

NALLAMUTHU GOUNDER MAHALINGAM COLLEGE (AUTONOMOUS)-POLLACHI

198	B.Sc. Physics	Core I : Properties of Matter	20UPS101	2020
199	B.Sc. Chemistry	Core Paper – V : Coordination and Bioinorganic Chemistry	20UCY507	2020
200	B.Sc. Botany	Major Paper XIV - Horticulture & Plant Breeding	20UBY614	2020
201	B.Sc. Botany	Skill based subjects (Major electives)-Forest Botany	20UBY6S3	2020
202	B.Sc. Botany	Major Paper XIII – Biotechnology and Genetic engineering	20UBY510	2020
203	B. Sc. Zoology	Core Major Paper I : Non Chordata	20UZY101	2020
204	B. Sc. Zoology	Core Major Paper II : Chordata	20UZY202	2020
205	B. Sc. Zoology	Ancillary Zoology Paper-II Economic Zoology	20UBY2A2	2020
206	B. Sc. Zoology	Core Major Paper- V: Genetics	20UZY405	2020
207	B. Sc. Zoology	Core Major Paper-X Biochemistry and Bioinformatics	20UZY510	2020
208	B. Sc. Zoology	Major Practical -III (Non Semester Pattern) Developmental Biology , Animal Physiology&Endocrinology, Biostatistics and Biophysics, Bioinformatics &Biochemistry and MLT	20UZY614	2020
209	B. Sc. Zoology	Skill Based Elective (SBE) Vermiculture	20UZY6S3	2020
210	B. Sc. Zoology	Core Elective Paper-VI Wild life Conservation	20UZY6E6	2020
211	M.Com	Internet,HTML and Cyber Security	20PCO103	2020
212	M.Com	Labour Legislation	20PCO309	2020
213	Tamil Aided	Tamil Paper I	20UTL101	2020
214	Tamil Aided	Tamil Paper II	20UTL202	2020
215	Tamil Aided	Tamil Paper III	20UTL303	2020
216	Tamil Aided	Tamil Paper IV	20UTL404	2020
217	B.A Tamil	Ikkala illakiyam	20UTM101	2020
218	B.A Tamil	Sitru illakiyam	20UTM204	2020
219	B.A Tamil	Kappiyangal	20UTM509	2020
220	B.A Tamil	Sanga illakiyam Ettutogai	20UTM613	2020
221	B.A Tamil	Sanga illakiyam pattupattu	20UTM614	2020

BoS Minutes
Highlighted



New Course Introduced

Dr. R. MUTHUKUMARAN,
M.A., M.Phil., B.Ed., Ph.D.,
PRINCIPAL
N.G.M. College, Pollachi - 642 001

DEPARTMENT OF CHEMISTRY

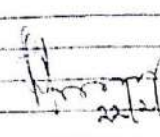
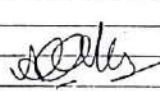
NALLAMUTHU GOUNDER MAHALINGAM COLLEGE POLLACHI - 642001

80

BOARD OF

STUDIES IN CHEMISTRY. (22.02.20) 10:00 AM.

81

S. No	MEMBERS	SIGNATURE
1	Dr. A. S. Sankaranarayanan (Chair person) Associate professor & Head Department of Chemistry N. G. M. College.	 22/2/2020
2	Dr. L. Prabhakaran (University representative) Assistant professor Department of Chemistry Elaanathi University.	R. Prabhakaran 22/02/2020
3	Dr. V. Gopalakrishnan (Subject expert) Associate professor of Chemistry Aulorignu Palaniandavar College Chennai & Culture Palani	G. V. Gopalakrishnan 22/02/2020
4	Dr. Ashish Mandlik (Industrial expert) General manager, Quality Control & D Sakshi Sugars Limited, Boga Division, Amburampalayam, Pollachi	
5	Dr. P. Kalaiyandi (Alumni) Assistant prof of Chemistry Nirmala College for women	K. P. Kalaiyandi 22/2/2020
6	Dr. R. Jadhav Asst. prof of Chemistry N. G. M. College Pollachi	R. Jadhav (on duty - B.D.B. - Pollachi)

Minutes of Pos.


CHEMISTRY DEPARTMENT,
N. G. M. COLLEGE,
POLLACHI.


