

NALLAMUTHU GOUNDER MAHALINGAM COLLEGE (AUTONOMOUS)-POLLACHI

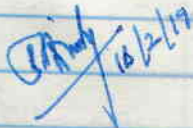
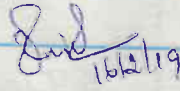
123	B.Com BI	Higher Corporate Accounting	19UBI409	2019
124	B.Com BI	Recent Trends in Banking	19UBI4N4	2019
125	B.Com BI	Indirect Taxation	19UBI514	2019
126	B.Com BI	Entrepreneurship Development	19UBI5S2	2019
127	M.A Tamil	Ikkala illakiyam	19PTM101	2019
128	M.A Tamil	Kappiyangal	19PTM310	2019
129	M.A Tamil	Thonmai illakiyam	19PTM414	2019
130	M.Sc. Botany	Microbiology and plant pathology	19PBY103	2019
131	M.Sc. Botany	Economic Botany	19PBY1E2	2019
132	M.Sc. Botany	Cytology, Genetics and Plant Breeding	19PBY207	2019
133	M.Sc. Botany	IPR and Bioethics	19PBY2E4	2019
134	M.Sc. Botany	Mushroom Cultivation & Medicinal Plant Trading	19PBY2N1	2019
135	M.Sc. Botany	Research Methodology	19PBY311	2019
136	M.Sc. Botany	Herbal Technology	19PBY3E6	2019
137	M.Sc Computer Science	Information Security and Cryptography	19PCS208	2019
138	M.Sc Computer Science	Data Analytics using Python Programming	19PCS207	2019
139	M.Sc Computer Science	Angular JS	19PCS313	2019
140	M.Sc. Chemistry	Major Elective-I-Polymer Chemistry	19PCY3E3	2019
141	M.Sc. Chemistry	Major Elective II: Nano Technology and Supra Molecular Chemistry	19PCY3E4	2019
142	M.Sc. Chemistry	Major Elective III : Medicinal Chemistry/Food Science and Technology/ Dye Chemistry	19PCY4E7/ 19PCY4E8/ 19PCY4E9	2019
143	M.Com (CA)	Entrepreneurship and Project Management	19PCC3E2	2019
144	M.Com (CA)	Strategic Management	19PCC3E4	2019
145	M.Com (CA)	Customer Relationship Management	19PCC4E6	2019
146	MSW	Communication for Social Work Practice	19PSW1E2	2019

BOS Highlighted
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BOARD OF STUDIES

16.02.2019 - SATURDAY

Sl.No	MEMBERS	SIGNATURE
1.	Dr. K. POONKODI (CHAIR PERSON)	I. G. L. V.
2.	Dr. T. SELVARAJU (UNIVERSITY NOMINEE) Associate Professor of Chemistry, Bharathiar University, Coimbatore - 641 046	
3.	Dr. K. P. ELANGO (SUBJECT EXPERT) Professor, Department of Chemistry, Grandhigram Rural Institute - Deemed to be University, Grandhigram	
4.	Mr. M. DEEPAK. [INDUSTRIAL EXPERT] Project Scientist, Center for medicinal plant Research, Changuvetty, Kottakkal, Malapuram, Kerala - 676 503.	
5.	Mr. R. Rajkumar, (ALUMNI) 2016-2018 BATCH, PG Department of Chemistry, NAM College, Pollachi - 642 001.	ABSENT
6.	Dr. V. PRABHU	
7.	Dr. M. SUGANTHI	
8.	Ms. R. MINI	
9.	Ms. M. ANUSUYA	

MINUTES

The members of Board of Studies met on 16.02.2019. The Syllabi on theory, Practical and Project were thoroughly discussed. The previous suggestion in the Syllabi was incorporated and the corrections were resolved.

The following changes were made.

1. It is suggested to encourage students to take up [mooc courses] as additional courses. The credit earned through the course need not be taken for calculating CGPA, However this credit can be mentioned in the Consolidated Mark sheet as additional Credits / Papers.
2. For project and viva-voce Examination III Semester itself students should present a literature review/Internship for that 40 marks may be awarded as ~~CTA~~ Evaluation. For IV Semester Project work, dissertation Evaluation may be as follows.
 - * Review of Literature Presentation (III Semester) - 40 Marks
 - * Project Evaluation by Internal Examiner - 40 Marks
 - * Project Evaluation by External Examiner - 80 marks
 - * Project Viva-voce (Jointly by Internal & External) - 40 marks.
3. In order to allot uniform credit for major papers, total credit for Project may be reduced from 8 to 7.
4. Credit for Inorganic Chemistry-III can be increased for 4 to 5.
5. Industrial Expert suggested the following changes.
 - * Hazardous chemicals usage is avoided like, diethylether, benzene, etc.
 - * Extraction of Curcumin can be included in organic practicals.
 - * TLC Experiment should be made compulsory.
 - * Computer aided drug design may be included in the Curriculum.

