron spectra	4	Online teaching	GCR PPT Sharing of video of working of photoelectron spectrometer Video Links https://www.youtube.com/watch?v=N8UMNGfukw
IV	Koopman's theorem,-Fine structure in PES, Chemical shift and Correlation with electronic charges	4	Online teaching	GCR PPT

R. Shanthi

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ANNA NAGAR, CHENNAI- 600 040

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Department of Chemistry

Academic year 2021-2022

III B.Sc Chemistry

Name of Staff: K.Priya Sudha

Total Hours: 39

Name of Subject:Organic Chemistry I

Semester:V

Subjeect Code:TAT5B

Year: III

Unit	Chapters	Hours	Methodology	ICT tools adopted
I	**CHEMISTRY OF PHENOLS AND AROMATIC ALCOHOLS-** Reactions similar to those of alcohols, ring substitution in phenol Orientation of phenolic group towards electrophiles, halogenation,nitration and sulphonation, Libermann nitroso reaction,mechanism of Riemer-Tiemann reaction, Kolbe-Schmidt reaction and coupling with diazonium salts and condensation reactions. Alkylation and acylation of phenols.	10	Blackboard teaching	

	Dihydric phenols and benzyl alcohols- preparation, properties and uses			
III	**Chemistry of carboxylic acids** Acidity of carboxylic acids, Effect of substituents on acidity, comparison of acid strengths of halogen substituted acetic acid and substituted benzoic acid. Dicarboxylic acids: Preparation – from alkyl cyanides, cyclic ketones and halo esters. Acetoacetic and malonic esters- Preparation and synthetic applications.	10	Blackboard teaching	
IV	**Chemistry of nitrogen compounds** Nitrobenzene- preparation, reduction in different media, Conversion of nitrobenzene to m-dinitrobenzene and TNT.	3	Online teaching	GCR PPT Quiz https://docs.google.com/forms/d/e/1FAIpQLSdOQZbkL_ONQ442sjdjfJHT9XG_nuE0BU2ZJ8Z5Hwzrcc6UKQ/viewform?usp=sf_link
IV	Amines: Nomenclature Basicity of amines, effect of substituents on basicity of aliphatic and aromatic amines. Preparation of primary amines by Gabriel synthesis and reduction of nitriles, secondary and tertiary amines-by the	7	Blackboard teaching	

	reduction of N-alkyl substituted amides. Reactions of amines- primary aliphatic and aromatic amines with nitrous acid, diazotization, coupling and carbylamines reactions			
V	**AROMATIC HALIDES AND SULPHONIC ACIDS** Aryl halides – Nomenclature, Preparation,physical andchemical properties ofmonohalobenzenes. BenzoylchloridePreparation, Physical and chemical properties.	4	Online teaching	GCR PPT
V	Nomenclature of aromatic sulphonic acids - preparation and properties of benzene sulphonic acid and paratoluenesulphonic acid- Preparation and properties of benzene sulphonyl chloride, saccharin, chloramine-T, sulphanilic acid and sulfanilamide	5	Online teaching	GCR PPT

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Academic year 2021-2022

I B.Sc Chemistry

Name of Staff: K.Priya Sudha

Total Hours: 20

Name of Subject:General Chemistry I

Semester:I

Subjeect Code:SD21A

Year: I

Unit	Chapters	Hours	Methodology	ICT tools adopted
I	**Atomic Structure and Introduction to Quantum Mechanics** Atomic structure Models- brief history, Rutherford's atomic model, Planck's quantum theory of radiation, Photoelectric effect,	3	Online teaching	GCR PPT
I	Bohr's theory of hydrogen atom - postulates, Bohr's radius, energy of electron, origin of hydrogen spectrum.Particle and wave nature of electron - de Broglie's equation, Heisenberg's uncertainty principle and Compton effect.	3	Online teaching	GCR PPT
I	Postulates of quantum mechanics - Schrodinger wave	5	Online teaching	GCR PPT

	equation (no derivation) - Significance of Ψ and Ψ^2-Wave mechanical concept of atomic orbitals, - Shapes of orbitals - Quantum numbers -			
I	Zeeman effect, Pauli`s exclusion principle, Aufbau principle -Effective nuclear charge, screening effect, Slater's rules - applications and limitations..	2	Online teaching	GCR PPT
I	Electronic configuration of first 30 elements - extra stability of half-filled and completely filled orbitals. Hund's rule - its basis and applications	2	Blackboard teaching	
III	**SOLID STATE-** Classification of solids, isotropic and anisotropic crystals,Representation of planes, Miller indices, space lattice, unit cell, crystal systems.X-ray diffraction-derivation of Bragg's equation, discussion of structures of NaCl, CsCl and ZnS, determination of Avogadro's number.	5	Online teaching	GCR PPT

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Department of Chemistry

Academic year 2020-2021

II B.Sc Physics

Name of Staff: K.Priya Sudha

Total Hours: 10

Name of Subject:Allied Chemistry I

Semester:III

Subjeect Code:SD3AB

Year: II

Unit	Chapters	Hours	Methodology	ICT tools adopted
III	**FUNDAMENTALS OF ORGANIC CHEMISTRY** Classification of organic compounds Classification of reagents - electrophiles, nucleophiles and free radicals - Classification of reactions- addition, substitution, elimination and polymerisation	4	Online teaching	GCR Flowchart PPT
III	Hybridization in methane, ethane, ethylene, acetylene, benzene	4	Blackboard teaching	Visual Aids (models) for structures
III	Electrophilic substitution mechanism in benzene (nitration and sulphonation)	2	Blackboard teaching	

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Department of CHEMISTRY

FORMAT FOR LESSON PLAN

Academic year 2021-22

Name of the Staff: R.VASHANTHA

Total Hours:25Hrs

Name of the Subject: B.Sc N&D-ALLIED CHEMISTRY-I **Year/Semester:I/FIRST**

Subject Code: SD3AA

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
III	Fundamentals of organic chemistry, classification of organic chemistry	3	White board	https://youtu.be/PmvLB5lEp8
III	Hybridization in methane, Hybridization in ethane and ethylene, acetylene, benzene	4	Interactive and white board	https://youtu.be/U6H3exbi70Q
III	Classification of reagents - electrophiles, nucleophiles and free radicals	4	Power point presentation and White board	https://youtu.be/9QZj-F-5PV4
III	Classification of reactions - addition, substitution, elimination, condensation and polymerisation.	4	Power point presentation, interactive and white board	https://youtu.be/Efh5GkVbhEc
V	Introduction to Photochemistry - statement of Grotthus-Draper Law, Stark-Einstein's Law, Quantum yield.	4	Chalk and Board	https://youtu.be/0tBDJv1yvBk
V	Hydrogen-Chlorine reaction (Elementary idea only) Photosynthesis, photosensitization, phosphorescence, Fluorescence, Chemiluminiscence-Definition with examples.	6	Chalk and Board	

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Department of CHEMISTRY

FORMAT FOR LESSON PLAN

Academic year 2021-22

Name of the Staff: Dr.R.VASHANTHA **Total Hours:20Hrs**

Name of the Subject: B.Sc-GENERAL CHEMISTRY-III **Year/Semester:II/THIRD**

Subject Code: SD23A

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
V	General introduction about thermodynamics	1	Interactive and questioner session	https://youtu.be/6QXtnmB1vqk
V	Terminology of thermodynamics	1	White board and power point presentation	https://youtu.be/6QXtnmB1vqk
V	Thermodynamic equilibrium-nature of work and heat	1	Power point presentation	Google Class Room
V	First law of Thermodynamics-statement-definition of Internal Energy (E), Enthalpy (H) and Heat capacity.	1	Power point presentation and white board	GCR White Board
V	Relation between Cp and Cv. Calculation of W, q, dE and dH for expansion of ideal and real gases under isothermal and adiabatic condition of reversible and irreversible processes.	4	Power point presentation and white board	GCR
V	Joule-Thompson effect and Coefficient (μ_{JT})-Calculation of μ_{JT} for ideal and real gases - Inversion temperature	5	Black board	GCR

V	Thermochemistry - Relation between enthalpy of reaction at constant volume (q_v) and at constant pressure (q_p)	2	Chalk and board	
V	Temperature dependence of heat of reaction - Kirchoff equation- Derivation and application- Enthalpy of formation and combustion -	2	Chalk and Board	
V	Bond energy and its calculation from thermochemical data.	3	Black Board	

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FORMAT FOR LESSON PLAN

Academic year 2021-22

Name of the Staff: Dr.R.VASHANTHA **Total Hours:36Hrs**

Name of the Subject: M.Sc-INORGANIC CHEMISTRY-I **Year/Semester:I/FIRST**

Subject Code: MER1B

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
I	Bonding in Inorganic compounds	1	Interactive and questioner session	GCR
I	Poly acids	1	Power point presentation	GCR White Board
I	Isopolyacids of vanadium, chromium, molybdenum and tungsten	4	Power point presentation, interactive and white board	GCR White Board
I	Heteropolyacids of vanadium, chromium, molybdenum and tungsten	4	Power point presentation, interactive and white board	GCR
I	Inorganic Polymers, Silicates, structure - properties - correlation and applications, molecular sieves, polysulphur - nitrogen compounds and poly – organophosphazenes	8	Chalk and board	GCR
II	Boron compounds and clusters, Boron hydrides, Polyhedral boranes, hydroborate ions	4	Chalk and board	GCR
II	Boron hydrides, carboranes and metallo carboranes. Wade's rules, preparation and reactions of Boron hydrides	6	Chalk and board	GCR
II	Metal Clusters: Chemistry of low molecularity metal clusters upto trinuclear metal clusters; multiple metal-metal bonds.	8	Chalk and board	GCR

R. Vasanthi

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Department of CHEMISTRY

FORMAT FOR LESSON PLAN

Academic year 2021-22

Name of the Staff:Dr.R.VASHANTHA **Total Hours:36Hrs**

Name of the Subject: M.Sc., PHYSICAL CHEMISTRY-III **Year/Semester:II/THIRD**

Subject Code: MER3C

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
II	Rotational spectroscopy of a rigid rotar and non-rigid rotor, diatomic and polyatomic molecules.	4	Power point presentation, white board	GCR
II	Vibrational spectroscopy, harmonic oscillator,anhormonicity Vibration and rotation spectra of diatomic vibrating molecules selection rules P,QandR branches.	4	Power point presentation and white board	GCR White Board
II	Vibrational spectra of polyatomic molecules, fundamental vibrations and normal modes of vibration, overtones, combination and difference bands and Fermi resonance.	5	Power point presentation and whiteboard	GCR White Board
II	Raman spectra, Classical theory of Raman effect and molecular polarisability, pure rotational Raman spectra and Vibrational Raman spectra, Rotational fine structure, Rule of mutual exclusion and Polarization of light and Raman effect.	5	Chalk and board	GCR
III	Resonance spectroscopy, Zeeman effect-equation of	3	Chalk and board	

	motion of spin in magnetic fields,chemical shift and spin-spin coupling			
III	NMR of simple AX and AMX type molecules, H^1 , ^{13}C, ^{19}F, ^{31}P NMR spectra and a brief qualitative discussion of Fourier transform spectroscopy.	4	Chalk and board	C
III	ESR, principle, spin-orbit coupling. Hyperfine interaction. McConnell reactions	3	Chalk and board	https://youtu.be/qdoxqif5jdo
III	Mass spectra, Theory and instrumentation, McLaffetry rearrangement fragmentation pattern for simple aliphatic and aromatic alkanes, alcohols, aldehydes and ketones.	4	Chalk and board	https://youtu.be/RuwbeA22rew
III	Mossbauer spectroscopy, Doppler effects, isomer shift, electron, neutron hyperfine interactions. Quadrupole interactions and Magnetic interactions.	4	Chalk and board	

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Department of Chemistry
Academic year 2021-22

Name of the staff: A. Sumita
Name of the subject: Organic Chemistry
Subject code: MER3A

Total Hours: 35
Year/ Semester: Odd

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
1	Physical methods of structure determination. Principles and applications of ultraviolet spectroscopy in organic Molecular structure determination. Problems based on UV spectroscopy	4	Power point presentation Chalk and Board method Problem solving through examples	
	Principles and applications of Infrared spectroscopy in organic molecular structure determination.	6	Powerpoint presentation and Chalk and board method Problem solving through examples	https://www.youtube.com/watch?v=0xhtszEjNN0
	Cotton effect, Octant rule and axial Haloketone rule	4	Powerpoint presentation	https://www.youtube.com/watch?v=puB6KPOBc8g https://www.youtube.com/watch?v=qjzt1QH7ZEE
	Mass spectrometry and its applications	6	Chalk and Board method	
2	NMR Spectroscopy: Nuclear magnetic resonance spectroscopy- principles, Proton chemical shift, spin-spin coupling	5	Chalk and Board method Powerpoint presentation	https://www.youtube.com/watch?v=0xhtszEjNN0 https://www.youtube.com/watch?v=XhIe6lsDNhY
	Coupling constants and applications to organic structures.	4		https://www.youtube.com/watch?v=uqnKsYuKxZA
	FTNMR 13-CNMR Spectroscopy (elementary treatment).	4		
	Nuclear over hauser effect (applications only)	2	Seminar	

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Name of the staff: A. Sumita
Name of the subject: Organic Chemistry-1
Subject code: MER1A

