

MULTI-MDC-CHE-303-Theory

HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

Course Name : B. Sc. Chemistry

Semester : III

PROGRAM CODE : SCIUG102

COURSE CODE : SC23MDCCHE303



Type of course : Multi disciplinary course MDSC

Name of course : Simplified chemistry I

Total Mark : 50

Effective from June 2023 Under NEP 2020

Total Credits : 02	Teaching Hours per Week: 02	Theory	External 25 Marks
	Teaching Hours per Semester: 30		Internal 25 Marks

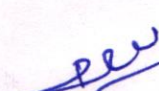
Course Objectives:

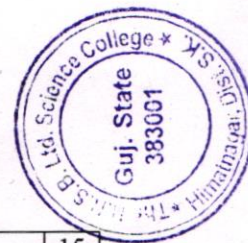
1. To understand the core concepts of Boron compounds.
2. To understand Heterocyclic chemistry and their application.

Course Outcome:

1. Students will have a firm foundation in the fundamentals and application of current chemical and scientific theories including those of boron compounds and heterocyclic Chemistries.
2. Students will be able to design and carry out scientific experiments as well as accurately record and analyze the results of such experiments.
3. Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.

Unit	Topic	Credit	Hr
1	Boron Hydride Introduction for Metal Hydride Classification of hydrides. Preparation, properties structure and use of Diborane. Bridge bonding in B_2H_6 (M.O. and sp^3 approach). Structure of higher Boranes: B_4H_{10} , B_5H_9 , B_5H_{11} , B_6H_{10} , $B_{10}H_{14}$.	1	15


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2	Heterocyclic Compounds. ZMW Introduction, Nomenclature, Structure and aromatic characteristic of Pyrrole, Furan and Thiophene and Pyridine Reactivity and orientation of electrophilic substitution reactions (ESR) in five membered heterocycles (Pyrrole, Furan and Thiophene) and six membered heterocycles (Pyridine). Synthesis and electrophilic substitution of Pyrrole, Furan and Thiophene Structure of Pyridine, Electrophilic and Nucleophilic substitution reactions of pyridine. Basicity of pyridine, piperidine and pyrrole	1	15
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Books Recommended:

Inorganic Chemistry

1. Modern Inorganic Chemistry' by G.F.Liporni, ELBS, 4th edn. Coilin Educational. 1983.
2. Inorganic Chemistry' D.F.Shriver, P.W.Atkinss and C.H.Longford, 3rd edn, ELPS Oxford University Press, 1999..
3. 'Concise Inorganic Chemistry' J.D.Lee. 5th edn. Oxford University Press.
4. Inorganic Chemistry', D.F.Slirjver, P.W.Atkinss, 3rdedn, Oxferd. 1999.
5. 'Concise Inorganic Chemistry' J.D.Lee, 4thedn, Champman and hall ELBS, 1991.
6. 'Inorganic Chemistry' by A.G.Sharp, 3rdedn, ELBS, Longman, 1990.

Organic Chemistry

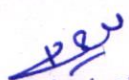
1. 'Organic reaction and mechanism, P.S.Kalsi, New Age international Publishers.
2. Text book of organic Chemistry. P.S.Kalsi, New Age international Publishers.
3. Organic Chemistry Vol. I & II. S.M. Muklierji, S.P.Singh. R.P. Kapoor.
4. Reaction mechanism in Organic Chemistry, S.M. Mukhergi. S.P.Singh. 3rdedn. Macmillan.

Further Reading:

1. Reaction Mechanism and Reagents in Organic Chemistry, Gurdeep R. Chatwal 4th edn, Himalaya Publication House.
2. Text book of Organic Chemistry, Arun Bahal, S. Chand.
3. Organic Chemistry, R. Morrison and R. Boyd, 6th edn, Pearson Education 2003.



4. Organic Chemistry. T.W.GrahamSolomons, 4thedn. John Wilay. 1998.
5. Nuclear Chemistry by C.V.Shekhar, Dominent-Publisher. New Delhi.
6. Essentials of physical Chemistr by B.S.Bahal, ArunBahal. G. D.Tuli.
7. Physical Chemistry by P.W.Atkins. 5th edn.Oxford 1994 7thedn-2002.


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Psychical-MWH-MDL



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Program Name : B. Sc. Chemistry

Semester : III

PROGRAM CODE : SCIUG102

COURSE CODE : SC23PMDCCHE303

Type of Course : Practicals Multidisciplinary (Elective) Course PMDSC

Name of Course : Practical's for Simplified chemistry I

Total Marks : 50

Effective from June 2023 Under NEP 2020

Total Credits : 02	Teaching Hours per Week: 04	Practicals	External 25 Marks
	Lab Teaching Hours per semester: 60		Internal 25 Marks
Minimum Number Practicals to be Performed: 10			

Course Objectives:

1. To identify the components in Inorganic mixtures.
2. Preparation of different solutions and samples.

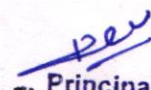
Course Outcomes:

1. Students will gain a comprehensive knowledge and skills in preparation of solutions for carrying out reactions in inorganic samples.
2. To understand basic methods to identify the components in mixtures.

Sr.No.	List of Practicals	Credit	Hr
1	Inorganic Chemistry 1. Inorganic Qualitative analysis. (any 8 Mixture) Mixture containing four radicals. Anion should be CO_3^{2-} , NO_2^- , SO_3^{2-} , S^{2-} ; Br^- , Cl^- , I^- ; NO_3^- ; SO_4^{2-} ; CrO_4^{2-} ; $\text{Cr}_2\text{O}_7^{2-}$ (except PO_4^{3-} , BO_3^{3-} , ASO_3^{3-} , ASO_4^{3-} , O^{2-}) 2. To separate Pb, Ag, and Hg ions present in a mixture by paper chromatography. 3. To separate Zn, Co, Ni ions by paper chromatography.	1	30

Books Recommended:

1. Practical Chemistry : For B.Sc. I, II And III Year Students of All India Universities By Pandey O.P. & et Al. publisher S. Chand's, Paperback December 2010.


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2. Basic Principles of Practical Chemistry,

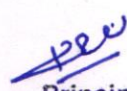
by V. Venkateswaran (Author) publisher S. Chand's, Paperback – 1 January 2012

3. Chemistry In Laboratory-B.Sc.-Sem-I-Vi-Hons.

By Dr.Subhojit Ghosh (Author), Dr.Madhushree Das Sharma (Author), publisher CBCS,
Paperback – 1 January 2019.

Further Reading:

1. Practical Chemistry, By Sonia Ratnani (Author), Swati Agrawal (Author), Sujeet Kumar Mishra (Author) publiser Mc Graw Hill, 1st Edition Paperback – 16 September 2020.
2. B.Sc. Practical Chemistry First Year By Paperback, Dr. M.M.N. Tandon, Publisher:
Shiva Lal Agarwal & Company, 2020.


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