1. Ic. P-H

2. 
3. 
4. 

5. ABSENT

6. 
7. 
8. 
9. 

16/2/19

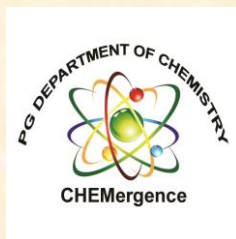
**Percentage of revision of MSC Chemistry
Syllabus Revised for the academic year 2019-2020**

PG CHEMISTRY							
S.N O	Course code	Course Title	Change Details	% of change	Content deleted	Content updated	Reason for change
1	19PCY101	Inorganic chemistry-I	Unit-IV	7	Isotopic dilution analysis	Decay of radio nuclei: rate of decay, determination of half life period, secular equilibrium, decay series, method of decay series of alpha, beeta and gamma and orbital electron capture. Nuclear isomerism- Internal conversion.	Course teacher
2	19PCY102	Organic chemistry-I	Unit-I	3	Fullerenes. Difference between intermediate transition state.	Identification of Products. Detection of Intermediates.	Course teacher
			Unit-IV	3	Dehydration and dehydrohalogenation.	Dehydrogenation of alcohol and dehalogenation of vicinal dihalides.	Course teacher
3	19PCY204	Inorganic chemistry-II	Unit-II	3		Deviation of terms P^3 and d^1 ions.	Course teacher
			Unit-V	1	Carbocyclic pi compounds.	Cyclobutadiene complex.	Course teacher
4	19PCY2N1	Non Major Elective- Chemistry in day to day life	Unit-I	3		Analysis of pesticides and heavy metals and other adulterant.	Course teacher
						Identification of pesticides in foods.	Course teacher

5	19PCY310	Organic chemistry-III	Unit-I	1	Squalene.	Linalool.	Course teacher
			Unit-III	7		Hydrazinolysis, reduction and carboxypeptide methods- Nterminal. Phenylthiohydantoin, cyano and DNP method- Polypeptides. Application of catechins, kaempferol and quercetin.	Course teacher
6	19PCY3E1	Major Elective-I- Spectroscopy	Unit-I	1		NIR.	Course teacher
			Unit-V	4		HR-MS, MS-MS, HR-EMS.	Course teacher
7	19PCY3E3	Major Elective-I- Polymer Chemistry	Unit-I to Unit-V	100		New course	Course teacher
8	19PCY3E4	Green, Nanochemistry & cyber security	Unit-III	4		E-journal, Plagiarism and IPR.	Course teacher
9	19PCY3E6	Major Elective II: Nano Technology and Supra Molecular Chemistry	Unit-I to Unit-V	100		New course	Course teacher

10	19PCY4E7 /19PCY 4E8/19PC Y 4E9	Major Elective-III Medicinal Chemistry/ Food Science and Technology/ Dye Chemistry	Unit-I to Unit- V Unit-I to Unit- V Unit-I to Unit- V	100 100 100		New course New course New course	Course teacher Course teacher Course teacher
11	19PCY413	Physical methods in Chemistry	Unit-I Unit-II	1 5		P-value UPLC, HPLC, UPHPLC, LCMS	Course teacher Course teacher

PG DEPARTMENT OF CHEMISTRY



SYLLABUS

2019-2021 BATCH

FACULTY MEMBERS

Dr. K. POONKODI, M.Sc., M.Phil., Ph.D.

Dr. V. PRABHU, M.Sc., Ph.D.

Dr. M. SUGANTHI, M.Sc., M.Phil., Ph.D.