PRINCIPAL
N G M COLLEGE, POLLACHI

Sl. No.	Members	Signature	Sl. No.	Members	Signature
7	Dr. M. Amutha Asst. Prof. of Chemistry N.G.M. College Pollachi	Amutha (C.D. Retention course)	1.	Dr. A. Ayyaramy (Chair person)	A. Ayyaramy 22/2/20
8	Dr. T. Gowrani Asst. Prof. of Chemistry N.G.M. College Pollachi	T. Gowrani 22/2/20	2.	Dr. R. Prabhakaran (U.R.)	R. Prabhakaran 22/2/20
9	Dr. M. Selladurai Asst. Prof. of Chemistry N.G.M. College Pollachi	M. Selladurai 22/2/20	3.	Dr. V. Gopalakrishnan (S.E.)	V. Gopalakrishnan 22/2/20
10	Mrs. R. Sudha Asst. Prof. of Chemistry N.G.M. College Pollachi	R. Sudha 22/2/20	4.	Dr. Ashish Mandlik (I.E.)	Ashish Mandlik
11	Mrs. C. Uramaheswari Asst. Prof. of Chemistry N.G.M. College Pollachi	C. Uramaheswari 22/2/20	5.	Dr. P. Kalaiyani (Alumni)	P. Kalaiyani 22/2/20
			6.	Dr. R. Indhumathy	Indhumathy (Conducting IGAC w/o external University)
			7.	Dr. M. Amutha	Amutha (Conducting Retention course)
			8.	Dr. T. Gowrani	T. Gowrani 22/2/20
			9.	Dr. M. Selladurai	M. Selladurai
			10.	Mrs. R. Sudha	R. Sudha 22/2/20
			11.	Mrs. C. Uramaheswari	C. Uramaheswari 22/2/20

Indhumathy
CHEMISTRY DEPARTMENT.
N. G. M. COLLEGE,
POLLACHI.

Principal
N G M COLLEGE, POLLACHI



Nallamuthu Gounder Mahalingam College

(Autonomous)

Re-Accredited by NAAC and ISO 9001:2015 Certified Institution
Affiliated to Bharathiar University, Coimbatore
Pollachi – 642 001



INTERNAL QUALITY ASSURANCE CELL (IQAC)

Department of Chemistry

Minutes of the Board of Studies Meeting held on 22-02-2020

The BoS Meeting started with prayer. The Head of the Department introduced the panel members and welcomed them. The panel members are,

1. Dr.R.Prabakaran (University Representative)

Assistant Professor ,
Department of Chemistry,
Bharathiar University ,
Coimbatore-641046
Mobile : 6383326964
Email : rpnchemist@gmail.com

4. Dr. P.Kalaivani (Alumini)

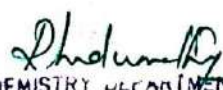
Assistant Professor
Department of Chemistry
Nirmala College for Women
Coimbatore-641018.
Mobile : 9750003131
Email id: kalaivani19@gmail.com

2. Dr.V. Gopalakrishnan (Subject Expert)

Associate Professor,
Department of Chemistry
Arulmigu Palaniandavar College of Arts and Culture
Dindigul Road, Palani-624601.
Mobile : 9443828638
Email id: g_krishnan64@gmail.com

3. Dr. Ashish Mandlik (Industrial Expert)

General Manager, Quality Control, R&D,
Sakthi Sugar Limited, Soya Division,
Ambarambalayam (PO), Pollachi.
Mobile : 9952215577


CHEMISTRY DEPARTMENT,
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Percentage of Revision of B.Sc., Chemistry Syllabus under Regulation 2020

DEPARTMENT OF CHEMISTRY							
S. No	Course Code	Course Title	Change Details	% of Changes	Content Deleted	Content Updated	Reason for Change (Subject Expert / Course Teacher / Alumni Opinion)
1	20UCY101	Core Paper – I : Inorganic and Organic Chemistry	Unit 1 - 5	5%	Dehalogenation, HIO ₄	Nomenclature of organic compounds - IUPAC naming of simple and substituted aliphatic, aromatic and alicyclic compounds - priorities of functional groups in polyfunctional compounds.	Subject Expert
2	20UCY202	Core Paper – II : Organic and Physical Chemistry	Unit 1 - 5	5%	UNIT –II NH ₂ OH, H ₂ NCONHNH ₂ , CrO ₃ , PCC, PDC. UNIT -III Wave	UNIT -III Atomic Structure Rutherford atomic model – Bohr theory of hydrogen atom – Sommerfeld theory - Particle and wave	Subject Expert