Total Hours: 35
Year/ Semester: ODD

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
5	The arenium ion mechanism. Orientation and reactivity(ortho,meta and para Directing groups. Typical reactions to be studied nitration,halogenation,alkylation, Acylation and diazonium coupling Formylation reactions-Gatterman,Gatterman-Koch,Vilsmeyer-Hack& Reimer-TiemanReaction	4 3 3	Powerpoint presentation Chalk and Board method lecture	https://www.youtube.com/watch?v=Vul9Z4VZrAE
	Synthesis of di&trisubstituted Benzenes starting from benzene. Electrophilic substitution of furan, pyrrole,thiophene,pyridine and pyridine-N-oxide	2 2	Powerpoint presentation Chalk and Board method lecture	https://www.youtube.com/watch?v=qI4GprkeTpg
2	Conformation of some simple,1,2-disubstituted ethane derivatives	5	Powerpoint presentation Ball and Stick models	https://www.youtube.com/watch?v=fEFZn5kpTpg
	Conformation and reactivity of substituted cyclohexanols (oxidation and acylation) cyclohexanones and tertbutylcyclohexanols cyclohexane carboxylic acid derivative esterification and hydrolysis). Conformation And stereochemistry of cis and transdecalin and 9-methyldecalin.	4 4 4	Powerpoint presentation Chalk and Board method	https://www.youtube.com/watch?v=v8XknPy6dok
4	Nucleophilic substitution reactions:- Nucleophilic substitution at carbon which is doubly bonded to oxygen and nitrogen-alkylation and acylation of amines, halogen exchange, Von-Braun reaction. Enamines-synthesis-alkylation and acylation of enamines, hydrolysis of esters, Claisen and Dieckmann condensations.	4	Chalk and Board method	https://www.youtube.com/watch?v=IdmeMVDlQgM https://www.youtube.com/watch?v=YAM_LEHGHFQ

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Name of the staff: A. Sumita
Name of the subject: Inorganic Chemistry
Subject code: MER2A

Total Hours: 15
Year/ Semester: ODD

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
5	Stability and stereoisomerism of coordination complexes Stability of complexes: thermodynamic stability– stepwise and overall Stability constants,their relationships, factors affecting the stability, HSAB approach, Chelate effect, importance of chelates. Macrocyclic ligands; types; Schiff bases; crown ethers; cryptands; Chelating agents; ypes of EDTA titrations; direct and back titrations; Replacement titrations; masking and demasking reagents	5 4	Chalk and Board method Lecture Chalk and Board method Seminar	https://www.youtube.com/watch?v=E2N6yxcDbQg
	Determination of stability constants by spectrophotometric, polarographic And potentiometric methods	2 4	Chalk and Board method lecture	https://www.youtube.com/watch?v=AKgGpU2JMCU

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Name of the staff: A. Sumita
Name of the subject: Inorganic chemistry
Subject code: TAT5A

Total Hours: 30
Year/ Semester: odd

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
3	Application of coordination compound- Estimation of hardness of water using EDTA	3	Powerpoint presentation Lecture- chalk and board method	https://www.youtube.com/watch?v=ljNNZvxOw0g
	Estimation of nickel using DMG Estimation of aluminium using oxine . Biologically important Coordination compounds- Chlorophyll , haemoglobin (structure and applications)	4 5	Powerpoint presentation Lecture-Chalk and Board method	https://www.youtube.com/watch?v=-BRCurEffmk
4	Classification, preparation, Properties and uses of hydrides borides,carbides	5	Powerpoint presentation lecture	https://www.youtube.com/watch?v=jEXMyfkMZ9A
	Classification, preparation, Properties and uses of nitride	5	Powerpoint presentation	
5	Theories of acids and bases– Arrhenius theory, Bronsted–Lowry theory– basicity of an acid and acidity of a base, Cady Esley concept general theory of solvent system, Lux–Flood concept, Lewis concept–Lewis acids–bases	3	Powerpoint presentation Chalk and Board method lecture	https://www.youtube.com/watch?v=-_qdD2QCtBo (https://www.youtube.com/watch?v=mOgvkV6-a3k
	Lewis concept–Lewis acids–bases concept in coordination chemistry– classification of Lewis acids, Usanovich concept. Concept of Hard and Soft Acids and Bases (HSAB)	2 3	Chalk and Board method	https://www.youtube.com/watch?v=yc72U7Tcm70

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ANNA ADARSH COLLEGE FOR WOMEN

Department of chemistry

Academic year 2021-22 (ODD SEMESTER)

Name of the staff: V.SRIBHARATHY

Name of the subject: ALLIED CHEMISTRY-I **Total Hours: 15**

Subject code: SD3AA **Year/ Semester: I (N&D)/I**

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
II	**INDUSTRIAL CHEMISTRY:** Fuels- Classification-gaseous fuels like water gas, producer gas,.	3	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
II	liquefied petroleum gas, gobar gas, compressed natural gas	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
II	Fertilizers- Classification - urea, ammonium sulphate, superphosphate,	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
II	Triple super phosphate, potassium nitrate- manufacture and uses	2	VIRTUAL CLASS	GOOGLE CLASS ROOM
II	Silicones - Preparation, properties and applications. Hardness of water: temporary and permanent hardness, disadvantages of hard water -	4	VIRTUAL CLASS	WHITE BOARD GOOGLE CLASS ROOM
II	Softening of hard water - Definition and determinations of BOD and COD.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD

V. Sri

R. Shanthi

R. Shanthi

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Department of chemistry
Academic year 2021-22 (ODD SEMESTER)

Name of the staff: V.SRIBHARATHY
Name of the subject: ALLIED CHEMISTRY-I **Total Hours: 25**
Subject code: SD3AB **Year/ Semester: II (Phy)/III**

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
	NUCLEAR CHEMISTRY			
	Fundamental particles of nucleus, isobars, isotones and isomers –	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Differences between chemical reactions; fusion and fission – Radio active series,	3	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Group displacement law – Mass defect, derivation of 1amu = 931 MeV – nuclear binding energy and calculation .	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Applications of radio isotopes – carbon dating, and medicinal applications	2	VIRTUAL CLASS	GOOGLE CLASS ROOM
	INDUSTRIAL CHEMISTRY Silicones - Preparation, properties and applications. Hardness of water: temporary and permanent hardness,	4	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Disadvantages of hard water -Softening of hard water - Zeolite process,	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Demineralization process and reverse osmosis	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Purification of water for domestic use: use of chlorine, Ozone and UV light.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Definition and determinations of BOD and COD.	4	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Polymers: General method of preparation and properties of the following: PVC, Polyethylene,	1	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Teflon, Baklite,	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Nylon 6 and Nylon 66.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD

V. Sri

R. Shanthi

R. Shanthi

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Department of chemistry

Academic year 2021-22(ODD SEMESTER

Name of the staff: V.SRIBHARATHY

Name of the subject: PHARMACEUTICAL CHEMISTRY **Total Hours: 30**

code: TET5A **Year/ Semester: III/V Subject**

IT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
	Important terminologies used in pharmaceutical chemistry.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Drug pharmacology, Pharmacognosy, Pharmacodynamics, Pharmacokinetics, antimetabolites, Pharmacopeia (BP,IP,USP),	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	National formulary, chemotherapy, vaccines, primary Immunization, synergism, antagonist LD50, ED50.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Therapeutic index and drug dosage.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Various sources of drugs, pharmacologically active constituents in plants	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Classification of drugs, chemical –biological – mechanism of drug action – action at cellular sites.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Drug receptors and biological responses. Mechanism of different types of drug action.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Absorption of drugs - factors affecting absorption of drugs, routes of administration .	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Indian medicinal plants - tulsi, neem, keezhanelli. Anticonvulsant agents -	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Barbiturates –oxazoline diones- acetyl urea derivatives - succinimides.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Diagnostic agents for kidney function (aminohippuric acid) –for liver function (sulfobromophthalein).	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Lipid profile - HDL, LDL, cholesterol and lipid lowering drugs.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Vitamins - fat soluble and water soluble - sources, biological role and deficiency conditions.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Medicinal importance of inorganic compounds - compounds of aluminium - Phosphorus - arsenic - mercury and Iron..	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Biological importance of inorganic compounds - sodium and its compounds - potassium and its compounds - copper and its compounds	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD

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Department of chemistry

Academic year 2021-22(ODD SEMESTER)

Name of the staff: V.SRIBHARATHY

Name of the subject: POLYMER CHEMISTRY **Total Hours: 30**

Subject code: TET5D **Year/ Semester: III/V**

	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
	Industrially important polymer –Preparation, properties, and applications. Polyethylene, Polypropylene,	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	:Polyamides, Polyvinyl chloride, Poly methyl methacrylate, Polyester, Poly Carbonates,	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Poly urethanes, Phenol-Formaldehyde, Melamine-Formaldehyde,.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Polysilanes, Polyaniline	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Degradation of polymers by thermal- Oxidative, Mechanical and Photo degradation methods.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Polymerisation techniques- bulk, Solution,	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Suspension, Emulision,	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Poly condensation and interfacial Poly condensation.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Polymer Processing- Compression moulding,	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Casting, Extrusion, Fibre spinning, injection Moulding	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Thermoforming, Vulcanization of Elastomers.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Polymer reaction – hydrolysis, Acidolysis, Aminolysis, hydrogenation ,addition and substitution-	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	cyclisation reactions- cross-linking reactions.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Natural polymers-Rubber, Silk, Cellulose-structure and applications.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
	Supra molecular polymers-introduction-properties-applications	2	VIRTUAL CLASS	GOOGLE CLASS ROOM

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Academic year 2021-22 (ODD SEMESTER)

Name of the staff: V.SRIBHARATHY **Total Hours: 18**

Name of the subject: BIOORGANIC CHEMISTRY **Year/ Semester: II/III**

Subject code: ,MERBF

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
III	Chemistry and metabolism of lipids Definition, Classification-simple lipids (fatty acids), compound lipids and derived lipids.	3	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
III	Properties: Sopanification number and acetyl number.	3	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
III	Cholesterol (structure elucidation not needed), Biological importance and chemical properties.	3	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
II	Bile acids – functions. Biological function of lipids.	3	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
V	UNIT –: Vitamins:- Vitamins: Definition, classification- water-soluble vitamins (B_1, B_2 ,B_3)	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
V	vitamins B_6 , B_9 and B_{12})vitamin-C and biochemical rules and daily requirements.	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD
V	Fat-soluble vitamins (A, D,E and K VITAMIN) structure, deficiency diseases,	2	VIRTUAL CLASS	GOOGLE CLASS ROOM WHITE BOARD

V. Sri

R. Shanthi

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Academic year 2021-22(ODD SEMESTER)

Name of the staff:Dr.K.SANGEETHA **Total Hours:18hrs**

Name of the subject:II M.Sc Physical chemistry

Year/Semester:II M.Sc/III semester

Subject code: MER3C

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
	Unit:1 Partial molar properties - Partial molar free energy (Chemical potential) - Partial molar volume and partial molar heat content - their significance and determination of these quantities.	4	Online Power point presentation and lectures	https://youtu.be/2zEz4KcVqys https://youtu.be/x7SMoMeUrPk https://youtu.be/HMBfsxVsvCM
	Variation of chemical potential with temperature and pressure. Thermodynamics of real gases - gas mixture - fugacity definition - determination of fugacity variation of fugacity with temperature and pressure .	2 4	Online Power point presentation	https://youtu.be/OGJTwCO9Ycw https://youtu.be/ck3GceWu-4E https://youtu.be/w75HtwwYSKo https://youtu.be/gpPUk-TLp6M
	thermodynamics of ideal and non ideal binary solutions-dilute solutions-excess functions for non-'ideal solutions and their determination-the concepts of activity and		Online PPT and used board	https://youtu.be/mor71SWy1to

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I	activity coefficients-determination of standard free energies.		app for derivation part	https://youtu.be/Lrn31fEY5uc &GCR
I	Choice of standard states - determination of activity and activity coefficients for non-electrolytes.	4	Assignment and Online PPT,pdf notes	GCR WHITE BOARD

Geetha.K

R. Shanthi

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Name of the staff:Dr.K.SANGEETHA **Total Hours:35 hrs**

Name of the subject:I M.Sc Physical chemistry

Year/Semester:I M.Sc/I semester

Subject code: MERC

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
I	Bonding in Inorganic compounds:- Poly acids: Isopolyacids and heteropolyacids of vanadium, chromium, molybdenum and tungsten. Inorganic Polymers: Silicates, structure - properties - correlation and applications - molecular sieves, polysulphur - nitrogen compounds and poly - organophosphazenes.	15	Online Power point presentation and lectures	GOOGLE CLASS ROOM WHITE BOARD
II	Boron hydrides: Polyhedral boranes, hydroborate ions, carboranes and metallo carboranes. Wade's rules, preparation and reactions of Boron hydrides. Metal Clusters: Chemistry of low molecularity metal clusters upto trinuclear metal clusters; multiple metal-metal bonds.	20	Online Power point presentation and lectures	GOOGLE CLASS ROOM WHITE BOARD

Sangeetha. K

R. Kanthi
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S. Hemalatha

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Name of the staff:Dr.K.SANGEETHA

Total Hours:30 hrs

Name of the subject:I B.Sc General chemistry I

Year/Semester:I B.Sc/I semester

Subject code: SD21A

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
II	Classification of elements - noble gases and s, p, d and f - block elements. Modern periodic table. Position of hydrogen in the periodic table-Variation of atomic volume, atomic and ionic radii, ionization potential, electron affinity, electronegativity along periods and groups-variation of metallic characters-factors influencing the above periodicproperties.	12	Online Power point presentation and lectures	GOOGLE CLASS ROOM WHITE BOARD
III	Chemical Bonding (15hrs) Ionic bond - factors influencing the formation of ionic compounds - ionisation energy, electron affinity and lattice energy; inert pair effect, Fajan's rules. Covalent bond - polarity of covalent bond, percentage ionic character of covalent bond,	6	Online Power point presentation and lectures	GOOGLE CLASS ROOM WHITE BOARD

	dipole moment and molecular structures of CO2, H2O, NH3 and CH4 , bond characteristics - bond length, bond angle and bond energy.			
IV	Common ion effect, solubility product, applications of the solubility product principle in qualitative analysis. Principle of elimination of interfering anions. Complexation reactions in qualitative analysis. Spot test reagents and tests with them - Cupferon, DMG, thiourea, magneson, alizarin and Nessler reagent. Volumetric analysis - Definitions - normality,molarity, molality and molefraction,primary and secondary standards, theories of acid - base, redox, complexometric, iodometric and iodimetric titrations, calculations of equivalent weights, theories of acid -base, redox, metal ion and adsorption indicators and choice of indicators. Nanotechnology(10Hrs) Introduction to nano science and nanotechnology – Types of nanoparticles, Techniques to synthesize nanoparticles, Physical methods – Physical vapour deposition (evaporation and sputtering) – chemical methods– reduction methods – sol–gel methods	12	Online Power point presentation and lectures	GOOGLE CLASS ROOM WHITE BOARD

