



HAJEE KARUTHA ROWTHER HOWDIA COLLEGE

(An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai.)

Uthamapalayam, Theni District. Pin Code: 625 533.

DEPARTMENT OF CHEMISTRY

PART – IV PG – NME CHEMISTRY

SYLLABUS

Choice Based Credit System – CBCS

(As per TANSICHE/MKU Guidelines)

(Academic Year 2020-2021 onwards)

Details of Course Category, Code, Credits & Title

Course Category	Course Code	Course Title	Hrs	CIAE	TEE	Max. Marks	Credits
Semester - III							
Part - IV							
NME	20PCHN31	Applications of Chemistry	3	25	75	100	3

Course Code	Course Title	Category	Total Hours	Credits
20PCHN31	Applications of chemistry	NME	45	3

Nature of Course	
Knowledge Oriented	✓
Skill Oriented	
Employability Oriented	✓
Entrepreneurship Oriented	

Course Relevance	
Local	
Regional	
National	
Global	✓

Preamble

The course enables the students to gain knowledge on the purification of organic compounds, vitamins, alkaloids, antibiotics, colloids, polymers.

Syllabus

- UNIT I** 9 Hours
Introduction to organic chemistry: Definition of Organic Chemistry – Comparison of organic and inorganic compounds – Molecular formula – Purification of Organic compounds – Distillation – Isomerism – Structural isomerism only.
- UNIT II** 9 Hours
Polymers – classification of Polymers – preparation and uses of polyethylene, PVC, Teflon, Polystyrene, Dacron and Nylon 6, 6 – Natural rubber – Synthetic rubber – Neoprene rubber – Styrene – Butadiene rubber(SBR).
- UNIT III** 9 Hours
Vitamins, alkaloids and antibiotics: Vitamins – classification – Structure, sources and functions of Vitamins A, B, C, D, B2 and B6 – Antibiotics – classification of antibiotics – alkaloids - classification of alkaloids – occurrence and extraction – General properties of alkaloids.
- UNIT IV** 9 Hours
Acids and bases: Bronsted – Lowry concept, Lewis concept, Arrhenius concept of acids and bases – PH Scale – Buffer solutions – Acid – base Indicators – Action of Phenolphthalein and methyl orange
- UNIT V** 9 Hours
Colloids and hardness of water: Colloids – classification – Purification of Colloids – Dialysis and ultrafiltration – Electro kinetic Properties – electrophoresis & electro osmosis – applications of Colloids – Hardness of water – types of hardness – estimation of hardness by EDTA method.

Text Books

Arun Bahl, B.S. Bahl, "*A Text Book of Organic Chemistry*" S. Chand & Company Ltd.

B. R. Puri, L. R. Sharma and M.S. Pathania, *Principles of Physical chemistry*, Vishal Publishing Co., 2003, Millenium Edn.

B.K. Sharma, "*Polymer Chemistry*", Goel Publishing House, Meerut, 1989.

Reference Books

I. L. Flnar, *Organic chemistry Vol. II* ELBS, 1975.

K.W. Bently, *Alkaloids Vol I & II*, Interscience, 1957.

S.F. Dyke, "*Chemistry of vitamin*", Interscience Publishers, 1965.

V.R. Gowariker, N.V. Viswanathan and JayadevSreedher, "*Polymer Science*", Wiley Eastern Ltd., New Delhi 1986.

Pedagogy

Chalk & Talk, E-Resources, Group Discussion

Teaching aids

Black Board, LCD Projector

Course Contents and Lecture Schedule

Module No.	Topic	No. of Lectures	Content Delivery Methods
UNIT - I			
1.1	Definition of Organic Chemistry - Comparison of organic and inorganic compounds - Molecular formula.	3	Chalk & Talk
1.2	Purification of Organic compounds Distillation.	3	E-Resources
1.3	Isomerism - Structural isomerism only.	3	Discussion
UNIT - II			
2.1	Classification of Polymers	1	Discussion
2.2	Preparation and uses of polyethylene, PVC, Teflon, Polystyrene.	3	Chalk & Talk
2.3	Dacron and Nylon 6, 6 - Natural rubber - Synthetic rubber.	3	E-Resources
2.4	Neoprene rubber - Styrene - Butadiene rubber(SBR).	2	Discussion

UNIT - III			
3.1	Vitamins – classification.	3	E-Resources
3.2	Structure, sources and functions of Vitamins A, B, C, D, B ₂ and B ₆	2	Chalk & Talk
3.3	Antibiotics – classification of antibiotics	1	Discussion
3.4	Alkaloids - classification of alkaloids - occurrence and extraction	2	Chalk & Talk
3.5	General properties of alkaloids	1	Discussion
UNIT - IV			
4.1	Bronsted – Lowry concept	1	Discussion
4.2	Lewis concept, Arrhenius concept of acids and bases	3	E-Resources
4.3	P ^H Scale – Buffer solutions	2	Chalk & Talk
4.4	Acid – base Indicators	2	E-Resources
4.5	Action of Phenolphthalein and methyl orange.	1	Chalk & Talk
UNIT - V			
5.1	Colloids – classification	1	E-Resources
5.2	Purification of Colloids – Dialysis and ultrafiltration	2	Chalk & Talk
5.3	Electro kinetic Properties – electrophoresis.	2	Discussion
5.4	Electro osmosis – applications of Colloids – Hardness of water – types of hardness	2	Chalk & Talk
5.5	Estimation of hardness by EDTA method	2	Discussion
Total		45	

Course Designer

Dr. M.P. Kesavan

Assistant professor of Chemistry.