					mechanics: Characteristics of wave motion.	character of electrons	
3	20UCY203	Core Practical – I : Inorganic Qualitative Analysis	Unit 1 - 5	0%	-	-	-
4.	20UCY304	Core - III : Inorganic and Physical Chemistry	Unit 1 - 5	10%	Unit II: Inorganic Polymers: Silicones - Preparation, properties and applications. Glass: Manufacture, types and coloured glass. Cement: Types of cement, composition, manufacture and setting of cement. Unit 1 : Fertilizers: Important nutrients and their functions. Primary and secondary nutrients. Manufacture of	Unit 1: Extraction and uses of Ti, V and V Platinised asbestos, colloidal pla Cement: Types of cement, compo Unit 2: Subject Fertilizers: Important nutrients and Expert urea, ammonium sulphate, super p nitrate. 5.	

					urea, ammonium sulphate, super phosphate of lime, triple super phosphate and potassium nitrate.		
5	20UCY3N1	Non Major Elective - I : Food Science and Technology	Unit 1 - 5	0%	-	-	-
6	20UCY3N2	Non Major Elective - I : Chemistry of Consumer Products	Unit 1 - 5	0%	-	-	-
7	20UCY405	Core - IV : Inorganic, Organic and Physical Chemistry	Unit 1 - 5	10%	Unit I: Extraction and uses of Ti, V, Mo, W and Co. Platinum Metals: Metallurgy of platinum. Platinum black, Platinised asbestos, colloidal platinum - preparation and uses. Group	Unit V: Nuclear Chemistry: Radioactivity- types of radioactivity- types of radioactive rays - nuclear stability-n/p ratio -magic numbers- nuclear binding energy- mass defect- nuclear	Course Teacher

					Discussions: (i) Cr, Mo and W (iii) Fe, Co and Ni . Alloy steels. Heat treatment of steel. Iron and steel industry in India. Preparation and uses of the following compounds. TiO_2, TiCl_4, CrO_2Cl_2, ZrOCl_2, V_2O_5, FeSO_4, $(\text{NH})_4\text{MoO}_4$, PtCl_4.	shell model - groupsdisplacementlaw - decay constant - half- life period - radioactive equilibrium- transmutation- artificial transmutation- applications of artificial transmutation- radioactive series. Nuclear reactions types: fission and fusion reactions- principle and working of nuclear reactors. Isotopes: Separation of isotopes- identification of isotopes- isotopes of hydrogen- isotope effect- application of
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						isotopes in chemistry, agriculture and medicine.	
8	20UCY406	Core Practical II : Volumetric and Organic Qualitative Analysis	Unit 1 - 5	0%	-	-	-
9	20UCY4N3	Non Major Elective - II : Water and Water Treatment Processes	Unit 1 - 5	0%	-	-	-
10	20UCY4N4	Non Major Elective - II : Diagnostic Chemistry	Unit 1 - 5	0%	-	-	-
11	20UPS3A3/ 20UBY3A4 /20UZY3A4	Allied Chemistry Paper - I : Inorganic, Organic and Physical Chemistry	Unit 1 - 5	10%	UNIT-III Covalent bond:Orbital overlap, hybridization, geometry of organic molecules – CH ₄ , C ₂ H ₄ , C ₂ H ₂ , C ₆ H ₆ . Inductive, Electrometric, Mesomeric, Hyperconjugative and Steric effects. Effect in properties of compounds.	UNIT-III Heterocyclic compounds - Huckel's rule – Aromaticity of heterocyclic compounds - Nomenclature of heterocyclic compounds- synthesis and reactions of furan- pyrrole- thiophene and pyridine. UNIT-V Applications of	Subject Expert