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Name of the staff:Dr.K.SANGEETHA

Total Hours:28hrs

Name of the subject:II B.Sc Physics (Allied Chemistry)

Year/Semester:II B.Sc/III semester

Subject code:TBTAC

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
IV	**Unit IV:THERMODYNAMICS** Definition of certain terms - system, surrounding, reversible and irreversible processes - Limitations of I law , Need for II Law - Different Statements of II. Law - Carnot cycle - Efficiency - Carnot Theorem	4	Power point presentation and lectures	GOOGLE CLASS ROOM WHITE BOARD
IV	Thermodynamic Scale of Temperature - Entropy- Definition, Unit and change of entropy for phase transformation,Free energy - nature of process in terms of free energy and entropy-Statement of Third Law.	8	Power point presentation and lectures	GOOGLE CLASS ROOM WHITE BOARD
V	Rate of chemical reaction- Differential rate expression - order and molecularity - Integrated rate expression for first and second, order reactions (same concentration of reactants only)-Half-life period- Effect	4 4	Power point presentation and lectures Assignment	GOOGLE CLASS ROOM WHITE BOARD

	of temperature on rate - Activation energy			
V	Arrhenius equation - Homogeneous and heterogeneous catalysis. Photochemistry - Statement of Grotthus- Draper Law, Stark-Einstein's Law, Quantum Yield. Hydrogen chlorine reaction (elementary idea only) Photosynthesis, Photosensitisation, Phosphorescence Fluorescence, Chemiluminiscence- Definition with examples.	4 4	Power point presentation and lectures	GOOGLE CLASS ROOM WHITE BOARD

Geetha.K

R. Shanthi

S. Shanthi

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Name of the staff:Dr.K.SANGEETHA

Total Hours: 15 hrs

Name of the subject:I.B.Sc N&D (NME-CHEMISTRY IN EVERYDAY LIFE)

Year/Semester:I B.Sc/I semester

Subject code:SD5AA

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
I	General survey of chemicals used in everyday life. 1.2 Air-Components and their importance; photosynthetic reaction, air pollution, green house effect and their impact on our lifestyle. 1.3 Water - Sources of water, qualities of potable water, soft and hard water, methods of removal of hardness-water pollution.	12	Power point presentation and lectures	GOOGLE CLASS ROOM WHITE BOARD
II	Building materials - cement, ceramics, glass and refractories - definition, composition and application only. 2.2 Plastics, polythene, PVC, bake lite, polyesters, melamine formaldehyde resins - preparation and uses only.	13	Power point presentation and lectures	GOOGLE CLASS ROOM WHITE BOARD

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DEPARTMENT OF CHEMISTRY

LESSON PLAN – ACADEMIC YEAR – 2021-2022 (ODD SEMESTER)

Name of the Staff: Dr.R.J.Kavitha **Total Hours: 24**

Name of the Subject: Physical Chemistry **Year/Semester: III/V sem (odd)**

Subject Code: TAT5C

Unit	Chapter	Hours	Methodology	ICT Tools Adopted
2	**SOLUTIONS**			
	Ideal and Non-ideal solutions. Concept of activity and activity coefficients - Completely miscible liquid systems - benzene and toluene.	2	Black Board	GCR WHITE BOARD
	Raoult's law and Henry's law. Deviation from Raoult's law and Henry's law.	2	Power Point Presentation	GCR WHITE BOARD
	Azeotropes- HCl-water and Ethanol-water system	2	Power Point Presentation	GCR WHITE BOARD
	Partially miscible liquid systems (Upper and lower CST) - phenol-water, triethylamine-water and Nicotine-water systems.	2	Power Point Presentation	https://www.youtube.com/watch?v=2kKUf8T40C4
	Completely immiscible liquids – principle and applications of steam distillation	2	Power Point Presentation	https://www.youtube.com/watch?v=JLDMUcHMebo
	Nernst Distribution Law- thermodynamic derivation, application to solvent extraction, limitations of distribution law	2	Black Board	GCR WHITE BOARD
	COLLIGATIVE PROPERTIES			

4	Colligative properties - relative lowering of vapour pressure	3	Black Board	GCR WHITE BOARD
	Osmosis - Law of osmotic pressure- isotonic solutions, effect of concentration and temperature on osmotic pressure	3	Black Board	GCR WHITE BOARD
	Thermodynamic derivation of elevation of boiling point and depression in freezing point - determination of molecular masses using the above properties	3	Black Board	Problems Solved WHITE BOARD
	Abnormal molecular masses and van't Hoff factor - degree of association and degree of dissociation.	3	Black Board	GCR WHITE BOARD

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Name of the Staff: Dr.R.J.Kavitha

Name of the Subject: Pharamceutical Chemistry

Total Hours: 30

Year/Semester: III/V sem (odd)

Subject Code: TET5A

Unit	Chapter	Hours	Methodology	ICT Tools Adopted
2	Common diseases - infective diseases insect borne - air borne and water borne.	2	Black Board	GCR WHITE BOARD
	Common diseases of the respiratory system and nervous system	3	Black Board	GCR WHITE BOARD
	AIDS - symptoms and prevention.	1	Black Board	GCR WHITE BOARD
3	Anaesthetics - general - ether, chloroform, ethyl chloride, halothane, nitrous oxide, local - esters - cocaine, benzococaine, procaine, amides - lignocaine, cinchocaine.	4	Power Point Presentation	GCR WHITE BOARD
	Analgesics - Narcotic and synthetic Antipyretics and anti-inflammatory agents,	3	Power Point Presentation	GCR WHITE BOARD
	Antibiotics - penicillin, streptomycin, chloramphenicol, tetracycline.	3	Power Point Presentation	GCR WHITE BOARD
	Antiseptics and disinfectants - phenol and its derivatives, nitrofuran derivatives.	2	Power Point Presentation	GCR WHITE BOARD
4	Composition of blood - blood grouping and matching.	3	Black Board	GCR WHITE BOARD
	Blood pressure - systolic and diastolic - hypertensive drugs.	2	Black Board	https://www.youtube.com/watch?v=Ab9OZsDECZw

Diabetes - causes - hyperglycemic drugs.	1	Black Board	https://www.youtube.com/watch?v=-B-RVybvffU
Cardiovascular drugs - cardiac glycosides - antiarrhythemic drugs, antianginal drugs, vasodialators,	3	Semianar and Assignments	GCR WHITE BOARD
Antipsychedelic drugs - antidepressants - sedatives and hypnotics.	3	Black Board	GCR WHITE BOARD

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Name of the Staff: Dr.R.J.Kavitha

Name of the Subject: General Chemistry - III

Total Hours: 30

Subject Code: SD23A

Year/Semester: II/III sem (odd)

Unit	Chapter	Hours	Methodology	ICT Tools Adopted
1	**Chemistry of Nitrogen and Oxygen Families**			
	1.1 - Group VA elements: General characteristics of Group VA elements;	2	Power Point Presentation	GCR WHITE BOARD
	Chemistry of H_2N-NH_2, NH_2OH, HN_3 and HNO_3	2	Power Point Presentation and Seminar	GCR WHITE BOARD
	Chemistry of PH_3, PCl_3, PCl_5, $POCl_3$,P_2O_5 and oxyacids of phosphorous (H_3PO_3 and H_3PO_4).	3	Power Point Presentation and Seminar	GCR WHITE BOARD
	1.2 - Group VIA elements: General properties of group VIA elements - Structure and allotropy of elements- chemistry of ozone -	4	Power Point Presentation	GCR WHITE BOARD
	Classification and properties of oxides - oxides of sulphur and selenium - Oxyacids of sulphur (Caro's and Marshall'sacids).	4	Power Point Presentation and Seminar	GCR WHITE BOARD
	Chemistry of Halogens and Noble Gases			
	Chemistry of Halogens: General characteristics of halogen with reference to electro-negativity, electron affinity, oxidation states and oxidizing power.	3	Black Board	GCR WHITE BOARD
	Peculiarities of fluorine.	1	Black Board	GCR WHITE BOARD

	Halogen acids (HF, HCl, HBr and HI), oxides and oxyacids ($HClO_4$).	3	Black Board	GCR WHITE BOARD
2	Inter-halogen compounds (ICl, ClF_3, BrF_5 and IF_7),	2		Google classroom White board
	Pseudo halogens [$(CN)_2$ and $(SCN)_2$] and basic nature of Iodine.	2		Google classroom White board
	Noble gases: Position in the periodic table. Preparation, properties and structure of XeF_2, XeF_4, XeF_6 and $XeOF_4$; uses of noble gases- clathrate compounds.	4	Black Board	Google classroom White board

R. Shanthi

I. Shanthi

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Name of the Staff: Dr.R.J.Kavitha

Name of the Subject: Allied Chemistry - I **Total Hours: 20**

Subject Code: SD3AA **Year/Semester: I (N & D)/I sem (odd)**

Unit	Chapter	Hours	Methodology	ICT Tools Adopted
1	**NUCLEAR CHEMISTRY**			
	Fundamental particles of Nuclear Isotopes, Isobars, Isotones and Isomers	1	Power Point Presentation	GCR WHITE BOARD
	Differences between chemical reactions and nuclear reactions: Fusion and fission	4	Power Point Presentation	https://www.youtube.com/watch?v=xrk7Mt2fx6Y
	Radioactive series, group displacement law - Mass defect	4	Problems solved	Google Class room White Board
	Applications of radio isotopes- carbon dating, rock dating and in medicine.	2	Power Point Presentation	GCR WHITE BOARD
4	**CHEMISTRY OF SOME USEFUL ORGANIC AND INORGANIC COMPOUNDS**			
	Preparation and uses of CH_2Cl_2, $CHCl_3$,	4	Black Board	GCR WHITE BOARD
	Polyethylene, PVC, Nylon and Terylene, phenol – formaldehyde resin, Bakelite,	4	Black Board	GCR WHITE BOARD
	Rubber and vulcanisation.	2	Black Board	https://www.youtube.com/watch?v=sFjGQxUTVJE

Total Hours: 15

Name of the Staff: Dr.R.J.Kavitha

Year/Semester: I (N & D)/I sem (odd)

Name of the Subject: NME

Subject Code: SD5AA – Chemistry in Everyday Life

Unit	Chapter	Hours	Methodology	ICT Tools Adopted

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3	3.2 - Cosmetics - Tooth pastes, face powder, soaps and detergents, shampoos, nail polish, perfumes - general formulation and preparations- possible hazards of cosmetics use	3	Seminar	https://www.youtube.com/watch?v=8m3iXjEmzoA
4	4.1 - Chemicals in food production - fertilizers - need, natural sources; urea, NPK fertilizers and superphosphate.	3	Power point presentation	GCR WHITE BOARD
	4.2 - Fuel - classification - solid, liquid and gaseous; nuclear fuel - examples and uses.	3	Power point presentation	GCR WHITE BOARD
5	Pharmaceutical drugs - analgesics and antipyretics - Paracetamol and Aspirin.	2	Power point presentation	GCR. WHITE BOARD
	5.2 Colour chemicals - pigments and dyes - examples and applications.	2	Power point presentation	https://www.youtube.com/watch?v=MD-OLSRgmWg
	5.3 Explosives - classification and examples.	2	Power point presentation	GCR WHITE BOARD

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Name of the Staff: Dr.R.J.Kavitha

Name of the Subject: Physical Chemistry **Total Hours: 10**

Subject Code: MER1C **Year/Semester: I –M.Sc/I sem (odd)**

Unit	Chapter	Hours	Methodology	ICT Tools Adopted
	QUANTUM CHEMISTRY – I			
	Inadequacy of classical theory - black body radiation, photo electric effect - the Compton effect -	4	Black Board	https://www.youtube.com/watch?v=A0ffeN1MxX8
5	Bohr's Quantum theory and subsequent developments -wave particle duality- de Broglie equation,	4	Black Board	https://www.youtube.com/watch?v=XCHHHdd0zG8
	Heisenberg uncertainty principle.	2	Black Board	GCR. WHITE BOARD

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LESSON PLAN 2021-22

EVEN SEMESTER

11/2/2022.