Ms. R. MINI, M.Sc., M.Phil., (Ph.D)

Ms. M. ANUSUYA, M.Sc., M.Phil., (Ph.D)



NALLAMUTHU GOUNDER MAHALINGAM COLLEGE, POLLACHI

(Autonomous)

Affiliated to Bharathiar University

Re-Accredited with 'A' grade by NAAC & ISO 9001:2015 certified

90, Palghat road, Pollachi- 642001, Coimbatore (Dist)

Phone: 04259-234868. 234870 Fax: 04259-234869

Website: www.ngmc.org

SCHEME OF EXAMINATION

SEM	Course Code	Title of the Paper	Duration in hours per week	Examination				Credits
				Hours	CIA	ESE	Total	
I	19PCY101	Inorganic Chemistry -I	5	3	25	75	100	5
I	19PCY102	Organic Chemistry -I	5	3	25	75	100	5
I	19PCY103	Physical Chemistry -I	5	3	25	75	100	5
I	19PCY207	Inorganic Chemistry Practical-I	5	--	--	--	--	--
I	19PCY208	Organic Chemistry Practical-I	5	--	--	--	--	--
I	19PCY209	Physical Chemistry Practical -I	5	--	--	--	--	--
TOTAL MARKS							300	15
SEM	Course Code	Title of the Paper	Duration in hours per week	Examination				Credits
				Hours	CIA	ESE	Total	
II	19PCY204	Inorganic Chemistry-II	5	3	25	75	100	5
II	19PCY205	Organic Chemistry-II	5	3	25	75	100	5
II	19PCY206	Physical Chemistry-II	5	3	25	75	100	5
II	19PCY2N1/ 19PCY2N2	*Non-Major Elective: Chemistry in day today life / Chemistry in context	1	3	--	100	100	2
II	19PCY207	Inorganic Chemistry Practical - I	5	6	40	60	100	3
II	19PCY208	Organic Chemistry Practical-I	5	6	40	60	100	3
II	19PCY209	Physical Chemistry Practical -I	4	6	40	60	100	4
* Students can choose any one of the papers as electives								
TOTAL MARKS							700	27

[Handwritten Signature]

Dr. R. MANICKA CHEZIAN M.Sc M.S., Ph.D.,
PRINCIPAL i/c
Nallamuthu Gounder Mahalingam College
Pollachi - 642 001, Coimbatore District.



SEM	Course Code	Title of the Paper	Duration in hours per week	Examination				Credits
III	19PCY310	Organic Chemistry -III		Hours	CIA	ESE	Total	
III	19PCY3E1/ 3E2/3E3	* Major Elective-I Spectroscopy/ Applied Electro Chemistry/ Polymer Chemistry	5	3	25	75	100	5
III	19PCY311	Physical Chemistry - III						
III	19PCY3E4/ 3E5/3E6	* Major Elective -II Green, Nanochemistry and Cyber Security/ Water Pollution and Industrial Effluents treatment / Nano Technology and Supra Molecular Chemistry	5	3	25	75	100	5
III	19PCY414	Inorganic Chemistry Practical -II	4	6	--	--	--	--
III	19PCY415	Organic Chemistry Practical -II	3	6	--	--	--	--
III	19PCY416	Physical Chemistry Practical -II	3	6	--	--	--	--
III	19PCY417	Project Work/Literature review	2	6	40	--	40	--

* Students can choose any one of the papers as electives

TOTAL MARKS

440 18

SEM	Course Code	Title of the Paper	Duration in hours per week	Examination				Credits
IV	19PCY412	Inorganic Chemistry -III		Hours	CIA	ESE	Total	
IV	19PCY4E7/ 4E8/ 4E9	* Major Elective-III Medicinal Chemistry/ Food Science and Technology/ Dye Chemistry	5	3	25	75	100	5
IV	19PCY413	Physical methods in chemistry	4	3	25	75	100	3
IV	19PCY414	Inorganic Chemistry Practical -II	5	3	25	75	100	5
IV	19PCY415	Organic Chemistry Practical -II	5	6	40	60	100	3
IV	19PCY416	Physical Chemistry Practical -II	4	6	40	60	100	3
IV	19PCY417	Project Work & viva voce	4	6	40	60	100	4
* Students can choose any one of the papers as electives							160	7
TOTAL MARKS							760	30
							2200	90

R. Manicka Chezian



10	19PCY4E7 /19PCY 4E8/19PC Y 4E9	Major Elective-III Medicinal Chemistry/ Food Science and Technology/ Dye Chemistry	Unit-I to Unit- V	100		New course	Course teacher Course teacher Course teacher
			Unit-I to Unit- V	100		New course	
			Unit-I to Unit- V	100		New course	
11	19PCY413	Physical methods in Chemistry	Unit-I	1		P-value	Course teacher
			Unit-II	5		UPLC, HPLC, UPHPLC, LCMS	Course teacher

10. B.M
HOD

Dr. K. Poonkodi

Dr. K. POONKODI
HEAD
PG DEPARTMENT OF CHEMISTRY (SF)
NGM COLLEGE, POLLACHI

Programme code:	M.Sc.	Programme Title :	Master of Chemistry	
Course Code:	19PCY3E3	Major Elective -I	Batch :	2019-2021
		Polymer Chemistry	Semester	III
Hrs/Week:	5	Total Hrs: 65	Credits:	5

Course Objective

- The objective of the course is to stress the importance of polymers.
- To understand various polymerization techniques and characterization of polymers.
- To understand polymer structure, properties and to know the polymer processing techniques, and the chemistry of commercially available polymers and polymer additives.