					UNIT-V Ostwald's dilution law. Determination of molar conductance of an electrolyte	conductance measurements – determination of degree of dissociation of weak electrolyte. Ionic product of water and conductometric titrations.	
12	20UPS4A4/ 20UBY4A5 /20UZY4A5	Allied Chemistry Paper – II : Inorganic, Organic and Physical Chemistry	Unit 1 - 5	5%	UNIT-I Silicones: Preparation, properties and uses. UNIT-V Emulsions and gels Preparation, properties and applications.	UNIT-I Cement: Manufacturing – Wet Process and Dry process- types- setting of cement UNIT-V Phase rule- Definition of terms involved. phase diagram of H ₂ O, Pb-Ag.	
13	20UPS4A5/ 20UBY4A6 /20UZY4A6	Allied Chemistry Practical	Unit 1 - 5	0%	-	-	-
14	20UCY507	Core Paper – V : Nuclear and Co - ordination Chemistry	Unit 1 - 5	25%	Nuclear and Co-ordination Chemistry Unit-I Radio activity, Mass defect, packing fraction, Nuclear binding energy, n/p ratio and	Coordination and Bioinorganic Chemistry Unit-I Double salts- complex compounds- complex ion and coordination	Course Teacher

				stability of the nucleus. Differences between nuclear and chemical reactions. Half- life period. Applications of artificial radioactivity: Age of the earth and C14 dating, medical field applications Isotopes: Detection of isotope by Aston Mass Spectrograph. Separation of isotopes by Electromagneti c, Thermal diffusion and Electrolytic techniques. Nuclear fission and fusion. Types of nuclear wastes	number- Ligands and their classification- chelates and their uses- coordination number and stereochemistry of complexes- IUPAC Nomenclature of coordination compounds. Isomerism: ionization, hydrate, ligand, linkage, coordination, position, geometrical and optical isomerisms. Unit-II Theories of coordination compounds: Werner's theory- Sidwick's electronic interpretation- EAN concept-	
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				and different methods of disposal of High and low radioactive wastes.	valence bond theory outer and inner orbital complexes- Limitations of VBT- crystal field theory- Crystal field splitting in octahedral, tetragonal, square planar and tetrahedral complexes- High spin and Low spin complexes.
				Unit-II Co-ordination chemistry: Double salt and coordination compounds. Definitions of the terms: Ligands and Co-ordination number. Classification of ligands. Nomenclature of Co-ordination compounds. Theories of Coordination compounds: Werner's Theory: Designation of Cobalt (III)- ammine complexes. Sidgwick's	Unit-III Crystal field stabilisation energy- calculation and uses- Limitations of crystal field theory. Applications of coordination compounds:. Applications of copper and silver

Theory: Electronic interpretation of Co-ordination bond - Effective atomic number rule. VB theory: Postulates and its applications in the determination of geometry and magnetic property of the complexes. Unit-III Spectrochemical series. Chelates: Definition, classification, stability factors, sequestration and sequestering agents. Detection and structure determination of Complexes: Solubility method, change	complexes in qualitative analysis. Applications of Ca-EDTA and Ni-DMG complexes in quantitative analysis. Unit-IV Properties of complexes: Color of transition metal complexes- visible spectrum of aqueous Ti (III) ion. Stability of complexes- overall and stepwise formation constants. Factors affecting stability- Determination of stability constant by Job's and Bjeruum's method.]
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					in colour, pH measurements and conductance measurements. Unit-IV Isomerism in Co-ordination compounds: Structural isomerism: Ionisation, Hydrate and Linkage isomerism. Stereo isomerism: Geometrical isomerism in 4 and 6 - Co-ordination complexes. Optical isomerism in 4 -and 6- Co-ordination compounds. 56 IV Applications of complexes in quantitative analysis: Estimation of Ni^{2+} using	Unit-V Bioinorganic chemistry: Metals in biology-bulk and trace metals- Structure and function of Metalloporphyrins- Chlorophyll- Vitamin B12- Structure and Biological role of Myoglobin and hemoglobin. Metallo enzymes- carboxy peptidase and peroxidase- sodium and potassium ion pump. Biological functions and toxicity of chromium, manganese, cobalt, nickel, copper, arsenic, iodine and
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					DMG and Mg ²⁺ using Oxine. Unit-V Semiconductors : Intrinsic and Extrinsic Semi Conductors - n- type and ptype - Properties and uses. Structures of alloys: Interstitial, substitutional and intermetallic alloys.	mercury.	
15	20UCY508	Core Paper – VI : Organic Chemistry- I	Unit 1 - 5	5%	-	UNIT-III: Analysis of carbohydrates. UNIT-II: Reagents in organic synthesis:Ozon e, Osmium tetroxide,Lithiu mAluminium hydride, sodium borohydride and Birch reduction. /	Course Teacher