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DEPARTMENT OF CHEMISTRY
LESSON PLAN
ACADEMIC YEAR 2020 – 2021 (EVEN SEMESTER)

Name of the Staff: Dr. S.SHANTHI	**Department: CHEMISTRY**
Class: I M.Sc Chemistry	**TOTAL HOURS: 15**
Subject code & Subject Name: MER2B , Inorganic Chemistry II	
Academic year: 2020-21	**Semester : II**

UNIT	CHAPTER	NO. OF HOURS	TEACHING METHOD	ICT TOOLS ADOPTED
I	Electron transfer reactions; outer and inner sphere processes; atoms transfer reaction, complementary and non-complementary reactions	10	PPT, EDUCATIONAL VIDEOS, WHITE BOARD	Google Classroom, Whiteboard
I	Formation and rearrangement of precursor complexes, binding ligand, successor complexes, Marcus theory.	5	PPT, EDUCATIONAL VIDEOS, WHITE BOARD	Google Classroom, Whiteboard

R. Shanthi

S. Shanthi

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Name of the Staff: Dr. S.SHANTHI	**Department: CHEMISTRY**
Class: II M.Sc Chemistry	**TOTAL HOURS: 35**
Subject code & Subject Name: MER4B , Inorganic Chemistry IV	
Academic year: 2020-21	**Semester : IV**

UNIT	CHAPTER	NO. OF HOURS	TEACHING METHOD	ICT TOOLS ADOPTED
V	Principles of Inorganic Photochemistry – Photoredox reactions	4	PPT, EDUCATIONAL VIDEOS, WHITE BOARD	Google Classroom, Whiteboard
V	Photosubstitution reactions in coordination complexes with particular reference to Co(III), Cr(III) and Pt(II) complexes.	4	PPT, EDUCATIONAL VIDEOS, WHITE BOARD	Google Classroom, Whiteboard
V	Photosensitisation reactions of [Ru(bpy)3]2+ complex and its applications	7	PPT, EDUCATIONAL VIDEOS, WHITE BOARD	Google Classroom, Whiteboard
V	solar energy conversions and DSSC's (Dye Sensitized Solar Cells)	5	PPT, EDUCATIONAL VIDEOS, WHITE BOARD	Google Classroom, Whiteboard

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Name of the Staff: Dr. S.SHANTHI	Department: CHEMISTRY
Class: I B.Sc N&D	TOTAL HOURS: 15
Subject code & Subject Name: , SD5AG , Food Chemistry	
Academic year: 2021-22	Semester : II

NIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
I	FOOD ADULTERATION Sources of food, types, advantages and disadvantages.	2	BLACK BOARD	GOOGLE CLASS ROOM
I	Food adulteration - contamination of Wheat, Rice Alial, Milk, Butter etc. with clay stones, water and toxic chemicals -	2	BLACK BOARD	GOOGLE CLASS ROOM
I	Common adulterants. Common adulterants Ghee adulterants and their detection.	2	BLACK BOARD	GOOGLE CLASS ROOM
I	Detection of adultered Foods by simple analytical techniques.	1	BLACK BOARD	GOOGLE CLASS ROOM
II	FOOD POISON Food Poisons - natural poisons (alkaloids - nephrotoxin)	1	BLACK BOARD	GOOGLE CLASS ROOM
II	Poison consumed Pesticides, DDT, BHC, Malathion	2	BLACK BOARD	GOOGLE CLASS ROOM
II	Chemical poisons, First aid for victims	1	BLACK BOARD	GOOGLE CLASS ROOM
III	FOOD ADDITIVES Food additives - artificial sweeteners- Saccharin	1	BLACK BOARD	GOOGLE CLASS ROOM
III	Cyclamate and aspartame	1	BLACK BOARD	GOOGLE CLASS ROOM
III	Food flavours – esters.	1	BLACK BOARD	GOOGLE CLASS ROOM
III	Aldehydes and heterocyclic compound	1	BLACK BOARD	GOOGLE CLASS ROOM

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S. Shanthi

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DEPARTMENT OF CHEMISTRY

LESSON PLAN – EVEN SEMESTER 2021-22

III B.Sc., Organic Chemistry – (VI Sem)

Name of the staff : Dr. Mrs. P. Shanthi — Total Hours : 15

Name of the subject : Organic Chemistry — Year/ Semester : III / VI

Subject code: TAT6B

S.NO	UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
1	II	Proteins and Vitamins Amino acids – Classification, General methods of preparation and reactions, Zwitter ion, isoelectric point. .	7	PPT PPT	https://youtu.be/NIvhyULL3s0
		Peptides and proteins – Peptide linkage, Classification of proteins, Primary structure, End group analysis – Sanger's method and Edman method, Secondary structure, Tertiary structure, Denaturation. Vitamins Classification, biological importance of Vitamins, Structural elucidation of Vitamin C. Structures of Vitamin A and Vitamin D.	8	PPT PPT PPT PPT PPT PPT PPT PPT PPT	https://youtu.be/z2JEDeGkfCc https://www.youtube.com/watch?v=PPJ7C3hcnPw https://www.youtube.com/watch?v=piXHivrTT-E https://youtu.be/OClmJ0wL160

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DEPARTMENT OF CHEMISTRY

LESSON PLAN – EVEN SEMESTER 2021-22

II M.Sc., Organic Chemistry – (IV Sem)

Name of the staff : Dr. Mrs. P. Shanthi — Total Hours : 24

Name of the subject : Organic Chemistry — Year/ Semester : II/IV

Subject code: MER4A

S.NO	UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
1	II	Alkaloids and Proteins Introduction of Phenantherene Alkoloids Morphine – Introduction and Properties	6	PPT PPT	
		Structure of morphine	6	PPT	https://www.youtube.com/watch?v=6K7ieDH_B2M
		Synthesis of morphine Peptides and their synthesis (Synthesis of tripeptide using amino acids - Glycine, Alanine, Lysine, Cysteine, Glutamic acid, Arginine). Merrified synthesis	6	PPT PPT PPT	https://www.youtube.com/watch?v=UIJebVlbuv8
		Proteins Introduction and properties Determination of primary structure Determination of secondary and tertiary structure	6	PPT PPT PPT PPT	https://youtu.be/z2JEDeGkfCc https://www.youtube.com/watch?v=PPJ7C3hcnPw https://www.youtube.com/watch?v=piXHivrTT-E

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LESSON PLAN – EVEN SEMESTER 2021-22

I M.Sc., Organic Chemistry – (II Sem)

Name of the staff : Dr. Mrs. P. Shanthi

Total Hours : 15

Name of the subject : Organic Chemistry

Year/ Semester : I/II

Subject code: MER2A

S.NO	UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
1	I	**Addition to carbon-carbon and carbon-hetero multiple bonds** Nucleophilic addition to carbonyls and Stereo Chemical aspects through various model (Cram/Cram chelation/Felkin – Anh model)-Crams rule-Prevost rule- Re face-si face on addition reaction. Addition reactions - Introduction	6	PPT PPT PPT	https://www.youtube.com/watch?v=ZpAcOwfLrII
		Mechanism of electrophilic addition Mechanism of nucleophilic addition Neighbouring group participation in addition reactions. Addition of halogen	7	PPT PPT PPT PPT	

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		Addition of nitrosyl chloride to olefins, Hydration of olefins and acetylenes, Hydroboration, Lithium and boron enolates in aldol, Michael reactions. Alkylation and acylation using Lithium enolates		Assignment Assignment Assignment PPT PPT	https://youtu.be/9PRvKV2IcLg https://youtu.be/RBwOfhS6mBM https://youtu.be/dEdsR-6dKWE
		Hydrogenation of ethylene and acetylene- partial reductions Homogeneous hydrogenation- Wilkinson's catalyst.	2	Seminar PPT	https://youtu.be/XOkjbr6nW7A

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DEPARTMENT OF CHEMISTRY

LESSON PLAN – EVEN SEMESTER 2021-22

I M.Sc., Inorganic Chemistry – **(II Sem)**

Name of the staff: **Dr.T.Sobana Premlatha** Total Hours : **52**

Name of the subject : **Inorganic Chemistry** Year/ Semester : **I / II**

Subject code: **MER2B**

S.NO	UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
1	**Unit III:** Solid State Chemistry	**Unit III:** Solid State Chemistry:- Preparation Methods: Ceramic method – Sol-gel method – Hydrothermal synthesis –chemical vapour deposition: Structure of Solids: Structure of ZnS, Rutile, Pervoskite, Cadmium iodide and nickel arsenide; spinels and inverse spinels; defects in solids, non-stoichometric compounds - High Temperature Superconductors	6	whiteboard, PPT,Video, Board and Chalk	https://youtu.be/zPFoZnW6MzY
		Band theory, Semiconductors, Superconductors, Solid State Electrolytes, Types of Magnetic Behaviour - Dia, Para, Ferro, Antiferro and Ferrimagnetism, Hysterisis, Solid State Lasers, Inorganic Phosphorus, Ferrites, Garnets.	6	whiteboard, Video, Board and Chalk	https://youtu.be/3npADYVtQOM https://youtu.be/zdmEaXnB-5Q
		Reactions in solid state and phase transitions, diffusion, diffusion coefficient, diffusion mechanisms, vacancy and	6	whiteboard, Video, Board and Chalk	https://youtu.be/yZXhq-7mmvA

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		interstitial diffusion, formation of spinels. Solid solutions: Order-disorder transformations and super structure.			
2	**Unit IV:** Nuclear Chemistry	**Unit IV:** Nuclear Chemistry:- Nuclear properties-nuclear spin and moments, origin of nuclear forces, salient features of liquid drop	2	PPT, Video, Board and Chalk	https://youtu.be/7N3c5ORERkDQ
		Shell models. Types of radioactive decay: Orbital electron capture, nuclear isomerism, internal conversion, detection and determination of activity by cloud chamber, nuclear emulsion, bubble chamber, G.M., Scintillation counter. Radio chemical determination of age of geological specimen. Tracers as applied to industry and agriculture - radioactive tracer in the diagnosis and treatment in the field of medicine.	12	PPT, Video, Board and Chalk	https://youtu.be/rUU_1yUPaus https://youtu.be/deg8FsOK1Bo https://youtu.be/7N3c5ORERkDQ https://youtu.be/ieEeFKrFBIg https://youtu.be/wTNPNh1KtKw
3		Cherenkov counters; Accelerators- Linear and Cyclotron. Nuclear reaction: Types, reaction cross section, Q-value, threshold energy, compound nucleus theory: high nuclear reactions, nuclear fission and fusion reactions as energy sources; photonuclear and thermo nuclear reactions. Components of nuclear	10	PPT, Video, Board and Chalk	https://youtu.be/C79838wtRZo https://youtu.be/L5zhpLfnqGc https://youtu.be/6axVVhi62ac https://youtu.be/BYRz_9wvJzA https://youtu.be/Xgdyfdd5zO0 https://youtube.com/watch?v=76TRXtDXNVw&feature=share

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		reactors – the fast breeder reactor – nuclear reactors in India.			
4	**Unit V**: Nuclear Chemistry	**Unit V**: Nuclear Chemistry Application:- Radioactive tracers: Preparations - principles of tracer technique - application of tracers in the study of reaction mechanism and in analytical chemistry - neutron activation analysis, isotope dilution analysis	10	PPT, Video, Board and Chalk	https://youtu.be/fm_sacWoG7c

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LESSON PLAN – EVEN SEMESTER **2021-'22**

II M.Sc., Inorganic Chemistry – **(IV Sem)**

Name of the staff: **Dr.T.Sobana Premlatha** Total Hours : **36**

Name of the subject : Inorganic Chemistry Year/ Semester : **II/ IV**

Subject code: **MER4B**

.NO	UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
1	**Unit I**	**Unit I**: Bio-Inorganic Chemistry - I Metal storage, transport and biomineralisation:	4	PPT,Whiteboard, Video, Board and Chalk	https://youtu.be/rvHwEnSqLg0
2		Ferritin, transferrin. Metal ion pumps - sodium and potassium.	8	PPT,Whiteboard, Video, Board and Chalk	https://youtu.be/pMhN41a0jDM https://youtu.be/2i3Uh6UQBO https://youtu.be/E-7Bb97Er4I https://youtu.be/cYO04a0RhlI
3		Anti cancer agents, role of metal ion in diagonis and treatment – use of radioisotopes.	10	PPT,Whiteboard, Board and Chalk	https://youtu.be/ZXQebF9DOtA https://youtu.be/I8EbfQa00F4 https://youtu.be/61D2qpuERYY https://youtu.be/SzfdiaLvvk4
4	**Unit II**	Unit II: Bio-Inorganic Chemistry – II Transport Proteins – Oxygen carriers – Haemoglobin, myoglobin – Structure, oxygenation and stereochemistry – Bohr effect, Non-heme oxygen carriers – Hemerthrin and hemocyanin. Biological redox systems – ruberdoxin and ferrodoxin. Role of Chlorophylls in photosynthesis.	14	PPT, Video, Board and Chalk	https://youtu.be/Qv-KExGKAYw https://youtu.be/lW8YhR4o3cg https://youtu.be/Y3hRYzEmKrc https://youtu.be/N17o1S8qrAc https://youtu.be/N17o1S8qrAc https://youtu.be/B7PBET5Petg https://youtu.be/u3vD9GHEDI8

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LESSON PLAN – EVEN SEMESTER **2021-'22**

III B.Sc., Inorganic Chemistry – **(VI Sem)**

Name of the staff: **Dr.T.Sobana Premlatha** Total Hours : **30**

Name of the subject : Inorganic Chemistry Year/ Semester : **III / VI**

Subject code: **TAT6A**

S.NO	UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
1	**UNIT-III**	**UNIT-III:** NUCLEAR CHEMISTRY Introduction – composition of nucleus – nuclear binding energies –structure of nucleus-nuclear shell model	2	PDF,whiteboard, PPT. Video, Board and Chalk	https://youtu.be/rUU_1yUPaus
2		magic numbers – nuclear stability – theories of nuclear stability - i) nuclear binding energy theory ii) meson theory of nuclear forces iii) nuclear fluid theory	8	PDF,whiteboard, PPT. Video, Board and Chalk	https://youtu.be/7N3c5OREkDQ
3		isotopes, isobars, isotones and nuclear isomers – detection of isotopes –Aston's mass spectrograph separation of isotopes – electromagnetic method the whole number rule and packing fraction – atomic weights. Nuclear fission-Atom bomb, Nuclear fusion-hydrogen bomb.	10	PDF,whiteboard, PPT. Video, Board and Chalk	https://youtu.be/qgJW1g0nCxQ https://youtu.be/6axVVhi62ac https://youtu.be/nyjeYEq-fVI https://youtu.be/Xs7SFulW4oE https://youtu.be/Cb8NX3HiS4U
4	**UNIT IV**	**UNIT IV: RADIOACTIVITY**	10	PDF,whiteboard,	https://youtu.be/fOMvJj39eTU

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		Radioactive Emanations, Alpha rays, Beta rays and Gamma rays. The Disintegration theory. Group Displacement Law. Rate of disintegration and Half-life period. Radioactive disintegration series. The Gieger-Nuttal rule - .Artifical radioactivity. Induced radioactivity. Hazards of radiation. Applications of Radioisotopes.		PPT. Video, Board and Chalk	https://youtu.be/4vJIV5ybm-A https://youtu.be/dQS2xn_2G90 https://youtu.be/KYDil96NR5Q https://youtu.be/4xxqDE4DsEY

T. Sobana Pinlak

R. Shanthi

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DEPARTMENT OF CHEMISTRY

LESSON PLAN

ACADEMIC YEAR 2021 – 2022 (EVEN SEMESTER)

Name of the Staff : Dr.E.Thamarai selvi **Total hours : 35**

Name of the subject : Physical Chemistry IV **Year / Semester: II M.Sc/ IV Semester**

