

Course Title: Chemistry Elective: Chemistry in Vedic Literature and Ayurvedic Drugs w.e.f. the session 2022-23 and onwards	
Class: M.Sc. Pt.-I / Semester-II	Course code: MCH-E204
Lectures: 60	Credits : 04
MM: 70	Exam Hours: 03

NOTE: The question paper shall consist of Two sections (Sec.-A and Sec.-B). Sec.-A shall contain 10 short answer (about 150 words) type questions of SIX marks each and student shall be required to attempt any five questions. Sec.-B shall contain 08 descriptive type questions of TEN marks each and student shall be required to attempt any four questions. Both sections shall have questions from the entire syllabus. The previous year paper/model paper can be used as a guideline and the following syllabus should be strictly followed while setting the question paper.

COURSE CONTENTS:

Unit - I

Chemistry in vedic literature and Indian philosophy-I:

Kanad's atomic theory, Concept of Parmanu, Formation of molecules, Parimandal, Comparison with Dalton's atomic theory and models of Thomson, Rutherford and Bohr. Concept of SAMATA and VISHAMTA Vs Maxwell-Boltzmann's distribution of velocities and energies.

Unit - II

Chemistry in vedic literature and Indian philosophy-II:

First and Second law of thermodynamics in daily life. Law of helplessness of mankind in thermodynamics and Indian philosophy. Entropy in life and concept of Pralaya. Dhananjay Vs Concept of Radioactivity – Life after death. Atomic Spectrum Vs Concept of Kundalini.

Unit – III

(a) Metallic Medicines in Ayurveda: Shodhan and Marna, Doshas of Mercury and Astadasa sanskara.

(b) Pharmacodynamics of Ayurvedic drugs: Brief description of Rasa, Guna, Vipaka, Virya, and Prabhava.

Unit - IV

(a) Classification and Constituents of Crude Drugs: Brief and introductory idea of drug constituents and their Morphological, Chemical and Pharmacological classification.

(b) Plant Analysis : Methods of extraction, Isolation separation and identification of various constituents (Introductory description). Isolation of Caffeine from Tea leaves, Isolation of Piperine from black piper and Isolation of curcumin from turmeric.

Unit - V

(a) Analysis of Ayurvedic Drugs: General idea of analysis of active constituents and standardization of Ayurvedic drugs, namely Rasa, Bhasma, Pisti and Herbs.

(b) Analysis of Modern drugs: Assay and identification of Aspirin, Ibuprofen, Quiniodochlor, Diclofenac, Ascorbic acid, Paracetamol and chloroquine phosphate.

Suggested Readings:

1. Alchemy and Metallic Medicines in Ayurveda by: Vaidya Bhagwan Das
2. History of Hindu Chemistry by: P. C. Ray
3. Ayurvediya Rasa Shastra by: Siddhinandan Misra
4. Ayurvediya Rasa Shastra by: Dr. Chandra Bhushan Jha
5. Indian Alchemy by: Dr. S. Mahdihassan
6. Indian Pharmacopoea 2010
7. Text Book of Pharmacognosy by: Mahammed Ali
8. Rasajalnidhi Vol. I - III
9. Ancient Scientists of India by Satya Prakash
10. Phytochemical Methods by: J. B. Harborne (Chapmann & Hall)

COURSE OBJECTIVES:

1. Chemistry in Vedic literature and Indian philosophy
2. Metallic Medicines in Ayurveda
3. Pharmacodynamics of Ayurvedic drugs
4. Classification and Constituents of Crude Drugs
5. Plant Analysis
6. Analysis of Ayurvedic and Modern drugs

COURSE OUTCOMES:

On completion of this course, student shall be able to:

CO 1: Pursue “philosophy of life” by itself as one of the Indian knowledge systems and understanding Vedic worldview as the context of various Indic knowledge disciplines.

CO 2: Perceive the Vedic outlook regarding life in the here and hereafter and the cycle of life

CO 3: Commemorate the comprehensive and seamless nature of Vedic knowledge. Understand the concepts of *Svadharma*, free will and duty oriented action.

CO 4: Understand the purpose and utility of Vedic knowledge systems in enriching human life comprehending the Vedic world view of knowledge, its purpose and its universal and holistic nature

CO 5: Correlate the Ancient Indian System of knowledge with role of Chemistry in Modern Living.

CO 6: Grasp of vocabulary, models used and the process and practice of Chemistry as a Science in context to *Rasasastra*.

CO 7: Gain knowledge of ayurvedic system of medicine by studying various aspects of herbs and natural products. Deduce knowledge in analysis of drugs of ayurvedic and allopathic nature as well in order to infer regarding the pharmacodynamics of drugs in a better way.

Mapping of Course outcomes (COs) with Programme outcomes (POs)

Course outcomes/ Programme outcomes	1	2	3	4	5	6	7	8
CO 1				X			X	
CO 2				X			X	
CO 3				X			X	
CO 4				X			X	
CO 5	X			X			X	X
CO 6	X		X	X			X	X
CO 7	X		X	X	X		X	X