16	20UCY509	Core Paper – VII : Electro Chemistry	Unit 1 - 5	5%	UNIT- II Determination of solubility of sparingly soluble salts. UNIT- III choice of Indicators UNIT- IV Equilibrium constant of a electrochemical reaction, Determination of transport number. UNIT -V Cathodic protection, modifying the environment.	UNIT -III Determination of Degree of hydrolysis- indirect method and Electrical Conductance method. UNIT –IV Electrochemical instrumentation and techniques: Potentiostatic and galvanostatic Experiments. Cyclic voltammetry, chronoamperometry, chronopotentiometry.	Course Teacher
17	20UCY510	Core Paper- VIII : Dye Chemistry	Unit 1 - 5	10%	Unit V: Types of textile fibres: Natural, Semisynthetic and Synthetic fibres – Cotton, Wool, Silk, Cellulose acetate, Viscose rayon,	Unit V: Textile fibres: Classification of fibres - Natural, Synthetic and Semi synthetic fibres). Structure of textile fibres:	Course Teacher

					polyamides, polyacrylonitrile and polyester. Selection of dyes for different fibres, Fastness properties of dyes.	Cotton, wool, silk, nylon, polyester and polyacrylamide. Natural fibres: Physical, chemical properties and uses of cellulose fibre (cotton), protein fibre (silk and wool). Synthetic fibres: Preparation, properties and Uses of Nylon 6, Nylon (6,6), Polyester, and polyacrylamide. Semi synthetic fibres: Rayon - manufacture of viscose rayon and cuprammonium rayon.	
18	20UCY5E1	Core Elective I : Analytical Chemistry	Unit 1 - 5	0%	-	-	-
19	20UCY5S1	Skill Based	Unit 1 - 5	0%	-	-	-

		Elective -I : Network and Information security					
20	20UCY5S2	Skill Based Elective -I : Cyber Security- Ethical Hacking	Unit 1 - 5	0%	-	-	-
21	20UCY611	Core Paper – IX : Physical Methods and Chemical Structure	Unit 1 - 5	5%	Unit III: Application of NMR in the study of simple molecules : xylene	Unit III: Peak area and proton counting. Application of NMR in the study of simple molecules :diethyl ether Unit IV: Mass Spectra: Theory, basic principle, isotope abundance, base peak, molecular ion peak, Determination of molecular ion peak, meta stable ion, McLafferty rearrangement and Nitrogen	Course Teacher

						rule.	
22	20UCY612	Core Paper – X : Organic Chemistry-II	Unit 1 - 5	0%	-	Unit-II Terminal residual Analysis: N-Terminal end by Sanger's method. C-Terminal end by reduction Unit-IV Constitution and Synthesis of the following: Vitamin A1(retinol), Vitamin B1, Pyridoxine and Ascorbic acid	Course Teacher
23	20UCY613	Core Paper – XI : Chemical Kinetics and Quantum Mechanics	Unit 1 - 5	5%	Chemical kinetics and photochemistry Unit-V Colloids: Classification, preparation and application of colloids Properties of colloids: Optical and	Chemical kinetics and Quantum mechanics Unit-V The need for quantum mechanics. Functions: Real, complex, odd, even, orthogonal and normalized	Course Teacher

					kinetic properties: Tyndall effect and Brownian movement Electrical properties: Charge on colloidal particle, Electrical double layer and Zetapotential. Electrokinetic properties: Electroosmosis and Electrophoresis. Emulsions: Preparation, Properties and Applications. Gels: Properties and Applications.	functions. Operators: linear and non-linear, differential, Hermitian, Hamiltonian, momentum (linear and angular) commutator (Theorems) and non-commutators, Eigen functions and eigen values. Postulates of quantum mechanics (statements only).	
24	20UCY614	Core Paper - XII : Polymer Chemistry	Unit 1 - 5	5%	UNIT-I Biodegradable Polymers: Preparation, Properties and application of PolyLactic	UNIT -II Miscellaneous Polymerization reactions- Electrochemical Polymerization.	Subject Expert