Subject Code : MER4C

UNIT	CHAPTER	NO. OF HOURS	TEACHING METHODOLOGY	ICT TOOLS ADOPTED
IV	Concept of thermodynamic probability - distribution of distinguishable and non-distinguishable particles .Maxwell-Boltzmann, Fermi-Dirac and Bose Einstein statistics	8	PPT , Chalk & Board	https://youtu.be/DPjCUIIaM6M
IV	Modes of contribution to energy-Partition function - translational, vibrational and rotational partition functions for mono, diatomic and polyatomic ideal gases. Thermodynamic functions in terms of partition functions, Sackur-Tetrode equation equilibrium constant for isotope exchange and dissociation of diatomic molecules;	8	PPT , Chalk & Board	GOOGLE CLASSROOM WHITE BOARD
V	Heat capacity of solids (Einstein and Debye Models) ortho and para hydrogen -Planck's radiation law - electrons in metals.	9	PPT , Chalk & Board	GOOGLE CLASS ROOM WHITE BOARD
V	Non equilibrium processes, entropy production in irreversible processes, microscopic reversibility, linear force and flux relations, Onsager's law, phenomenological equations, Curie's theorem.	10	PPT , Chalk & Board	GOOGLE CLASS ROOM WHITE BOARD

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DEPARTMENT OF CHEMISTRY
LESSON PLAN
ACADEMIC YEAR 2021 – 2022 (EVEN SEMESTER)

Name of the Staff : Dr.E.Thamarai selvi **Total hours : 35**

Name of the subject : Physical Chemistry II **Year / Semester: I M.Sc/ II Semester**

Subject Code : MER2C

UNIT	CHAPTER	NO. OF HOURS	METHODOLOGY	ICT TOOLS ADOPTED
III	Quantum mechanical postulates- Eigen value and function – the Schrodinger wave equation-elementary applications of Schrodinger's equation-the particle in a box (one, two and three dimensional cases)	8	PPT , Chalk & Board	https://youtu.be/ywcSuAt-UNQ https://youtu.be/NNPgx9RvN_8 https://youtu.be/iJ2uMFYgnA
III	Schrodinger wave equation-Particle on a ring – Particle on a sphere.	8	PPT , Chalk & Board	GOOGLE CLASSROOM WHITE BOARD
IV	The harmonic oscillator- the rigid rotor- the hydrogen atom- the Schrodinger equation for hydrogen atom-angular momentum	9	PPT , Chalk & Board	https://youtu.be/x0uawoZoYFK
IV	term symbols –the solution-the origin of quantum numbers (angular momentum and spin) –their physical significance	10	PPT , Chalk & Board	GOOGLE CLASS ROOM WHITE BOARD.

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LESSON PLAN
ACADEMIC YEAR 2021 – 2022 (EVEN SEMESTER)

Name of the Staff : Dr.E.Thamarai selvi **Total hours : 30**

Name of the subject : Physical Chemistry II **Year / Semester: III B.Sc/ VI Semester**

Subject Code : TAT6C

NIT	CHAPTER	NO. OF HOURS	METHODOLOGY	ICT TOOLS ADOPTED
	Symmetry elements and symmetry operation symmetry operation of H_2O molecule, Illustration of mathematical rules for the group using symmetry operations of H_2O molecule.Construction of multiplication table, for H_2O molecule. Point group - Definition Elements (symmetry operations) of the following point groups Cn (C_2, C_3), Cnv (C_{2v}, C_{3v}) and C_{nh}(C_{2h}, C_{3h})	8	PPT , Chalk & Board	https://youtu.be/KoV8rBmG_FO
	Electrolytic & Galvanic cells – Reversible and irreversible cells.Conventional representation of electrochemical cells.Electromotive force of a cell and its measurement computation of E.M.F. calculation of thermodynamic quantities of cell reactions (ΔG,ΔH, ΔS and K_{eq}).	7	PPT , Chalk & Board	https://www.youtube.com/Playlist?list=PLkqcnysg6eVyJKeZzRx9CQJc36w79jvD
	Application of Gibbs Helmholtz equation.Calculation of E.M.F. Nernst equation.Types of reversible electrodes – Gas/metal ion-metal/metal ion; metal/insoluble salt/anion and Redox electrodes. Electrode reactions – Nernst equation – Derivation of cell E.M.F. and single electrode potential - standard hydrogen electrode – reference electrodes – standard electrodes potentials – sign convention – Electrochemical series and its significance.	7	PPT , Chalk & Board	GOOGE GLASS ROOM WHITE BOARD
	Concentration cell with and without transport.Liquid junction potential.Application of EMF concentration cells.Valency of ion, solubility product and activity co-efficient. Potentiometric titrations. Determination of pH using Hydrogen, quinhydrone and glass electrodes. Determination of pKa of acids by potentiometric method. Corrosion - general and electrochemical theory - passivity - prevention of corrosion.	8	PPT , Chalk & Board	

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LESSON PLAN
ACADEMIC YEAR 2021 – 2022 (EVEN SEMESTER)

Name of the Staff : Dr.E.Thamarai selvi **Total hours : 20**

Name of the subject : Polymer Chemistry Year / Semester: I M.Sc/ II Semester

Subject Code : TET6A

UNIT	CHAPTER	NO. OF HOURS	METHODOLOGY	ICT TOOLS ADOPTED
	Basic concepts of polymer chemistry: Repeating unit, degree of polymerisation, classification, stereochemistry of polymers and nomenclature of stereoregular polymers.	10	PPT , Chalk & Board	
	Chain, free radical, ionic and ring opening polymerizations. Ziegler – Natta catalyst involment in step polymerisation ring opening polymerisation. Copolymerisation: Block and graft copolymers – preparation	10	PPT , Chalk & Board	

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Department of Chemistry

Academic year 2021-22

Even Semester

Name of the staff: Sandhya Jayachandran **TotalHours:35**

Name of the subject: Organic Chemistry **Year/ Semester: III/VI**

Subject code: TAT6B

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
IV	Molecular Rearrangements: types of rearrangements, Mechanism for Pinacol-Pinacolone rearrangement, Benzil- Benzilic acid rearrangement. Stereochemistry of organic compounds : stereochemistry definition, Classification into geometric and optical isomerism,	8	PPT, Chalk and Board	https://youtu.be/fYJ05Xe_DVQ Google classroom, Whiteboard
IV, V	Mechanism for benzidine, Favorskii, Claisen, Fries, Hofmann, Curtius, Schmidt and Beckmann rearrangement. Optical isomerism – optical activity, asymmetric centre – chirality, symmetry	8	PPT, Chalk and Board	https://youtu.be/V_HT0pKQNV0 Google classroom, Whiteboard

Dr. SANDHYA JAYACHANDRAN

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PRINCIPAL ANNA ADARSH COLLEGE FOR WOMEN ANNA NAGAR, CHENNAI-600 040.

	elements, (σ, S_n and i) , meaning of (+) or d and (-) or l			
V	Notation of optical isomerism, Cahn- Ingold and Prelog rules, R and S notations for one and two chirality, stereogeniccentres, erythro and threo representations, Geometrical isomerism: cis-trans, Syn – anti, E-Z descriptors, (3D visualization through computers)	10	PPT, Chalk and Board	https://youtu.be/fplnnqcIIBLo Google classroom, Whiteboard
V	D and L notation, concept of enantiomerism, and diastereoisomerism, Racemisation – methods of racemisation (by substitution and tautomerism), Resolution – methods of resolution (by mechanical, seeding, and biochemical), walden inversion, Projection formulae – Fischer, flying wedge, Sawhorse and Newmann projections	9	PPT, Chalk and Board	https://youtu.be/GJHSL9CwmEU Google classroom, Whiteboard

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Department of Chemistry

Academic year 2021-22

Name of the staff: Sandhya Jayachandran **Total Hours: 30**

Name of the subject: General Chemistry **Year/ Semester: II/IV**

Subject code:

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
IV	Alcohols and Thiols : Monohydric, Dihydric and Trihydric alcohols : nomenclature Preparation of alcohols from alkenes, alkyl halides,Grignard reagent and carbonyl compounds. Reaction of alcohols – Dehydration, oxidation, action of Grignard reagent, dehydrogenation, using copper and esterification	8	PPT, Chalk and Board	https://youtu.be/j04zMFwDeDU Google classroom, Whiteboard
IV	Thiols : Nomenclature, structure, preparation and properties Ethers : Nomenclature, structure, preparation, properties and uses. Thioethers : Nomenclature, structure, preparation, properties and uses	8	PPT, Chalk and Board	https://youtu.be/Khj5qfohjC8 Google classroom, Whiteboard
III	**Hetero cyclic compounds** Nomenclature, Preparation and properties of Furan, Pyrrole, Thiophene and Pyridine.Comparative study of basicity of pyrrole and pyridine with aliphatic amines.	8	PPT, Chalk and Board	https://youtu.be/6b2gZA70xxg Google classroom, Whiteboard

	Synthesis and reactions of Indole, Quinoline and Isoquinoline			
	Dyes Theory of colour and constitution. Preparation and uses of: Azo dye - Bismark brown, Triphenyl methane dye - malachite green, phthalein dye - fluorescein,anthrquinone dye- alizarin and vat dye-indigo	6	PPT, Chalk and Board	https://youtu.be/sLcT7P-ZS4E Google classroom, Whiteboard

Dr. Sandhya Jayachandran

R. Santhi

S. Santhi

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ANNA NAGAR, CHENNAI-600 040

ADARSH COLLEGE FOR WOMEN
9th Main Road,
Anna Nagar

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Department of Chemistry

Academic year 2021-22

Name of the staff: Sandhya Jayachandran **TotalHours:35**

Name of the subject: Organic Chemistry **Year/ Semester: II/IV**

Subject code: MER4A

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
V	Synthesis and applications of Organolithium, Organomagnesium, Organozinc and Organo Copper and Gilman reagents. Modern synthetic methods: metal mediated C-C coupling reactions	5	PPT, Chalk and Board	https://youtu.be/3FRV31YYtL8 Google classroom, Whiteboard
V	Mechanism and synthetic applications of Heck, Stille, Suznki, Negishi, Sonogashira, McMurray, Metathesis and Carbonylation reactions. Green reactions and reagents.	10	PPT, Chalk and Board	https://youtu.be/kL5fMb8azEc Google classroom, Whiteboard
III	Application of synthetic methodology for the synthesis of simple cyclic and acyclic target molecules -	10	PPT, Chalk and Board	https://youtu.be/0t0SIHHVO-wc

	synthesis of cubane, 5 - hexenoicacid , bicyclo (4, 1, 0) heptane-2-one.,trans 9-methyl-1- decalone			Google classroom, Whiteboard
III	longifolene and onocerin. Concept of Synthones, synthetic equivalents and intermediates. Formation of C-C and C=C bonds. Reversal carbonyl polarity – Umpolung addition.	10	PPT, Chalk and Board	https://youtu.be/MxUFLXDFAhc Google classroom, Whiteboard

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Department of Chemistry

FORMAT FOR LESSONPLAN

Academic year 2020-21

Name of the staff: Sandhya Jayachandran **TotalHours:35**

Name of the subject: Organic Chemistry **Year/ Semester: I/II**

Subject code: MER2A

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
III	Elimination and Free radical reactions : E1, E2 and E1CB Mehanisms. Orientation of double bond, Regio selectivity and stereoselectivity of elimination reactions in cyclic systems, pyrolytic elimination	10	PPT, Chalk and Board	https://youtu.be/ZOUS0Q_B4fQ Google classroom, Whiteboard
III	Chugaev, Hofmann and Cope elimination, long and short lived free radicals, methods of generation, addition of free radicals to olefinic double bonds, Sandmayer- Gombereg-Bachmann, Pschorr,	10	PPT, Chalk and Board	https://youtu.be/W5DRzjpF4Ow Google classroom, Whiteboard

	Ulmann and Hunsdicker reactions			
IV	Moleular rearrangements- Mechanism of Cope, Claisen, Stevens, Sommelet-Hauser (in cyclic systems) and Von Richter rearrangements, Favorski rearrangement	7	PPT, Chalk and Board	https://youtu.be/-P1w-y5ieEg Google classroom, Whiteboard
IV	Molecular Rearrangements : A detailed study of the mechanism of the following rearrangements with suitable examples – pinacol-Pinacolone (example other than tetra methyl ethylene glycol) – Wagner Meerwein, Demjanov, Dienone- phenol, Baeyer-villiger rearrangement	8	PPT, Chalk and Board	https://youtu.be/YPoo91opvqM Google classroom, Whiteboard

Dr. SANDHYA JAYACHANDRAN

R. Shanthi

S. Shanthi

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Department of Chemistry

Academic year 2021-2022

II M.Sc Chemistry

Name of Staff: K.Priya Sudha

Total Hours: 25

Name of Subject:Inorganic Chemistry

Semester:IV

Subjeect Code:MER4B

Year: II

Unit	Chapters	Hours	Methodology	ICT tools adopted
IV	**CHEMISTRY OF ORGANOMETALLIC COMPOUNDS** Metallocenes: synthesis, structure and bonding. Bonding in carbonyls and nitrosyls	4	Blended teaching	Video Link https://www.youtube.com/watch?v=Fewhl9385V0 PPT
IV	Metalation & Transmetallation; Carbon donors Alkyls(olefin, acetylene), allyl, cyclic and aryl donors	6	Blackboard teaching Lectures	
IV	Reactions: Association, substitution, addition, elimination, ligand protonation, electrophilic and nucleophilic attack on ligands, carbonylation,	8	Blackboard teaching Lectures	

	decarboxylation and oxidative addition			
V	**INDUSTRIAL APPLICATIONS OF ORGANOMETALLIC COMPOUNDS** Catalysis Hydrogenation of olefins (Wilkinson's catalyst), Hydroformylation of olefins using cobalt or rhodium catalyst(Oxo process) Oxidation of olefins to aldehydes and ketones(Wacker process) Polymerisation(Ziegler-Natta catalyst) Cyclo oligomerisation of acetylene using nickel catalyst(Reppe's catalyst) Polymer bound catalysts. Ziegler-Natta catalysis (metallocene and Non-Metallocene type catalyst).	7	Blended teaching	PPT Video Links https://www.youtube.com/watch?v=04XP1WlGcuE https://www.youtube.com/watch?v=Q2lP2tSCcj0