Course Outcomes (CO)

K1	CO1	To learn the principles and concepts of contemporary polymer chemistry.
K2	CO2	To understand the basic concepts of polymer synthetic techniques.
K3	CO3	To Categorize the basic reactions in polymer chemistry.
K4	CO4	To Analyze the physical properties of different polymers and Characterize the polymers using various experimental techniques.

Unit-1

Types and Chemistry of Polymerization

13 Hrs

Classification of polymers, Types of polymerization – addition, free radical, ionic and coordination polymerization – Ziegler-Natta, Stereo regular polymerization, Condensation polymerization – Mechanism and Kinetics of polymerization – degree of polymerization – kinetic chain length – *factors affecting chain polymerization*- inhibition and retardation – Carother's equation.

Unit-2

Copolymerization and Polymerization Techniques

13 Hrs

Types of copolymers- ideal, alternating, block and graft copolymer – Types of copolymerization – Free radical ionic copolymerization – polycondensation – copolymer equation – significance – monomer and radical reactivity – Q-e scheme - Determination of monomer reactivity ratio – Mayo-Lewis and Fineman Ross methods – block and graft copolymerization – methods of preparation and mechanism.

Unit-3

Polymer Characteristics and Characterization

13 Hrs

Types of degradation – thermal, mechanical and photo degradations – management of plastics in the environment. The concept of number average and weight averages. Molecular weight methods - Molecular weight distribution, separation of polymers – precipitation and analytical methods – *determination of molecular weights* – Osmotic pressure, light scattering, viscosity and end group analysis, ultra centrifugation methods.

Analysis and testing of polymers- physical / mechanical and chemical analysis of polymers – spectroscopic methods, x-ray diffraction study.

Unit-4

Structure, Properties and Fabrication of Polymers

13 Hrs

Morphology and order in crystalline polymers – configurations of polymer chain – types of stereo isomerism in polymer – tacticity (eg. Mono and disubstitute polyethylene, polypropylene, polybutadiene) significance of stereoregularity.

Polymer structure and physical properties – crystalline melting point T_m – melting points of homogeneous series – effect of chain flexibility and heat of fusion. The glass transition temperature, T_g -relationship between T_m and T_g , effects of molecular weight, chemical structure, property requirements and polymer utilization.

Fabrications of polymers –Moulding, casting and spinning polymers.

Unit-5

Chemistry of Commercial Polymers and Polymer Additives

13 Hrs

Organic polymers polyethylene, polyvinyl chloride, polyamides, polyesters, phenolic resins, epoxy resins. Dendrimers – Types and applications.

Inorganic polymers – silicon polymers, glass, poly (organophosphazenes) polymers, Basic concept of conducting polymers, liquid crystal polymer, biopolymer and biomedical polymer.

Polymer additives: Fillers, plasticizers, colourants, auto oxidants, fire retardants and thermal stabilizers – polymer blends and composites.

**Italicized texts are for self study*

Power point Presentations, Group discussions, Seminar, Quiz, Assignment, Experience Discussion, Brain storming activity and Case study.

Assignment	: Fabrications of polymers
Seminar	: Copolymerization and Polymerization Techniques
Group discussion	: Types of polymerization
Power point Presentation	: Chemistry of Commercial Polymers

Books for Study:

1. Billmeyer, F. W. (1984) *Text book of polymer science*, 3rd Edition, John Wiley & Sons
2. Gowariker (V.R) & Viswanathan, N.V (1984) *Text book of Polymer science* 1st Edition, New Age International Private Ltd.
3. Introductory polymer chemistry, G.S. Misra, Wiley eastern Ltd

Books for Reference:

1. Text book of polymer science, F.W. Billmeyer Jr. 3rd Edn., Wiley, India 2007.
2. Principles of polymerization, George Odian, 4th Edn., John wiley and sons, 2007.
3. Polymer science and technology, Goel R. Fried, Prentice – Hall of India, New delhi,

2000.

