

As Per NEP 2020

University of Mumbai



Syllabus for Minor	
Board of Studies in Bioanalytical Sciences	
UG First Year Program	
Semester	II
Title of Paper	Credits - 2
I) Introduction to Toxicology	2
From the Academic Year	2024-25

Sr. No.	Heading	Particulars
1	Description the course : Including but Not limited to :	The aim of Minor subject is designed to provide basics of toxicology field, where bioanalysts can get into fields like toxicity studies related to all kinds of formulations ranging from drugs, foods, cosmetics, biopharmaceutics and natural products.
2	Vertical :	Minor
3	Type :	Theory & Practical
4	Credit:	2 credits (1 credit = 15 Hours for Theory or 30 Hours of Practical work in a semester)
5	Hours Allotted :	15 Hours and 30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives: CO 1. Familiarize students with different classes of toxicants, CO 2. Better understanding of sources, properties, and effects on various toxins on different living organisms. CO 3. Fundamental concepts in toxicology, such as dose-response relationships CO 4. Understand mechanisms of action of toxins	
8	Course Outcomes: OC 1. Demonstrate a thorough understanding of the fundamental principles of toxicology OC 2 Capability to analyze factors influencing the toxic effects of chemicals on living organisms. OC 3 Able to assess the potential risks posed by these substances to human health and the environment based on their toxicological properties	

9	
	Unit 1: Introduction to toxicology
	1.1 History of toxicology, Orfila - Founder of toxicology, Future of toxicology, specialized areas of Toxicology , toxicological chemistry 1.2 Definition of Toxicology, importance Terminology - Toxicants, Toxins , Poisons, systemic toxins , Organ toxins 1.3 Toxic substances, Toxic agents, Toxic organisms, Biological toxins, Toxin Chemicals, Case studies and discussions on toxic substances, biological toxins, toxin chemicals

Unit 2: Toxic agents and types

2.1 Kinds of Toxic substances, Natural and manmade chemical

2.2 Definition of Toxicology, importance, Terminology - Toxicants, Toxins , Poisons, systemic toxins Organ toxins

2.3 Toxic substances, Toxic agents, Toxic organisms, Biological toxins, Toxin Chemicals, Case studies and discussions on toxic substances, biological toxins, toxin chemicals

10	Reference Books: 1. Toxicological chemistry and Biochemistry 3rd edition, Stanley EManahan 2. Casarett and Doull's Toxicology C. Klaassen, M. Amdur, and J. Doull, eds., 9th edition,MsGraw Hill publication 3. Principles and Methods of Toxicology (A. W. Hayes, ed.)3rd edition CRC press 4. Basic Environmental Toxicology (L. Cockerham and B. Shane, eds.)	
11	Internal Continuous Assessment: 40%	External, Semester End Examination : 60% Individual Passing in Internal and External Examination
12	Continuous Evaluation through: Quizzes, Class Tests, presentation, project, role play, creative writing, assignment etc.(at least 3)	
13	Format of Question Paper: 30 Marks per paper Semester End Theory Examination: 1. Duration - These examinations shall be of one hour and 30 minutes duration. 2. Theory question paper pattern: a. There shall be 03 questions each of 10 marks on each unit b. All questions shall be compulsory with internal choice within the questions	

Sign of the BOS
Chairman
Dr. Prafullachandra
P.Tekale
Bioanalytical Sciences

Sign of the
Offg. Associate Dean
Dr. Madhav R. Rajwade
Faculty of Science &
Technology

Sign of the
Offg. Dean
Prof. Shivram S. Garje
Faculty of Science &
Technology