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Academic year 2021-2022

II M.Sc Chemistry

Name of Staff: K.Priya Sudha

Total Hours: 20

Name of Subject:Inorganic Chemistry

Semester:II

Subjeect Code:MER2B

Year: I

Unit	Chapters	Hours	Methodology	ICT tools adopted
II	**Substitution reactions in coordination compounds** Substitution Reactions : Substitution in square planar complexes, Reactivity of platinum complexes	5	Blackboard teaching	
II	Influence of entering, leaving and other groups, trans-effect	3	Blackboard teaching	
II	Substitution of octahedral complexes of cobalt and chromium	2	Blackboard teaching	
II	Replacement of coordinated water, solvolytic (acids and bases) reactions Applications in synthesis (platinum and cobalt complexes only)	5	Blackboard teaching	
II	Rearrangement in 4 and 6 coordinate complexes: Reaction at coordinated ligands-template effect.	5	Blackboard teaching	

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Academic year 2021-2022

III B.Sc Chemistry

Name of Staff: K.Priya Sudha

Total Hours: 30

Name of Subject:Organic Chemistry - II

Semester:VI

Subjeect Code:TAT6B

Year: III

Unit	Chapters	Hours	Methodology	ICT tools adopted
I	**CHEMISTRY OF CARBOHYDRATES** Carbohydrates – Definition and Classification of carbohydrates with examples. Mono saccharides:Explanation of enantiomers, diastereomers, epimers and anomers with examples. Mechanism of mutarotation, osazoneformation.	6	Blended teaching	PPT flowchart Video Links https://www.youtube.com/watch?v=D5RdWVBAN1c https://www.youtube.com/watch?v=50sCvpkNGjM https://www.youtube.com/watch?v=R2Jhvp7ZU5s
I	Absolute configurations of glucose and fructose. Structural elucidation of glucose and fructose (includes cyclic and	6	Blackboard teaching	

	Haworth structure). Inter convertions, ascending and descending the sugar series			
I	Disaccharide – Sucrose, Maltose – Structural elucidation. Polysaccharide – Starch and Cellulose (Elementary treatment).	3	Blackboard teaching Lectures	
III	**CHEMISTRY OF ALKALOIDS AND TERPENOIDS** Alkaloids – Isolation, classification, general methods of elucidating structure.Structural elucidation of nicotine and piperine.	7	Blended teaching	Video Link https://www.youtube.com/watch?v=9MEGVibVaB4
III	Terpenes – classification , isoprene rule, isolation and structural elucidation of citral, α- terpeniol and menthol.	8	Blended teaching	Video Link https://www.youtube.com/watch?v=h1Z1iwhbtBo

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Academic year 2021-2022

I B.Sc Chemistry

Name of Staff: K.Priya Sudha

Total Hours: 20

Name of Subject:General Chemistry - II

Semester:II

Subjeect Code: SD22A

Year: I

Unit	Chapters	Hours	Methodology	ICT tools adopted
V	**CHEMISTRY OF ALKANES AND CYCLOALKANES :** General methods of preparation and properties of alkanes General methods of preparation and properties of cycloalkanes	5	Blackboard teaching	
V	Conformational analysis of ethane and n-butane. Baeyer's strain theory.	2	Blended teaching	Video Links https://www.youtube.com/watch?v=jUqb-KD9SuY https://www.youtube.com/watch?v=hykVHqZ40RQ https://www.youtube.com/watch?v=NI5e2G55sUY
V	**ALKENES, ALKYNES AND DIENES:** Preparation of alkenes (dehydrogenation, dehydrohalogenation and dehydration)	2	Blackboard teaching	

	Preparation of alkynes(dehydrohalogenation, dehalogenation)			
V	Addition (with mechanisms) of H_2, X_2, HX, HOX, B_2H_6 and O_3 to alkenes and alkynes Addition of HBr (peroxide effect; free radical reaction mechanism) to alkenes and alkynes Allylic substitution of alkenes by NBS.	8	Blended teaching	Video Link https://www.youtube.com/watch?v=EWOvFAu8FmA
V	**DIENES** Types, Stability; Preparation of- 1,3-butadiene,isoprene, and chloroprene. Reactivity: 1,2- and 1,4- additions to butadiene. Diels-Alder reaction	3	Blended teaching	Video Link https://www.youtube.com/watch?v=ma8mqYqqIP8

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Department of Chemistry

Academic year 2021-2022

II B.Sc Physics

Name of Staff: K.Priya Sudha

Total Hours: 10

Name of Subject:Allied Chemistry- II

Semester:IV

Subjeect Code:SD3AD

Year: II

Unit	Chapters	Hours	Methodology	ICT tools adopted
II	Classification, preparation of glucose and fructose. Reactions of glucose and fructose. Interconversion of glucose to fructose and vice versa	4	Blended teaching	Video Link https://www.youtube.com/watch?v=D5RdWVBAN1c
II	Preparation and properties of sucrose.stucture of starch, cellulose and derivatives of cellulose - Diabetes - causes and control measures.	2	Blended teaching	Video Link https://www.youtube.com/watch?v=wNnw9Luiv2M
II	Amino acids: classification, preparation and properties of alanine - RNA and DNA (elementary idea only)	4	Blended teaching	Video Link https://www.youtube.com/watch?v=0lZRAShqft0

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Department of CHEMISTRY

FORMAT FOR LESSON PLAN

Academic year 2021-22

Name of the Staff: R.VASHANTHA

Name of the Subject: B.Sc N&D-ALLIED CHEMISTRY-I **Total Hours:30Hrs**

Subject Code: SD3AC **Year/Semester:I/SECOND**

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
I	Definition of terms-classification of ligands	3	Power point presentation and white board Chalk and board	Google Classroom White board
I	Nomenclature-chelation, EDTA and its applications	3	Power point presentation and white board Chalk and board	
I	Werner's Theory, Effective Atomic Number-Pauling's Theory-Postulates	3	Power point presentation and white board Chalk and board	Power Point Presentation white board.
I	Biological role of haemoglobin and chlorophyll-Elementary idea only	3	Power point presentation and white board Chalk and board	Google classroom PPT.
III	Amino acids-Classification, Preparation and properties of alanine - Preparation of dipeptide using Bergman method	5	Power point presentation and white board Chalk and board	Powerpoint Presentation Google Classroom.

III	Proteins - Classification according to composition, biological functions and shape - Denaturation and colour reactions	5	Power point presentation and white board Chalk and board	White board Google Classroom.
III	Proteins - Primary and secondary structure of Proteins Nucleic acids: DNA and RNA- Their components and biological functions.	5	Power point presentation and white board Chalk and board	Google classroom. White board
V	Introduction to Qualitative and Quantitative Analysis - Principle of volumetric analysis	2	Power point presentation and white board Chalk and board	Google classroom White board.
V	Separation techniques - extraction - distillation - crystallization	2	Interactive, white board Chalk and board	Google classroom.

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FORMAT FOR LESSON PLAN

Academic year 2021-22

Name of the Staff: Dr.R.VASHANTHA

Total Hours:20Hrs

Name of the Subject: B.Sc GENERAL CHEMISTRY-IV **Year/Semester:II/FOURTH**

Subject Code:

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
V	Second Law of Thermodynamics - Limitations of first law & Need for the second law - Different statements of the law	4	Power point presentation and white board Chalk and board	power point Presentation.
V	Carnot's cycle and efficiency of heat engine- Carnot's theorem- Concept of Entropy - Definition and physical significance of entropy	4	Power point presentation and white board Chalk and board	Google class room.
V	Entropy as a function of P, V and T-Entropy changes during phase changes - Entropy of mixing	4	Power point presentation and white board	Google class room.
V	Gibb's free energy (G) and Helmholtz free energy (A) - Variation of A and G with P, V and T Gibb's Helmholtz equation and its applicationsThermodynamic equation of state - Maxwell's relations.	8	Power point presentation and white board Chalk and board	Power point Presentation.

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FORMAT FOR LESSON PLAN

Academic year 2021-22

Name of the Staff: Dr.R.VASHANTHA

Name of the Subject: B.Sc PHYSICAL CHEMISTRY-II **Total Hours:20Hrs**

Subject Code: **Year/Semester:III/SIXTH**

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
I	Rate of reaction- Average and instantaneous rates, factors influencing rate of reaction, molecularity of a reaction, rate equation, order and molecularity	3	Power point presentation and white board Chalk and board	White board. Google class room.
I	Rate laws - Rate constants - derivation of rate constants and characteristics for zero, first, second and third order (equal initial concentration) - Derivation of time for half change.	3	Power point presentation and white board Chalk and board	Power point Presentation
I	Methods of determination of order of reactions - Experimental methods of determination of rate constant of a reaction - Volumetry, manometry and polarimetry.	3	Power point presentation and white board Chalk and board	Power point Presentation. Flowchart.

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I	Effect of temperature on reaction rate - temperature coefficient - concept of activation energy - energy barrier - Arrhenius equation. Theories of reaction rates	3	Power point presentation and white board Chalk and board	Google Classroom.
I	Collision theory - derivation of rate constant of bimolecular gaseous reaction - Failure of collision theory. Theory of absolute reaction rates	3	Power point presentation and white board Chalk and board	power point Presentation.
I	Derivation of rate constant for a bimolecular reaction - significance of entropy and free energy of activation. Comparison of collision theory and ARRT	5	Power point presentation and white board Chalk and board	White board. Google Classroom.

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Department of CHEMISTRY

FORMAT FOR LESSON PLAN

Academic year 2021-22

Name of the Staff: Dr R.VASHANTHA

Total Hours:36Hrs

Name of the Subject: M.Sc PHYSICAL CHEMISTRY-II **Year/Semester:I/SECOND**

Subject Code: MER2C

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
III	Catalysis by Enzymes-rate of enzyme catalyzed reactions, Michaelis-Menten equation effect of substrate concentration, pH and temperature - inhibitions of enzyme catalyzed reactions – three types with mechanism.	6	Power point presentation and white board Chalk and board	Google Classroom. Power point Presentation
III	Heterogeneous catalysis, Langmuir and BET adsorption isotherms- Kinetics of Heterogeneous catalysis, Unimolecular and Bimolecular reaction. Langmuir-Rideal and Langmuir-Hinshelwood mechanisms.	6	Power point presentation and white board Chalk and board	Google Classroom. White board Power point Presentation

III	Adsorption coefficient and its significance. Kinetics and mechanism of surface reactions- catalysis by metals, Hydrogenations and semiconductor oxides.	6	Power point presentation and white board Chalk and board	Google Classroom.
IV	Kinetics of complex reactions – reversible, consecutive and parallel reactions. Chain reactions: general treatment. Rice Herzfeld Mechanism	6	Power point presentation and white board Chalk and board	Power point Presentation.
IV	Decomposition of acetaldehyde and hydrobrominations. Comparison of HCl and HBr formation and explosion limits.	6	Power point presentation and white board Chalk and board	Google Classroom PPT
IV	Study of fast reactions- relaxation methods- temperature and pressure jump - stopped flow and flash photolysis methods.	6	Power point presentation and white board Chalk and board	White board Google Classroom.

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Department of CHEMISTRY

FORMAT FOR LESSON PLAN

Academic year 2021-22

Name of the Staff: Dr.R.VASHANTHA **Total Hours:36Hrs**

Name of the Subject: M.Sc PHYSICAL CHEMISTRY-IV **Year/Semester:II/FOURTH**

Subject Code: MER4C

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
I	Absorption and emission of radiation-Franck-Condon Principle- Decay of electronically excited states	4	Power point presentation and white board Chalk and board	White board.
I	Jablonski diagram: radiative and non radiative processes- fluorescence and phosphorescence-spin forbidden radiative transition internal conversion and intersystem crossing-	5	Power point presentation and white board Chalk and board	Google Classroom
I	Einstein coefficient, energy transfer process-excimers and exciplexes-static and dynamic quenching-Stern Volmer analysis.	5	Power point presentation and white board Chalk and board	PPT. Google Classroom.
III	Electrode-electrolyte interface - electrical double layer-electrocapillary phenomena - Lippmann equation-structures of double layers – Stern, Helmholtz –Perrin and Guoy- Chapmann models.	8	Power point presentation and white board Chalk and board	Power point Presentation
III	Mechanism of electrode reaction - polarization and overpotential, the	6	Power point presentation and white board Chalk and board	White board.

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R. Shantha

	Butler - Volmer equation for one step and multistep electron transfer reactions			
III	Significance of exchange current density and symmetry factor-transfer coefficient and its significance-mechanism of hydrogen and oxygen evolution reactions.	4	Power point presentation and white board Chalk and board	Google Classroom.
III	Corrosion and passivation of metals: Pourbaix and Evans diagrams - fuel cells-electrodeposition – principle, applications and anticorrosion techniques.	4	Power point presentation and white board Chalk and board	White board PPT.