4. Polymer science and technology of plastics and rubbers, P. Ghosh, Tata McGraw-Hill, New delhi, 1998.

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	L
CO2	S	S	M	S	S
CO3	S	S	M	S	S
CO4	S	S	H	S	S

S-Strong; H-High; M-Medium; L-Low

Course Designed by	Verified by HoD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Ms. M. Anusuya	Name:Dr.K.Poonkodi	Name:Dr.M.Durairaju	Name:Dr.Muthukumaran
Signature:	Signature:	Signature:	Signature:

Programme code:	M.Sc.	Programme Title :	Master of Chemistry	
Course Code:	19PCY3E6	Major Elective - II	Batch :	2019-2021
		Nano Technology And Supramolecular Chemistry	Semester	III
Hrs/Week:	3	Total Hrs: 52	Credits:	3

Course Objective

- To understand knowledge on application of nanomaterials.
- To apply nanodevices as sensors
- To provide a concise introduction and applications of supramolecular chemistry.

Course Outcomes (CO)

K1	CO1	To understand about characteristic of Sensors and Energy devices in Nanotechnology.
K2	CO2	To learn about the synthesis and structure of supra molecules, supramolecular interactions and applications.
K3	CO3	To analyze the multiple H-bonding interactions used in crystal engineering
K4	CO4	To apply supramolecular chemistry in appropriate fields.

UNIT I

Sensors

10 Hrs

Static and Dynamic Characteristics - Inorganic Nanotechnology Enabled Sensors - Gas Sensing with Nanostructured Thin Films - Nanotechnology Enabled Mechanical Sensors - Nanotechnology Enabled Optical Sensors - Magnetically Engineered Spintronic Sensors - Organic Nanotechnology Enabled Sensors - Surface Materials and Surface Modification.

UNIT II

Energy Devices

10 Hrs

Nanoscale Electronic and Ionic Transport – Energy Conversion and Storage in Electrochemistry - Overview of the Principles of Operation of Energy Conversion and Storage Devices - Solar Cells -Nanomaterials and Nanostructured Films as Electro active Electrodes - Nanomaterials as Electrolytes - Lithium Ion Batteries - Fuel Cells. *Quantum Dot Sensitizers*.

UNIT III

Introduction to Supramolecular Chemistry

11 Hrs

Definition of supramolecular chemistry. Nature of binding interactions in supramolecular structures: ion-ion, ion-dipole, dipole-dipole, H-bonding, cation-p, anion-p, p-p, and van der Waals interactions.

Relevance of supramolecular chemistry to mimic biological systems: cyclodextrins as enzyme mimics, ion channel mimics, supramolecular catalysis etc.

UNIT IV

Synthesis and structure

10 Hrs

Synthesis and structure of crown ethers, lariat ethers, podands, cryptands, spherands, calixarenes, cyclodextrins, cyclophanes, cryptophanes, carcerands and hemicarcerands., Host-Guest interactions, pre-organization and complementarity, *lock and key analogy*. Binding of cationic, anionic, ion pair and neutral guest molecules.

UNIT V

Supra molecular assembly and Devices

11 Hrs

Self-assembly molecules: design, synthesis and properties of the molecules, self assembling by H-bonding, metal-ligand interactions and other weak interactions, metallomacrocycles, catenanes, rotaxanes, helicates and knots. Crystal engineering: role of H-bonding and other weak interactions.

Molecular devices: molecular electronic devices, molecular wires, molecular rectifiers, molecular switches, molecular logic.

**Italicized texts are for self study*

Power point Presentations, Group discussions, Seminar, Quiz, Assignment, Experience Discussion, Brain storming activity and Case study.

Assignment	: Sensors
Seminar	: Synthesis and structure of supra molecules
Group discussion	: Molecular devices
Books for Study:	

1. Pradeep,T (2008): Nano: The Essentials: Understanding Nanoscience and Nanotechnology Tata McGraw-Hill Publishing Company Limited, New Delhi.
2. J.-M. Lehn; Supramolecular Chemistry-Concepts and Perspectives (Wiley-VCH,1995)
3. P. D. Beer, P. A. Gale, D. K. Smith; Supramolecular Chemistry (Oxford University Press,1999)

Books for Reference:

1. Rao,C. N. R, Thomas,P. J. andKulkarni,G. U (2007): Nanocrystals: Synthesis, Properties and Applications, Springer .
2. Kourosh Kalantar-zadeh and Benjamin Fry (2008): Nanotechnology - Enabled Sensors, Springer.
3. Guozhong Gao (2004): Nanostructures & Nanomaterials: Synthesis, Properties & Applications, ImperialCollegePress .
4. J. W. Steed and J. L. Atwood; Supramolecular Chemistry (Wiley, 2000)