					Acid. UNIT-V Injection moulding, blow moulding	UNIT-III Hydrolytic method UNIT -IV End group Analysis UNIT -V Recent Advances in Polymers : Polymer and environmental effect- introduction- disposal of polymer waste - recycling system- importance of biopolymers.	
25	20UCY6E2	Core Elective II- Analytical Chemistry – II	Unit 1 - 5	0%	-	-	-
26	20UCY6I5	Core Practical III: Gravimetric Analysis and Physical Chemistry	Unit 1 - 5	0%	-	-	-
27	20UCY6S3	Skill Based Elective –II : Green chemistry	Unit 1 - 5	0%	-	-	-

28	20UCY6S4	Skill Based Elective -II : Theory behind Practical chemistry	Unit 1 - 5	0%	-	-	-
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CHEMISTRY DEPARTMENT,
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PRINCIPAL

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NGM COLLEGE CURRICULUM DEVELOPMENT CELL
B. Sc. CHEMISTRY SCHEME OF EXAMINATION FOR 2020 – 2023 BATCH)
CHOICE BASED CREDIT SYSTEM & OBES

FIRST SEMESTER								
Course Code	PART	Course	Hrs / Week	Hours Exam	Max. Marks		Total Marks	Credits
					Int.	S.E		
20UTL101	I	Tamil / Hindi paper – I	6	3	30	70	100	03
20UEN101	II	Applied English –I	5	3	30	70	100	03
20UCY101	III	Core Paper – I Inorganic and Organic chemistry	7	3	30	70	100	04
20UCY203		Core Practical- I Inorganic Qualitative Analysis	2	--	--	--	--	--
20UCY1A1		Allied Mathematics Paper- I	8	3	30	70	100	04
20UHRI01	IV	Skill Based Elective Human Rights in India	1	2	--	50	50	02
20HEC101		HE – (Personal values & SKY Yoga practice - I)	1	2	25	25	50	01
	V	Extension Activities (NSS, NCC, Sports & Games)						
							500	17


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SECOND SEMESTER								
Course Code	PART	Course	Hrs / Week	Hrs/ Exam	Max.Marks		Total Marks	Credits
					Int.	S.E		
20UTL202	I	Tamil paper – II/ Hindi Paper II	6	3	30	70	100	03
20UEN202	II	Applied English – II	5	3	30	70	100	03
20UCY202	III	Core Paper –II Organic and Physical chemistry	6	3	30	70	100	04
20UCY203		Core Practical- I Inorganic Qualitative Analysis	2	3	40	60	100	03
20UCY2A2		Allied Mathematics Paper-II	8	3	30	70	100	04
20EVS201	IV	Environmental studies	2	2	--	50	50	02
20HEC202		HE – (Family values & SKY Yoga practice -II)	1	2	25	25	50	01
	V	Extension Activities (NSS, NCC, Sports & Games						
							600	20


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THIRD SEMESTER								
Course Code	PART	Course	Hrs / Week	Hours Exam	Max. Marks		Total	Credits
					Int.	S.E		
20UTL303	I	Tamil paper/ Hindi Paper – III	5	3	30	70	100	03
20UEN303	II	English for Excellence- Paper – I	6	3	30	70	100	03
20UCY304	III	Core Paper – III Inorganic and Physical Chemistry	6	3	30	70	100	04
20UCY406		Core Practical II Volumetric and Organic Qualitative Analysis	3	--	--	--	--	--
20UCY3A1		Allied Physics Paper –I	5	3	30	70	100	04
20UCY4A3		Allied Physics Practical for Mathematics and Chemistry	3	--	--	--	--	--
20HEC303	IV	HE – (Professional values & SKY Yoga practice –III)	1	2	25	25	50	01
20UCY3N1/ 20UCY3N2		Skill Based Non Major ElectiveI Food Science and Technology/ Skill Based Non Major ElectiveI Chemistry of Consumer Products	1	2	--	50	50	02
	V	Extension Activities (NSS, NCC, Sports & Games)						
							500	17