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ANNA ADARSH COLLEGE FOR WOMEN
Department of Chemistry
Academic year 2021-22

Name of the staff: A. Sumita

Name of the subject: Organic Chemistry **Total Hours: 35**

Even **Year/ Semester:**

Subject code: MER4A

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
1	Synthesis of Pyrimidines and purines. Structure and role of nucleic acids. DNA and RNA Genetic code. Biosynthesis of cholesterol, phenanthrene alkaloids and bile acids.	4 5 6	Power point presentation Chalk and board method	https://www.youtube.com/watch?v=0lZRAShqft0
4	Retrosynthetic analysis and synthesis of simple organic molecules such as 1,2,1,3,1,4 and 1,5 dicarbonyl compounds both acylic and cyclic	5	Powerpoint presentation Chalk and board method	https://www.youtube.com/watch?v=cKTwIwVGbzY
	Formation of 3,4,and 6 membered cyclic compounds-Baldwin's rules Use of standard reactions, like Grignard reactions, Robinson annulations.	3 4	Powerpoint presentation Chalk and board method	https://www.youtube.com/watch?v=UrsIveUnWJw
	Protection and deprotection of functional Groups (R-OH,RCHO,R-CO-R,R-NH2 and R-COOH). Use of PTC (Phase-transfer catalyst) and Crown ethers in organic synthesis.	5 3	Powerpoint presentation Chalk and board method	https://www.youtube.com/watch?v=WiwavkpN7_8

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Name of the staff: A. Sumita
Name of the subject: Organic Chemistry-II
Subject code: MER2A

Total Hours: 35
Year/ Semester: EVEN

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
2	Addition to carbon-carbon and carbon-hetero multiple bonds: II-Ylides: Chemistry of phosphorous and sulfur ylides – Wittig and related reaction, Peterson Olification	4	Powerpoint presentation Chalk and board method	https://www.youtube.com/watch?v=jxUXIHG1zGc
	Diels Alder reaction, 1, 3-dipolar additions, carbenes and carbenoids - addition to double bonds - Simmon Smith reaction, Mannich, Knoevengal, Stobbe condensation, Shapiro reaction, Julia olefination, Acyloin condensations, Darzen, and benzoin reactions.	7	Powerpoint presentation Chalk and board method Seminars	https://www.youtube.com/watch?v=QXyrXLV-6gA
	Nitrenes : Methods for generating carbenes and nitrenes and their reactions	4	Powerpoint presentation Chalk and board method	https://www.youtube.com/watch?v=j6aU5_HGEQ4
5	Oxidation and reduction reactions Oxidation: Mechanism –study of the following oxidation reactions-oxidation with LTA, SeO_2	5	Powerpoint presentation Chalk and board method	https://www.youtube.com/watch?v=1cFVA2ATSis
	DDQ, Oxalylchloride, Dess-martin reagent DMSO in combination with DCC or aceticanhydride in oxidizing alcohols–	7	Powerpoint presentation Chalk and board method	https://www.youtube.com/watch?v=FPMebYBuxgY
	Hydroxylations with–OsO_4, KMnO4,Woodward prevost, epoxidation (peroxides/peracids) Sharpless epoxidation	8	Powerpoint presentation Chalk and board method	https://www.youtube.com/watch?v=KaSvzxJ7-h0

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Name of the staff: A. Sumita
Name of the subject: Inorganic chemistry
Subject code: TAT6A

Total Hours: 30
Year/ Semester: EVEN

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
2	**Chemistry Of Organometallic Compounds** Introduction – Preparation of OrganoMagnesium compounds – Physical and Chemical Properties Uses, Preparation of OrganoZinc compounds – Physical and Chemical Properties – Uses	3	Powerpoint presentation	https://www.youtube.com/watch?v=3FRV31YYtL8
	Preparation of OrganoLithium compounds – Physical and Chemical properties – Uses	4	Chalk and Board method	
	Chemistry of OrganoCopper, OrganoLead, OrganoPhosphorus and OrganoBoron compounds.	4		https://www.youtube.com/watch?v=CYF0w2dIkWE
	Organometallic compounds of alkenes, alkynes and cyclopentadiene	4	Seminar	
5	**Some Special Type Of Compounds** Clathrates – examples and structures, interstitial and non-stoichiometric compounds	3		https://www.youtube.com/watch?v=n7pas-Zn7iw
	silicones – composition, manufacture, structure, properties and uses silanes, phospazenes – their synthesis, structure and uses – silicates and their polymers – classification into discrete anions – one, two, and three dimensional structures with examples – composition and uses of beryl, asbestos, talc, mica, zeolites and ultramarines.	5	Powerpoint presentation	
	Types of solvents: Protic and aprotic solvents-aqueous and non aqueous solvents-liquid ammonia and liquid HF as solvents.	3 4	Chalk and Board method	https://www.youtube.com/watch?v=w7yVVLSQ9CU

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Name of the staff: A. Sumita
Name of the subject: Analytical Chemistry
EVEN
Subject code: TET6A

Total Hours: 50
Year/ Semester:

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
2	Principles of gravimetric analysis – characteristics of precipitating agents – choice of precipitants and conditions of precipitation – specific and selective precipitants – DMG, cupferron, salicylaldehyde,ethylendediamine – use of sequstering agents – co-precipitation postprecipitation – peptisation – differences – reduction of error – precipitation from homogeneous solutions – calculations in gravimetric methods – use of gravimetric factor	3 4	Powerpoint presentation Chalk and Board method	https://www.youtube.com/watch?v=yhNTPL3uHxs
	Thermal analytical methods – Principle involved in thermogravimetric analysis and differential gravimetric analysis – discussion of various components with Block diagram – characteristics of TGA and DTA – factors affecting TGA and DTA curves – thermometric titrations.	4 2	Powerpoint presentation Chalk and Board method	https://www.youtube.com/watch?v=NzbDEjI8IKE
	Chromatography Techniques – Principles - adsorption, partition and ion exchange chromatography , column chromatography – adsorbents – preparation of column– elution, recovery of substance and applications. TLC – choice of adsorbent and solvent – preparation of chromatogram (Rf value) and applications – Paper chromatography - Solvents used - factors affecting Rf value	5 2	Powerpoint presentation Chalk and Board method	https://www.youtube.com/watch?v=mz_xcNrTK_U

	– separation of amino acid mixtures.			
3	Definition of spectrum – electromagnetic radiation– quantisation of different forms of Energies of molecules– translational, vibrational, rotational, vibrational and electronic Energies UV – Visible spectroscopy– absorption laws–theory- electronic spectra– types of Electronic transitions– chromophores and auxochromes–absorption bands and intensity–factors governing absorption maxima and intensity–instrumentation	2 3 3	Powerpoint presentation Chalk and Board method	https://www.youtube.com/watch?v=1bpmI3wdqW8
	Electronic transitions– chromophores and auxochromes–absorption bands and intensity–factors governing absorption maxima and intensity–instrumentation IR spectroscopy–vibrations of diatomic molecules-harmonic and anharmonic oscillators,Zero point energy, Force constant, condition for a molecule to be IR active, selection rules instrumentation	3 4	Powerpoint presentation Chalk and Board method	https://www.youtube.com/watch?v=Cfu28uVmmnY https://www.youtube.com/watch?v=OiukFtC8E04
	NMR spectroscopy – principle–equivalent and non-equivalent protons–shielded and Deshielded protons,chemical	3 4	Powerpoint presentation	https://www.youtube.com/watch?v=RqBAW-uFHK0

	shift–TMS, delta tau scales, spin-spin coupling-analysis of Spectrum of ethanol-instrumentation		Chalk and Board method	
	Mass spectrometry: Basic principles of mass spectrum Instrumentation and Block diagram molecular ion peak formulae–fragmentation and mass spectrum of simple organic compounds–alcohols and carbonyl compounds-Mc-Lafferty rearrangement	4 4	Powerpoint presentation Chalk and Board method	https://www.youtube.com/watch?v=RuwbeA22rew

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Department of chemistry

Academic year 2021-22(EVEN SEMESTER)

Name of the staff: V.SRIBHARATHY **Total Hours: 29**

Name of the subject: ALLIED CHEMISTRY-II **Year/ Semester: I (N &D)/II**

Subject code: SD3AC

	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
	CARBOHYDRATES Classification, preparation and reactions of glucose and fructose.	3	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
	Inter conversion of glucose to fructose and vice versa.	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
	Structure of starch	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
	Cellulose and derivatives of cellulose -.	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
	. Diabetes - Causes and control measures	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
	ELECTROCHEMISTRY Electrolytic conductance in metals and in electrolytic solution – specific conductance and equivalent conductance –)	4	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
	Arrhenius theory of electrolytic dissociation and its limitations -	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
	weak and strong electrolytes according to Arrhenius theory –	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
	Ostwald's dilution law – applications and limitations	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
	Conductometric titrations – strong acid vs strong base only. ly	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
	CATALYSIS Characteristics of catalytic reaction, auto catalysis, promoters, catalytic poisons – Types of catalysis – homogeneous and heterogeneous -	3	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD

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Enzyme catalysis (no derivation, elementary idea on	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
ANALYTICALCHEMISTRY Chromatographic separations - Principles and application of column,	3	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
paper, thin layer chromatography	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD

V. Sri

R. Shanthi

S. Shanthi

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Academic year 2021-22 (EVEN SEMESTER)

Name of the staff: V.SRIBHARATHY **Total Hours: 25**

Name of the subject: ANALYTICAL CHEMISTRY **Year/ Semester: III/VI**

Subject code: TET6A

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
I	Data Analysis - Theory of errors - idea of significant figures and its importance with examples.	2	BLACK BOARD	GOOGLE CLAS ROOM WHITE BOARD
I	Precision - accuracy - methods of expressing accuracy - error analysis -minimizing errors methods of expressing precision -	2	BLACK BOARD	GOOGLE CLAS ROOM WHITE BOARD
I	Average deviation - standard deviation and confidence limit.	2	BLACK BOARD	GOOGLE CLAS ROOM WHITE BOARD
I	Purification of solid compounds - extraction - use of immiscible solvents – soxhlet.	2	BLACK BOARD	GOOGLE CLAS ROOM WHITE BOARD
I	Extraction Purification of liquids - experimental techniques distillation - fractional distillation -	2	BLACK BOARD	GOOGLE CLAS ROOM
I	Vacuum distillation - steam distillation –tests for purity.	2	BLACK BOARD	GOOGLE CLAS ROOM

V	Polarography - principle - concentration polarization - dropping mercury electrode - advantages and disadvantages.	2	BLACK BOARD	GOOGLE CLAS ROOM WHITE BOARD
V	Migration and diffusion currents - Ilkovic equation (derivation not required) and significance	2	BLACK BOARD	GOOGLE CLAS ROOM WHITE BOARD
V	Experimental assembly –electrodes - capillary - current voltage curve	2	BLACK BOARD	GOOGLE CLAS ROOM WHITE BOARD
V	Oxygen wave - influence of temperature and agitation on diffusion layer	2	BLACK BOARD	GOOGLE CLAS ROOM WHITE BOARD
V	Polarography as an analytical tool in quantitative and qualitative analysis .	2	BLACK BOARD	GOOGLE CLAS ROOM WHITE BOARD
V	Amperometry- basic principles and uses	3	BLACK BOARD	GOOGLE CLAS ROOM

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Academic year 2021-22 (EVEN SEMESTER)

Name of the staff: V.SRIBHARATHY **Total Hours: 20**

Name of the subject: GENERAL CHEMISTRY-II **Year/ Semester: I/II**

Subject code: SD22A

CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
Chemistry of s- Block Elements [Group IA and IIA]Hydrogen: Position of hydrogen in the periodic table.	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
Alkali metals: Comparative study of the elements with respect to oxides, hydroxides, halides, carbonates and bicarbonates.	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
Diagonal relationship of Li with Mg. Extraction of Li from its silicate- ores. Preparation, properties and uses of NaOH,Na_2CO_3, KBr $KClO_3$.	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
Alkaline earth metals: Comparative study of the elements with respect to oxides, hydroxides, sulphates, halides and carbonates.	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
Extraction and anomalous behaviour of Be.	2	BLACK BOARD	GOOGLE CLASS ROOM
Chemistry ofp- Block Elements (10 hrs) 2.1 Boron Family[Group-IIIA]: Preparation and structure of diborane and borazine.	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
Chemistry of borax. Extraction of Al and its uses. Alloys of Al. 2.2 Carbon Family(Group -IV A) : comparison of carbon with silicon.	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
Carbon-di-sulphide – Preparation , properties , structure and uses.	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
Percarbonates , Per monocarbonates and Per dicarbonates.	2	BLACK BOARD	GOOGLE CLASS ROOM
Tin- Allotropic forms of Tin, alloys of tin, tinning, tin plating.	2	BLACK BOARD	GOOGLE CLASS ROOM
Lead-lead accumulator(discharging and recharging), leadpigments.	2	BLACK BOARD	GOOGLE CLASS ROOM

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Academic year 2021-22(EVEN SEMESTER)

Name of the staff: V.SRIBHARATHY **Total Hours: 30**

Name of the subject: POLYMER CHEMISTRY **Year/ Semester: I/II**

Subject code: MERBD

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
III	**I Resins and plastics:-** 3.1 Processing: Calendering, die casting, rotational casting. Compression, injection, blow and extrusion moulding.	3	BLACK BOARD	GOOGLE CLAS ROOM WHITE BOARD
III	Thermoforming, foaming and reinforcing techniques.	2	BLACK BOARD	GOOGLE CLAS ROOM
III	Synthetic resins and plastics: Manufacturing and applications of polyethylene, PVC.	2	BLACK BOARD	GOOGLE CLAS ROOM
III	Teflon, polystyrene, polymethylmethacrylate, polyurethane, phenol.	3	BLACK BOARD	GOOGLE CLAS ROOM
III	Formaldehyde resins, urea – formaldehyde and melamine – formaldehyde resins and epoxy polymers.	4	BLACK BOARD	GOOGLE CLAS ROOM WHITE BOARD
IV	**Synthetic fibers and rubbers:-** 4.1 Synthetic fibers: Rayon, nylons, polyesters, acrylics, modacrylics and spinning techniques.	3	BLACK BOARD	GOOGLE CLAS ROOM WHITE BOARD
IV	Synthetic rubber: SBR, butyl rubber, nitrile rubber, neoprene, silicone rubber and polysulphides.	3	BLACK BOARD	GOOGLE CLAS ROOM WHITE BOARD
IV	Conducting polymers and applications	1	BLACK BOARD	GOOGLE CLAS ROOM
V	**Degradation of polymers:-** 5.1 Polymer degradation: Types - thermal, mechanical.	1	BLACK BOARD	GOOGLE CLAS ROOM WHITE BOARD
V	Photo, hydrolytic and oxidative degradations.	2	BLACK BOARD	GOOGLE CLAS ROOM
V	Additives for polymers: Fillers, plasticisers, thermal stabilizers,	2	BLACK BOARD	GOOGLE CLAS ROOM WHITE BOARD
V	Photo stabilizers, antioxidants and colourants.	2	BLACK BOARD	GOOGLE CLAS ROOM
V	Biodegradable Polymers and their applications	2	BLACK BOARD	GOOGLE CLAS ROOM WHITE BOARD

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R. Shanthi

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S. Shanthi

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Department of chemistry FORMAT FOR LESSON PLAN

Academic year 2021-22(EVEN SEMESTER)

Name of the staff: K.Sangeetha **Total Hours: 12**

Name of the subject: POLYMER CHEMISTRY **Year/ Semester: M.Sc.,I/II**

Subject code: MERBD

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
II	**Properties of polymers:-** 2.1 Polymerisation techniques: Bulk, solution, suspension and emulsion polymerisation. Melt, solution and interfacial polycondensation. Solid and gas phase polymerisation.	2	BLACK BOARD	GOOGLE CLA! ROOM WHITE BOARD
II	2.2 Molecular weight and size: Number and weight average molecular weights. Polydispersity and molecular weight distribution in polymers,	2	BLACK BOARD	GOOGLE CLA! ROOM WHITE BOARD
II	The practical significance of polymer molecular weights and size of polymers. (Molecular weight determination is not required).	2	BLACK BOARD	GOOGLE CLA! ROOM WHITE BOARD
II	2.3 Glass transition temperature: Concept, associated properties and determination.	2	BLACK BOARD	GOOGLE CLA! ROOM WHITE BOARD
II	Glassy solids and glass transition. Factors influencing it.	2	BLACK BOARD	GOOGLE CLA! ROOM WHITE BOARD
II	2.4 Crystallinity in polymers: Polymer crystallisation, structural and others factors affecting crystallisability and effect of crystallinity on the properties of polymers.	2	BLACK BOARD	GOOGLE CLA! ROOM WHITE BOARD

Sangeetha-K.