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	L	L	L
CO2	S	H	H	L	M
CO3	S	H	L	L	L
CO4	S	H	H	M	H

S-Strong; H-High; M-Medium; L-Low

Course Designed by	Verified by HoD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Dr.K.Poonkodi Ms. R. Mini Ms. M.Anusuya Signature:	Name: Dr.K.Poonkodi Signature:	Name:Dr.M.Durairaju Signature:	Name:Dr.Muthukumaran Signature:

Programme code:	M.Sc.	Programme Title :	Master of Chemistry	
Course Code:	19PCY4E7	Major Elective -III Medicinal Chemistry	Batch :	2019-2021
			Semester	IV
Hrs/Week:	4	Total Hrs: 60	Credits:	3

Course Objective

- The course is to enable students to understand drug actions.
- To learn chemistry of various types of drugs such as antibiotics, analgesics, antipyretics, cardiovascular, anti-tubercular drugs, antihistamines and antimalarials.

Course Outcomes (CO)

K1	CO1	Outline the physicochemical properties of drugs
K2	CO2	Describe drug absorption, distribution, metabolism and excretion
K3	CO3	To synthesize and study novel Antibiotics for future generations
K4	CO4	Formulate the synthesis of few important drugs such as analgesics, antipyretics, cardiovascular, anti-tubercular drugs, antihistamines and antimalarials

Unit-1

Drug action and sulpha drugs

12 Hrs

Physiochemical properties in relation to biological action - influence of route of administration. Biotransformation-absorption from stomach -absorption from intestines –sites of loss -metabolism and excretion, *harmful drugs and their side effects*.

Sulpha drugs -sulphathiazole, sulphamerazine, sulphaguanidine and other sulpha drugs,-synthesis, mechanism of action -uses.

Unit-2

Antibiotics

12 Hrs

Antibiotics -A study of Chloramphenicol, Penicillin - semisynthetic Penicillin -gross structural features Streptomycin-Cephalosporin, *Erithromycin*, *Chloromycetin* and Tetracycline.

Polyene antifungal antibiotics-nystatin, fusicidic acid-*griesofulvin*. (gross structural features not needed).

Unit-3

Analgesics and antipyretics

12 Hrs

Study of morphine-structure activity relationship (SAR)-morphine analogues – Codeine -synthetic analgesics- pethidines and methadones -narcotic antagonist.

Antipyretic analgesics - salicylic acid, pyrazole and para amino phenol derivatives. Sedatives:- -Barbiturates, Benzodiazepines.

Unit-4

Cardio Vascular and anti-tubercular drugs

12 Hrs

Cardio Vascular Drugs -classification, cardiac glycosides, anti-hypertensive and hypotensive agents -mode of action –anti-arythmic agents.

Anti-tubercular drugs -sulphanamides -sulphones, p-amino salicylic acid -INH - ethambutal, *Rifampicin*.

Unit-5**Anti-histamines and anti-malarials****12 Hrs**

Anti-histamines-introduction -mode of action of anti-histamines - SAR -ethylene diamine, ethanol amine, propyl amine and –cyclizine derivatives -synthesis.

Anti-malarials-classification -quinine, 4-amino and 8-amino quinolines and pyrimidines.

**Italicized texts are for self study*

Power point Presentations, Group discussions, Seminar, Quiz, Assignment, Experience Discussion, Brain storming activity and Case study.

Assignment	: Anti-malarials
Seminar	: Analgesics and antipyretics
Group discussion	: Cardio Vascular Drugs
Power point Presentation	: Drug action and sulpha drugs

Books for Study:

1. Patric, G. L. (2005), An Introduction to Medicinal Chemistry. 3rd ed, Oxford University Press.
2. Silverman, R. B. (2004), The Organic Chemistry of Drug Design and Drug Action. 2nd ed, Academic Press.
3. Williams, D. A.; Lemke, T. L. (2006), Foye's Principles of Medicinal Chemistry. 5th ed. Wolters Kluwer Health (India) Pvt. Ltd.

Books for Reference:

1. A. Burger, (1990), Medicinal Chemistry, Vol - I and II, Wiley inter Science, New York.
2. O. Wilson, O. Giswold and F. George, (1991), Text book of organic, Medicinal and Pharmaceutical Chemistry, Lippincott Company, Philadelphia, 9th Edn.
3. Bentley and Driver, Text book of Pharmaceutical Chemistry.

