



Dr. Rafiq Zakaria Campus
Maulana Azad Educational Trust's

Y. B. CHAVAN COLLEGE OF PHARMACY

(B. Pharm, M. Pharm & Research Centre)

ISO 21001:2018 & ISO 14001:2015 CERTIFIED | NIRF-2022 ALL INDIA RANK 65TH

NAAC ACCREDITATION "A" GRADE WITH 3.23 CGPA SCORE

COURSE MODULE

Program Title	M. Pharmacy
Department	Pharmacology
Course Title	Advanced Pharmacology-1

- 1. NAME OF INSTITUTION** : Y. B. CHAVAN COLLEGE OF PHARMACY,
AURANGABAD
- 2. AFFILIATED UNIVERSITY** : DR. BABASAHEB AMBEDKAR
MARATHWADA UNIVERSITY, AURANGABAD
- 3. DEPARTMENT** : PHARMACOLOGY
- 4. PROGRAM TITLE** : M. PHARM.

4.1. Program Specific Outcome:

PSO 01: Highlight advancement in knowledge associated with advance pharmacology, toxicology, molecular pharmacology, drug discovery, clinical research and pharmacovigilance.

PSO 02: Independently carry out research and development work in pharmacology and interdisciplinary areas utilizing modern tools and employing problem analysis skills to solve practical problems.

PSO 03:Build the professional skills, computational, analytical and critical thinking skills.

PSO 04:Build protocols to test efficacy, safety and toxicity of the new chemical entities as per the guidelines.

PSO 05: Apply the GLP concepts, CCSEA and OECD guidelines in animal studies.

5. COURSE SPECIFICATION :

5.1.Course Identification and General Information

a. Course Title:	Advanced Pharmacology-I	
b. Course Number/Code	MPL 102T	
c. Credit Hours	Theory	Practical
	60	00
d. Study level/semester at which this course is offered	M. Pharm 1st Year	
e. Pre-requisite	Pharmacology	
f. Co-requisite	Physiology	
g. Program in which the course is offered	M Pharm	
h. Language of teaching the course	English	
i. Prepared by	1. Dr. Hemant D. Une 2. Dr. Syed Ayaz Ali	
j. Approved by HOD	Dr. Syed Ayaz Ali	

5.2.Course Description:

States, articulates and illustrates the scope of lessons covered in the course. Pharmacology is the branch of science that deals with the study of drugs. More specifically, it is the study of the interactions that occur between a living organism and drugs that corrects the abnormal biochemical function. Study involves molecular and cellular mechanisms, organ/systems mechanisms, signal

transduction/cellular communication, molecular diagnostics, interactions, toxicology, chemical biology, therapy, medical applications and knowledge about latest drugs available for therapies.

5.3.Course Objectives:

1. Discuss the pathophysiology and pharmacotherapy of certain diseases
2. Explain the mechanism of drug actions at cellular and molecular level
3. Understand the adverse effects, contraindications and clinical uses of drugs used in treatment of diseases

6.0.Course Outcomes (COs) : (Min. 4 and Max. 6)

(Use Bloom's Taxonomy words)

CO Code	Course outcome
CO-1	Gain the knowledge of Pharmacokinetics and Pharmacodynamics mechanism and able to correlate it with the effects of drug.
CO-2	Understand the role of neurochemicals in drug treatment
CO-3	Explain the Molecular and cellular mechanism of the drugs acting on CNS and CVS.
CO-4	Understand the physiological and pathological role of Autocoids
CO-5	Describe the pharmacology of drugs acting on CNS and CVS with emphasis on recent trends and advances in the drugs action.

