SECOND-YEAR OF MASTER OF SCIENCE CHEMISTRY REVISED SYLLABUS ACCORDING TO CBCS NEP2020

COURSE TITLE: FORENSIC & COSMETIC ANALYSIS
SEMESTER-IV
W.E.F. 2024-2025

RECOMMENDED BY THE BOARD OF STUDIES IN CHEMISTRY
AND
APPROVED BY THE ACADEMIC COUNCIL

Devrukh Shikshan Prasarak Mandal's
Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh.
Tal. Sangameshwar, Dist. Ratnagiri-415804, Maharashtra, India

Academic Council Item No:

Name of the Implementing Institute	:	Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh. Tal. Sangameshwar, Dist. Ratnagiri-415804,
Name of the Parent University	:	University of Mumbai
Name of the Programme	:	Master of Science
Name of the Department	:	Chemistry
Name of the Class	:	Second Year
Semester	:	Two
No. of Credits	:	02
Title of the Course	:	Forensic and Cosmetic Analysis
Course Code	:	S615CHT
Name of the Vertical in adherence to NEP 2020	:	Elective
Eligibility for Admission	:	Chemistry Graduate learner seeking Admission to Post Graduate Programme in adherence to Rules and Regulations of the University of Mumbai and Government of Maharashtra
Passing Marks	:	40%
Mode of Assessment	:	Formative
Level	:	PG
Pattern of Marks Distribution for SEE and CIA	:	60:40
Status	:	NEP-CBCS
To be implemented from Academic Year	:	2024-2025
Ordinances /Regulations (if any)		

Syllabus for Second Year of Master of Science in Chemistry

(With effect from the academic year 2024-2025)

SEMESTER-IV **Paper No.- V**

Course Title: Forensic and Cosmetic Analysis **No. of Credits - 02**

Type of Vertical: Elective **Course Code: S615CHT**

Learning Outcomes Based on BLOOM's Taxonomy:

After completing the course, the learner will be able to…

Course Learning Outcome No.	Blooms Taxonomy	Course Learning Outcome
CLO-01	Understand	Explain analytical toxicology in forensic analysis.
CLO-02	Apply	Determine composition of cosmetic product.

Syllabus for Second Year of Master of Science in Chemistry

(With effect from the academic year 2024-2025)

SEMESTER-IV **Paper No.- V**

Course Title: Forensic and Cosmetic Analysis **No. of Credits - 02**

Type of Vertical: Elective **Course Code: S615CHT**

COURSE CONTENT			
Module No.	**Content**	**Credits**	**No. of Hours**
1	**UNIT-I Cosmetic Analysis** • Cosmetics: Introduction. Evaluation of cosmetic materials, raw materials and additives. Formulation, standards and methods of analysis. • Deodorants and antiperspirants: Al, Zn, Boric acid, chlorides, sulphates, hexachlorophene, methanamine, phenolsulphonates and urea. • Face powder: Fats, fatty acids, boric acid, barium sulphate, Ca, Mg, Ti, Fe, oxides of Ti , Fe and Al (total). • Hair tonic: 2,5-diaminotoluene, potassium borates, sodium perborate, pyrogallol, resorcinol, salicylic acid, dithioglycollic acid (in permanent wavers) • Creams and Lotions: Types of emulsions, chloroform soluble materials, glycerol, pH emulsion, ash analysis, nonvolatile matter (IR spectroscopy) • Lipsticks: General analysis, determination of - nonvolatile matter, lakes and fillers, trichloroethylene-acetone soluble contents.	01	15
2	**Unit-II Forensic Analysis** • Analytical Chemistry in Forensic Science: General idea. • Forensic Analysis: Blood, DNA profiling, Hair analysis, Alcohol in body fluids, systematic drug identification. • Analytical Toxicology: Isolation, identification and determination of: ▪ Stimulants: Amphetamines and caffeine. ▪ Narcotics: Heroin, morphine and cocaine ▪ Depressants: Benzodiazepines, Barbiturates and	01	15

	Mandrax. ▪ Hallucinogens: LSD and Cannabis. ▪ Metabolites of drugs in blood and urine of addicts. ▪ Viscera, stomach wash, vomit and postmortem blood for poisons like – cyanide, arsenic, mercury, insecticides and pesticides.		
	Total	**02**	**30**

Access to the Course

The course is available for all the students admitted for Second year of Master of Science.

Methods of Assessment

The assessment pattern would be 60:40, 60% for Semester End Examination (SEE) and 40% for Continuous Internal Assessment (CIA). The structure of the SEE and CIA would be as recommended by the Board of Studies and approved by the Board of Examination and the Academic Council of the college.

References:

1. Forensic Chemistry, Suzanne Bell, Pearson Prentice Hall Publication, 2006.
2. Forensic Chemistry, David E Newton, Infobase Publishing, 2007.
3. Encyclopedia of Analytical Chemistry, Volume 3, Academic Press, 1995.
4. Harry's Cosmetology, 7th Ed, Longman Scientific Co.
5. Formulation and Function of Cosmetics, Joseph Stefan Jellinek, Wiley Interscience, 1971.
6. Cosmetic Technology, Edward Sagarin, Interscience Publishers, 1957.
7. Modern Cosmetics, Edgar George Thommsen, Francis Chilson, Drug and Cosmetic Industry, 1947.