Mapping

PSO \ CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	M	M	L
CO2	S	S	M	S	S
CO3	S	S	M	S	S
CO4	S	S	H	S	S

S-Strong; H-High; M-Medium; L-Low

Course Designed by	Verified by HoD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Dr.K.Poonkodi Ms. R. Mini Signature:	Name:Dr.K.Poonkodi Signature:	Name:Dr.M.Durairaju Signature:	Name:Dr.Muthukumaran Signature:

Programme code:	M.Sc.	Programme Title :	Master of Chemistry	
Course Code:	19PCY4E8	Major Elective - II	Batch :	2019-2021
		Food Science and Technology	Semester	III
Hrs/Week:	4	Total Hrs: 60	Credits:	3

Course Objective

- To enable the students understand the effect of various methods of processing on the structure and composition of food materials
- To identify different cooking methods and common adulterants in foods.

Course Outcomes (CO)

K1	CO1	To understand the outlines of cereal and pulse processing technology.
K2	CO2	To appreciate the importance of nutrients in milk, fruits and vegetables.
K3	CO3	To comprehend the nutritive value of fleshy foods.
K4	CO4	To recognize the composition of sugar, spices, nuts and oilseeds.

Unit I

Physico-chemical properties of foods

12Hrs

Moisture in Foods, Hydrogen Bonding, Bound Water, Water Activity in Foods, Determination of Moisture Content in Foods, True Solutions, Dispersions, Sols, Gels, Foams, Colloids and Emulsions

Cereals and millets

structure, nutritive value, processing outlines of some common cereals (rice, wheat). Pulses: structure and composition of pulses, toxic constituents in pulses, processing of pulses-soaking, germination, Malting.

Unit II

Vegetables, Fruits and Milk

12Hrs

Classification of fruits and vegetables, general composition, enzymatic browning, names and sources of pigments. Milk and milk products, composition, nutritive value, properties, processing of milk.

Unit III

Fleshy Foods

12Hrs

Egg: structure, composition, nutritive value, measures of quality. Meat: Structure, composition, classification, nutritive value, tenderization and curing of meat; Poultry:

composition, classification, nutritive value and processing; Fish: composition, classification, nutritive value.

Unit IV

Sugar, Fats and Oil Seeds

12Hrs

Sugar - composition, nutritive value, stages of sugar boiling. Nuts and oilseeds: classification, composition, nutritive value, uses of nuts and oilseeds. Spices and condiments: types, functions and uses.

Unit V

Methods of cooking

12Hrs

Moist heat, dry heat and fat as a media of cooking, merits and demerits. Food adulteration, detection, control of common food adulterants.

**Italicized texts are for self study*

Power point Presentations, Group discussions, Seminar, Quiz, Assignment, Experience Discussion, Brain storming activity and Case study.

Assignment	: Cereals and millets
Seminar	: Sugar, Fats
Group discussion	: Methods of cooking

Books for Study:

1. Shakuntala Manay, Shadaksharaswamy. M (2017) Foods, Facts and Principles, New Age International Pvt Ltd Publishers, 2nd Edition
2. Chandrasekhar, U. Food Science and applications in Indian Cookery (2002) Phoenix Publishing House, New Delhi
3. Swaminathan, M. Food Science, (2015) Chemistry and Experimental Foods, Bappco Publishers, Bangalore.

Books for Reference:

1. B. Srilakshmi, (2015). Food Science.New age International P. Ltd, New Delhi.
2. McWilliams(2007). Food Fundamentals, John Willey and sons, New York.
3. S. N. Mahindru (2009). Food Science and Technology, Hardbound P.Ltd, New Delhi.
4. Norman N. Potter (2009). Food Science,FifthEdition, Springerlink, Newyork.

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	L	L	L
CO2	S	H	H	L	M
CO3	S	H	L	L	L
CO4	S	H	H	M	H

S-Strong; H-High; M-Medium; L-Low

Course Designed by	Verified by HoD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Dr.K.Poonkodi Dr. M. Suganthi Ms. R. Mini Signature:	Name: Dr.K.Poonkodi Signature:	Name:Dr.M.Durairaju Signature:	Name:Dr.Muthukumaran Signature:

Programme code:	M.Sc.	Programme Title :	Master of Chemistry	
Course Code:	19PCY4E9	Major Elective - III	Batch :	2019-2021
		Dye Chemistry	Semester	III
Hrs/Week:	4	Total Hrs: 60	Credits:	3

Course Objective

- To stimulate students to have in-depth knowledge in Dye chemistry.
- To design dyes into reusable or degradable dyes.
- To motivate the students to design eco friendly dyes for future generation.