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FOURTH SEMESTER								
Course Code	PART	Course	Hrs / Week	Hours Exam	Max. Marks		Total	Credits
					Int.	S.E		
20UTL404	I	Tamil Paper/ Hindi Paper IV	5	3	30	70	100	03
20UEN404	II	English for Excellence Paper –II	6	3	30	70	100	03
20UCY405	III	Core Paper – IV Inorganic, Organic and Physical Chemistry	6	3	30	70	100	04
20UCY406		Core Practical II Volumetric and Organic Qualitative Analysis	3	6	80	120	200	05
20UCY4A2		Allied Physics Paper – II	5	3	30	70	100	04
20UCY4A3		Allied Physics Practical for Mathematics and Chemistry	3	3	40	60	100	04
20HEC404	IV	HE – (Social Values & SKY Yoga practice -IV)	1	2	25	25	50	01
20UCY4N3/ 20UCY4N4		Skill Based Non Major Elective II Water and Water Treatment Processes/ Skill Based Non Major Elective II Diagnostic Chemistry	1	2	--	50	50	02
20UNC401/ 20UNS402/ 20USG403	V	Extension Activities-NCC/NSS/ Sports and Games				50	50	01
							850	27

Indumathy

Dr. INDUMATHY RAMASAMY M.Sc., Ph.D.,
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Muthukumar

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FIFTH SEMESTER								
Course Code	PART	Course	Hrs / Week	Hrs/ Exam	Max. Marks		Total	Credits
					Int.	S.E		
20UCY507	III	Core Paper – V Coordination and Bioinorganic Chemistry	4	3	30	70	100	05
20UCY508		Core Paper – VI Organic Chemistry- I	4	3	30	70	100	05
20UCY509		Core Paper – VII Electro Chemistry	4	3	30	70	100	04
20UCY510		Core Paper- VIII Dye Chemistry	4	3	30	70	100	04
20UCY5E1		Core Elective I- Analytical Chemistry– I	4	3	30	70	100	05
20UCY615		Core Practical III Gravimetric Analysis and Physical Chemistry	6	--	--	--	--	--
20UCY5S1 / 20UCY5S2	IV	Skill Based Elective –I Network and Information Security/ Skill Based Elective -I Cyber Security-Ethical Hacking	1	2	--	50	50	02
20GKL501		General Knowledge& General Awareness	SS	2	--	50	50	02
20HEC505		HE – (National Values & SKY Yoga practice -V)	1	2	25	25	50	01
							650	28


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 M.A., M.Phil., B.Ed., Ph.D.,
PRINCIPAL
 N.G.M. College, Pollachi - 642 001
 Coimbatore District

SIXTH SEMESTER								
Course Code	PART	Course	Hrs / Week	Hrs/ Exam	Max.Marks		Total	Credits
					Int.	S.E		
20UCY611	III	Core Paper – IX Physical Methods and Chemical Structure	4	3	30	70	100	05
20UCY612		Core Paper – X Organic Chemistry-II	4	3	30	70	100	04
20UCY613		Core Paper – XI Chemical kinetics and Quantum mechanics	4	3	30	70	100	05
20UCY614		Core Paper – XII Polymer Chemistry	4	3	30	70	100	05
20UCY6E2		Core Elective II-Analytical Chemistry – II	4	3	30	70	100	04
20UCY615		Core Practical III Gravimetric Analysis and Physical Chemistry	6	6	80	120	200	05
20UCY6S3/ 20UCY6S4	IV	Skill Based Elective –II Green chemistry / Skill Based Elective -II Theory behind practical chemistry	1	2	--	50	50	02
20HEC606		HE – (Global values & SKY Yoga practice -VI)	1	2	25	25	50	01
							800	31
		GRAND TOTAL					3900	140


HoD
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Dr. R. MUTHUKUMARAN,
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 Coimbatore District

Programme	B.Sc.	Programme Title:	CHEMISTRY	
Code:	20UCY507	Title	Batch:	2020-2023
Course Code:	4	Core Paper –V	Semester	V
Crs/Week		Coordination and Bioinorganic Chemistry	Credits:	5

Course Objective:

To develop the skill to aesthetically appreciate Coordination and Bioinorganic chemistry

Course Outcome

Knowledge level	CO Number	CO Statement
1	CO1	To understand the basic concepts of coordination chemistry
2	CO2	To understand different theories and applications of coordination compounds
3	CO3	To understand the properties of coordination compounds
4	CO4	To gain knowledge in Bioinorganic chemistry and metal carbonyls