R. Kanthi

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Academic year 2021-22 (EVEN SEMESTER)

Name of the staff:K.Sangeetha

Name of the subject: FOOD CHEMISTRY **Total Hours:15**

Subject code: SD5AG **Year/ Semester: N&D I/II**

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
III	Food colours - Emulsifying agents- preservatives - leavening agents.	1	BLACK BOARD	GOOGLE CLA ROOM WHITE BOARD
III	Baking powder - yeast - taste makers - MSG vinegar.	1	BLACK BOARD	GOOGLE CLA ROOM WHITE BOARD
IV	BEVERAGES Beverages - soft drinks - soda - fruit juices -	1	BLACK BOARD	GOOGLE CLA ROOM WHITE BOARD
IV	Fruit juices	1	BLACK BOARD	GOOGLE CLA ROOM
IV	Alcoholic beverages examples.	1	BLACK BOARD	GOOGLE CLA ROOM
IV	Carbonation - addiction to alcohol	1	BLACK BOARD	GOOGLE CLA ROOM WHITE BOARD
IV	Diseases of liver and social problems.	2	BLACK BOARD	GOOGLE CLA ROOM
V	EDIBLE OILS Fats, Oils - Sources of oils -	2	BLACK BOARD	GOOGLE CLA ROOM
V	Production of refined vegetable oils -	1	BLACK BOARD	GOOGLE CLA ROOM
V	Role of MUFA and PUFA in preventing heart diseases	1	BLACK BOARD	GOOGLE CLA ROOM WHITE BOARD
V	Determination of iodine value	1	BLACK BOARD	GOOGLE CLA ROOM
V	RM value	1	BLACK BOARD	GOOGLE CLA ROOM
V	Saponification values and their significance.	1	BLACK BOARD	GOOGLE CLA ROOM

Sangeetha.K

R. Shanthi

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Academic year 2021-22(EVEN SEMESTER)

Name of the staff: K.Sangeetha **Total Hours: 15**

Name of the subject: INORGANIC CHEMISTRY-II

B.Sc.,III/VI **Year/ Semester:**

Subject code: TAT5B

UNIT	CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
I	METALLIC BONDING Metallic state - Packing of atoms in metal (BCC , FCC).	3	BLACK BOARD	WHITE BOARD GOOGLE CLA: ROOM
I	Packing of atoms in metal HCP and simple cube).	2	BLACK BOARD	WHITE BOARD GOOGLE CLA: ROOM
I	Theories of metallic bonding - Electron gas , Pauling and band theories .	3	BLACK BOARD	WHITE BOARD GOOGLE CLA: ROOM
I	Semi conductors- n- type and p- type, transistors - Uses - superconductors - examples, types - structures of alloys .	2	BLACK BOARD	GOOGLE CLA: ROOM WHITE BOARD
I	Substitutional and interstitial solid solutions.	3	BLACK BOARD	WHITE BOARD GOOGLE CLA: ROOM
I	Hume-Rothery ratio.	2	BLACK BOARD	WHITE BOARD GOOGLE CLA: ROOM

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R. Shanthi

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Academic year 2021-22(EVEN SEMESTER)

Name of the staff: K.Sangeetha **Total Hours:25**

Name of the subject: PHYSICAL CHEMISTRY-II

Year/ Semester: B.Sc.,III/VI

Subject code: TAT5C

CHAPTER	HOURS	METHODOLOGY	ICT TOOLS ADOPTED
CATALYSIS AND ADSORPTION Catalysis - general characteristics of catalytic reactions, auto catalysis, promoters, negative catalysis, poisoning of a catalyst	3	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
Theories of homogenous and heterogenous catalysis - Kinetics of Acid - base and enzyme catalysis.	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
Mechanism (lock and key, induced fit), Michaelis-Menton equation (no derivation) - Heterogenouscatalysis	3	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
Adsorption - Difference between absorption and adsorption - Chemical and physical adsorption and their general characteristics-	2	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
Distinction between them Different types of isotherms - Freundlich and Langmuir. Adsorption isotherms and their limitations	3	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
BET theory (no derivation).	2	BLACK BOARD	GOOGLE CLASS ROOM
PHOTOCHEMISTRY Photo physical processes - Jablonski diagram - Laws of photo chemistry - Lambert - Beer, Grotthus- Draper and Stark –Einstein.	3	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
Quantum efficiency. Fluorescence and Phosphorescence.	3	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD
Photo chemical reactions - rate law - Kinetics of H2-Cl2 and H2-I2 reactions, comparison between thermal and photochemical reactions.	4	BLACK BOARD	GOOGLE CLASS ROOM WHITE BOARD

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DEPARTMENT OF CHEMISTRY

LESSON PLAN – ACADEMIC YEAR – 2021-2022

Name of the Staff: Dr.R.J.Kavitha **Total Hours: 25**

Name of the Subject: General Chemistry - IV **Year/Semester: II/IV sem (Even)**

Subject Code: TAT4A

Unit	Chapter	Hours	Methodology	ICT Tools Adopted
1	**Chemistry of Redox Reactions**	**10**		
	Covalency- oxidation number- oxidation state - difference between oxidation number and valency- rules for calculating oxidation number - -	**3**	**Black Board**	GOOGLE CLASS ROOM WHITE BOARD
	Definition of oxidation and reduction - redox reactions and half reactions - oxidising agents and reducing agents -	**2**	**Black Board**	GOOGLE CLASS ROOM WHITE BOARD
	Equivalent weights of oxidising and reducing agents - auto oxidation and induced oxidation	**2**	**Black Board**	GOOGLE CLASS ROOM WHITE BOARD
	Balancing of redox equations by oxidation number method and ion-electron method	**3**	**Black Board**	GOOGLE CLASS ROOM WHITE BOARD
2	**Chemistry of d-Block Elements**	**15**	**Assignment**	GOOGLE CLASS ROOM WHITE BOARD
	Transition Elements - Electronic configuration - General periodic trend – Atomic and ionic radii, metallic character, melting and boiling points,	**5**	**Black Board**	GOOGLE CLASS ROOM. WHITE BOARD

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	ionisation energy, oxidation state, reactivity, colour and tendency to form complexes			
	Group study of Titanium, Vanadium, Chromium, Manganese, Iron, Cobalt, Nickel and Zinc groups - galvanization	8	Black Board	GOOGLE CLASS ROOM WHITE BOARD
	Evidences for the existence of mercurous ion as Hg_2^{2+}.	2	Black Board	GOOGLE CLASS ROOM. WHITE BOARD

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Name of the Staff: Dr.R.J.Kavitha

Total Hours: 30

Name of the Subject: General Chemistry - II

Year/Semester: I/II sem (Even)

Subject Code: TAT2A

Unit	Chapter	Hours	Methodology	ICT Tools Adopted
	Gaseous State	**15**	**Assignment**	
	Postulates of kinetic theory of gases, derivation of gas laws from the kinetic gas equation. Kinetic energy and temperature-average translational kinetic energy and its calculation.	**4**	**Black Board**	GOOGLE CLASS ROOM WHITE BOARD
	Maxwell's distribution of molecular velocities(no derivation)-mean, root mean square and most probable velocity.	**3**	**Black Board**	GOOGLE CLASS ROOM WHITE BOARD
	Collision diameter, collision number, collision frequency, mean free path.	**3**	**Black Board**	GOOGLE CLASS ROOM WHITE BOARD
I	Principle of equipartition of energy. Real gases- van der Waals equation of state-derivation. Boyle temperature. Significance of critical constants.	**4**	**Black Board**	**https://www.youtube.com/watch?v=T7ntXqbaJMo**
	Liquid State	**15**		
	Some Properties of Liquids(molecular basis)-Equilibrium vapour pressure of a liquid, boiling point, heat of evaporation, heat of condensation, freezing point.	**3**	**Black Board**	GOOGLE CLASS ROOM WHITE BOARD
	Surface tension-definition, measurement of surface tension, effect of temperature on surface tension. Parachor-definition, calculation and applications.	**3**	**Black Board**	GOOGLE CLASS ROOM WHITE BOARD
	Viscosity or fluidity-definition, measurement and calculation, factors affecting viscosity.	**3**	**Black Board**	GOOGLE CLASS ROOM. WHITE BOARD

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4.2 Nanoparticles of Au, Ag and TiO2 –preparation, properties and uses.	3	Black Board	GOOGLE CLASS ROOM. WHITE BOARD
Carbon nanotubes-Types- preparation, properties and uses- Fullernene – Introduction only	3	Black Board	https://www.youtube.com/watch?v=mf5wPBpnRnQ

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Name of the Staff: Dr.R.J.Kavitha

Total Hours: 20

Name of the Subject: Allied Chemistry - II

Year/Semester: II (Phy)/I Vsem (Even)

Subject Code:

Unit	Chapter	Hours	Methodology	ICT Tools Adopted
1	**Coordination Chemistry**	**12**		
	Definition of terms-classification of ligands-Nomenclature-chelation-EDTA and its applications–	**4**	**Black Board**	GOOGLE CLASS ROOM WHITE BOARD
	Werner's Theory-Effective Atomic Number-Pauling's Theory-Postulates-	**4**	**Black Board**	GOOGLE CLASS ROOM WHITE BOARD
	Biological role of haemoglobin and chlorophyll	**4**	**Black Board**	GOOGLE CLASS ROOM. WHITE BOARD
5	**Analytical Chemistry**	**8**		
	Introduction to Qualitative and Quantitative Analysis -	**2**	**Black Board**	GOOGLE CLASS ROOM, WHITE BOARD
	Principle of volumetric analysis -	**2**	**Black Board**	GOOGLE CLASS WHITE BOARD
	Separation techniques - extraction - distillation - crystallization -	**2**	**Black Board**	**https://www.youtube.com/watch?v=qpZhc2Zn_TI**
	Chromatographic separations - Principles and application of column, paper, thin layer.	**2**	**Black Board**	**https://www.youtube.com/watch?v=VdKuBTBu6oo**

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Name of the Staff: Dr.R.J.Kavitha

Name of the Subject: Physical Chemistry **Total Hours: 18**

Subject Code: MER2C **Year/Semester: I M.Sc /II sem (Even)**

Unit	Chapter	Hours	Methodology	ICT Tools Adopted
5	**Spectroscopy – I**	18		
	Electromagnetic Radiation: Quantization of Energy – rotational, vibrational and electronic energy level and transition in molecules – regions and representation of spectra.	5	Black Board	https://www.youtube.com/watch?v=Ja7hq3YYIWo
	Dissolution and intensity of spectral transition : Signal to noise ratio – width of spectral lines – collisions broadening – Doppler broadening	3	Black Board	Google Class Room White Board
	Heisenberg uncertainty principles – intensity of spectral lines – selection rules and transition probabilities – transition moment integral – Einstein observation coefficient.	5	Black Board	Google Class Room. White Board
	Electronic spectra of polyatomic molecules, Franck-condon principle – selection rules – types of transition in saturated and unsaturated hydrocarbons, effect of conjugation and solvent effects.	5	Black Board	https://www.youtube.com/watch?v=mf_zFHxiY28

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Name of the Staff: Dr.R.J.Kavitha

Total Hours: 18

Name of the Subject: Physical Chemistry IV

Year/Semester: II–M.Sc/IV sem (Even)

Subject Code: MER4C

Unit	Chapter	Hours	Methodology	ICT Tools Adopted
2	**Techniques and Photochemical Reactions**	**18**		
	Quantum yield and lifetime measurements, flash photolysis, principle and its applications, Actionmetry.	4	**Black Board**	GOOGLE CLASS ROOM WHITE BOARD
	Photophysical process and kinetics of photochemical reactions	3	**Black Board**	GOOGLE CLASS ROOM WHITE BOARD
	Radiolysis of molecules of biological interest (carbohydrates, aminoacids, peptides and nucleic acids).	3	**Black Board**	GOOGLE CLASS ROOM WHITE BOARD
	Photoredox reactions and photo substitution reaction in coordination chemistry photoreduction and photocycloaddition in organic chemistry – photovoltaic and photogalvanic cells.	4	**Black Board**	GOOGLE CLASS ROOM, WHITE BOARD
	Photoelectrochemistry, Aspects of solar energy conversions photosensitization and chemiluminescence.	4	**Black Board**	**https://www.youtube.com/watch?v=olQSWEYsG-W0**

R. Shanthi

PRINCIPAL
ANNA ADARSH COLLEGE FOR WOMEN
ANNA NAGAR, CHENNAI-600 040.

ANNA ADARSH COLLEGE FOR WOMEN
9th Main Road,
Anna Nagar