Course Outcomes (CO)

K1	CO1	To understand the chemistry of dyes
K2	CO2	To interpret the various types of dyes, synthesis, reactions and applications
K3	CO3	To recognize the pigments, cosmetics and colouring agents
K4	CO4	To synthesize new dyes for the sustainable development using green chemistry principles.

Unit-1

Colour and Constitution

12 Hrs

Relationship of colour observed to wavelength of light absorbed – Terms used in colour chemistry – chromophores, *Auxochromes*, *Bathochromic shift*, Hypsochromic shift. Quinonoid theory and modern theories: Valence bond theory, molecular orbital theory.

Unit-2

Chemistry of organic intermediates used in dye manufacture.

12 Hrs

Benzene, Naphthalene and Anthraquinone intermediates. *Nitro dyes*, Nitrosodyes, Azo dyes – principles governing azo coupling – mechanism of diazotization coupling with amines, coupling with phenols. Classification according to the number of azo groups and application – Tautomerism in azo dyes.

Unit-3

12 Hrs

Synthesis of specific dyes and uses

Orange IV, Diamond Black F, Metanil yellow, Tartrazines Direct Deep Black, Eriochrome Black T, Eriochrome Red B, Cellitron Scarlet B, Congo Red, Malachite green, methylene blue, Safranin – T, Acid Magenta, Cyanin Green G, Alizarin, Benzanthrone, Indigo, Copper phthalocyanine, Sulphur black – T .

Unit-4

12 Hrs

Synthesis, reactions and applications of dyes

Xanthene dyes, Cyanine dyes, acridine dyes, Sulphur dyes, Anthraquinone dyes: Anthraquinone mordant dyes, Anthraquinone acid dyes and Anthraquinone disperse dyes. Eco friendly pigments for sustainable development.

Unit-5**12 Hrs****Pigments**

Introduction -*Requirements of organic pigments*, Types of Pigments – Applications. Eco friendly approach. Fluorescent. Brightening agents – application of dyes in other areas, – Leather, paper, medicine, chemical analysis, cosmetics, colouring agents Food and Beverages.

**Italicized texts are for self study*

Power point Presentations, Group discussions, Seminar, Quiz, Assignment, Experience Discussion, Brain storming activity and Case study.

Assignment : Application of dyes

Seminar : Synthesis, reactions and applications of dyes

Group discussion : Colouring agents in Food

Books for Study:

1. Gurdeep R Chatwal, Synthetic Dyes, Published by Himalaya Publishing House.
2. Venkataraman, The chemistry of synthetic dyes volume I, Ademic Press Jnc, Publishers, New York.
3. B.K. Sharma, An introduction to industrial chemistry. Krishna publications.

Books for Reference:

1. Finar, I.L. (2002) *Organic Chemistry. Vol.1.* 5th Edition. Pearson India Ltd.
2. Jerry March (2007) *Advanced organic chemistry.* 4th Edition, A Wiley-Interscience.
3. Morrison, R.T, Boyd, R.N (2013) *Organic Chemistry.* 7th Edition. Pearson India Ltd.

Mapping

PSO \ CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	M	L	L	L
CO2	S	H	H	L	M
CO3	S	H	L	L	L
CO4	S	H	H	M	H

S-Strong;

H-High;

M-Medium;

L-Low

Course Designed by	Verified by HoD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Dr.K.Poonkodi Dr. M. Suganthi Dr. V. Prabhu Signature:	Name: Dr.K.Poonkodi Signature:	Name:Dr.M.Durairaju Signature:	Name:Dr.Muthukumaran Signature:

Programme code:	M.Sc.	Programme Title :	Master of Chemistry	
Course Code:	19PCY413	Physical methods in Chemistry	Batch :	2019-2021
			Semester	IV
Hrs/Week:	5	Total Hrs: 65	Credits:	5

Course Objective

- To introduce the principles of error analysis to the students.
- To enable the students to attain knowledge on various chromatographic techniques and thermo analytical methods.
- To gain knowledge in ESR, Mossbauer spectroscopy and AAS, AES, Polarimetry and Photo Electron Spectrometry.

Course Outcomes (CO)

K1	CO1	To remember the various analytical methods.
K2	CO2	To understand the analysis of data. To comprehend the basic principle, instrumentation and applications of various chromatographic techniques, thermal analysis. To understand basic principle, instrumentation and applications of photoelectron spectroscopy, AAS, FES, electron spin resonance and Mossbauer spectroscopy. To know about polarimetry.
K3	CO3	To apply data analysis, various chromatographic techniques to separate the compounds. To apply electron spin resonance and Mossbauer spectroscopy.
K4	CO4	To interpret the data in chemical analysis.