Syllabus Unit	Content	Hrs
	Introduction to coordination chemistry: Double salts- complex compounds- complex ion and coordination number- Ligands and their classification- chelates and their uses- coordination number and stereochemistry of complexes- IUPAC Nomenclature of coordination compounds. Isomerism: ionization, hydrate, ligand, linkage, coordination, position, geometrical and optical isomerism.	10
I	Theories of coordination compounds: Werner's theory- Sidwick's electronic interpretation- EAN concept- valence bond theory outer and inner orbital complexes- Limitations of VBT- crystal field theory- Crystal field splitting in octahedral, tetragonal, square planar and tetrahedral complexes- High spin and Low spin complexes.	11
II	Theories of coordination compounds: Factors affecting crystal field splitting, John Teller distortion- Crystal field stabilisation energy- calculation and uses- Limitations of crystal field theory. Applications of coordination compounds: Applications of copper and silver complexes in qualitative analysis. Applications of Ca-EDTA and Ni-DMG complexes in quantitative analysis.	11
IV	Properties of complexes: Color of transition metal complexes-visible spectrum of aqueous Ti (III) ion. Stability of complexes-overall and stepwise formation constants. Factors affecting stability-Determination of stability constant by Job's and Bjerum's method. Reaction Mechanism in Complexes: Ligands substitution in octahedral complexes: Inert and Labile complexes Nucleophilic ligands substitution reactions, SN1 and SN2 mechanisms. Substitution reactions without breaking Metal-Ligand bond. Trans effect in square planar complexes: Definition, trans effect series and uses of trans effect.	10
	Bioinorganic chemistry: Metals in biology-bulk and trace metals- Structure and function of Metalloporphyrins-Chlorophyll- Vitamin B12- Structure and Biological role of Myoglobin and hemoglobin. Metallo enzymes- carboxy peptidase and peroxidase-sodium and potassium ion pump. Biological functions and toxicity of chromium, manganese,	10

cobalt, nickel, copper, arsenic, iodine and mercury.

Metal Carbonyls : Mono and Binuclear carbonyls of $\text{Ni}(\text{CO})_4$, $\text{Fe}(\text{CO})_5$, $\text{Fe}_2(\text{CO})_9$, $\text{Co}_2(\text{CO})_8$ and $\text{Cr}(\text{CO})_6$ - synthesis, properties, structure and EAN.

Total contact

Hrs/Semester

52

Teaching Methods

Lecture by chalk & talk, power point presentations, group discussions, seminar, quiz, assignment, experience Discussion, brain storming, in-house lab Activity, Models.

Text Books

S.No	Author(s)	Title of the Book	Publisher	Year of Publication
1	Puri and Sharma and Kalia. K.C.	Principles of Inorganic Chemistry, 31 st Edition	Milestone Publishers and Distributors	2013
2	Soni. P.L.	Text book of Inorganic Chemistry, 20 th Edition	Sultan Chand & Sons	2012
3	Madan, Malik and Tuli.	Selected Topics in Inorganic Chemistry	Sultan Chand & Sons	2006

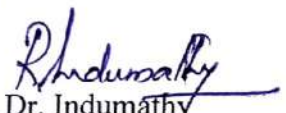
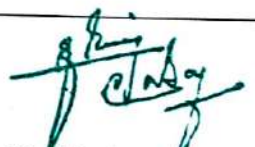
References

S.No	Author(s)	Title of the Book	Publisher	Year of Publication
1	Lee. J.D	Concise Inorganic Chemistry, 5 th Edition	Black Well Science Ltd, London.	2006
2	Jain. P.C. and Monika Jain	Engineering Chemistry, 15 th Edition	Dhanpat Rai Publishing Company	2005
3	Gopalan. R. and Ramalingam V.	Concise Coordination Chemistry, 3 rd Edition	Vikas Publishing house	

Mapping with Programme Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
SO					
SO	M	H	H	M	H
SO1	M	H	M	H	M
SO2	H	H	H	H	M
SO3	H	M	M	H	M
SO4					

Low-L, Medium-M, High-H

Compiled by Name with Signature	Verified by HOD Name with Signature	CDC	COE
 M. Amutha	 Dr. Indumathy Ramasamy	 Mr. K. Srinivasan	 Dr. R. Muthukumar

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