6.1. Knowledge and Understanding

(Alignment of PSOs to COs)

Course Code	Program Specific Outcome				
	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5
CO-1	3	1	2	2	-
CO-2	3	2	1	1	-
CO-3	3	3	2	2	1
CO-4	3	2	3	2	3
CO-5	2	2	3	2	2

Correlation levels 1, 2 or 3 as defined below:

2: Moderate (Medium); 3: Substantial

1: Slight (Low); (High); If there is no correlation, put '-'

6.2.Teaching and Assessment Methods for achieving learning outcome:

Teaching Strategies(methods)/Tools used	Methods of Assessment
Lectures (Constructivist learning) Collaborative learning (Discussion) Project based Learning Blended learning Inquiry based learning Flash cards Video Equipment models	Formative Assessment Case study Class test Multiple choice questions Assignments Seminar Viva Voce Synopsis Tutorials Summative Assessment

6.3.Tools for the Teaching and learning

Theory subjects	Practical Subjects
<ul style="list-style-type: none"> • PowerPoints presentation • Videos • Flash Card • Models • Software • Charts • Smart Boards • White boards • Online Platform 	<ul style="list-style-type: none"> • White boards • Glassware • Chemicals • Instruments • Equipment • Software • Models • Plants/Crude Drugs • Animal

6.4.COURSE CONTENT

6.1. Theoretical Aspect:

Order	Topic list/units	Subtopics list	Number of Weeks	Contact Hours
1	Unit I	General Pharmacology a. Pharmacokinetics: The dynamics of drug absorption,	4	12

		distribution, biotransformation and elimination. Concepts of linear and non-linear compartment models. Significance of Protein binding. b. Pharmacodynamics: Mechanism of drug action and the relationship between drug concentration and effect. Receptors, structural and functional families of receptors, quantitation of drug receptors interaction and elicited effects.		
2	Unit II	Neurotransmission a. General aspects and steps involved in neurotransmission. b. Neurohumoral transmission in autonomic nervous system (Detailed study about neurotransmitters-Adrenaline and Acetyl choline). c. Neurohumoral transmission in central nervous system (Detailed study about neurotransmitters-histamine, serotonin, dopamine, GABA, glutamate and glycine]. d. Non adrenergic non cholinergic transmission (NANC). Cotransmission Systemic Pharmacology A detailed study on pathophysiology of diseases, mechanism of action, pharmacology and toxicology of existing as well as novel drugs used in the following systems Autonomic Pharmacology Parasympathomimetics and lytics, sympathomimetics and lytics, agents affecting neuromuscular junction	4	12
3	Unit III	Central nervous system Pharmacology General and local anesthetics Sedatives and hypnotics, drugs used to treat anxiety. Depression, psychosis, mania, epilepsy, neurodegenerative diseases. Narcotic and non-narcotic analgesics.	4	12
4	Unit IV	Cardiovascular Pharmacology Diuretics, antihypertensives, antiischemics, anti-arrhythmics, drugs for heart failure and hyperlipidemia. Hematinics, coagulants, anticoagulants, fibrinolytics and antiplatelet drugs	4	12
5	Unit V	Autocoid Pharmacology The physiological and pathological role of Histamine, Serotonin, Kinins Prostaglandins Opioid autocoids. Pharmacology of antihistamines, 5HT antagonists.	4	12
	TOTAL		20	60

6.2. Practical Aspects

Order	Name of Experiment	Number of Weeks
1	Not Applicable	
2		

7.0. ASSESSMENT MECHANISM:

Sr. No.	Assessment Mechanism	Week due	Marks	Proportion of Final Assessment
1	Continuous Assessment (Theory)	2 nd week of every month	10	4%
2	Sessional (Internal Theory exam)	As per schedule of examination	15	6%
3	Continuous Practical Assessment (Sessional Practical exam)	Weekly during practical	20	8%
4	Sessional (Internal Practical exam)	As per schedule of examination	30	12%
5	Final exam (theory)	As per University at end of course	75	30%
6	Final exam(practical)		100	40%
Total			150	100%

8.0.STUDENT SUPPORT:

Office hours/week	Other procedures
Two hours minimum	e-mail.

9.0.TEACHER'S AVAILABILITY FOR STUDENT SUPPORT:

Days	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Time	12:00-1:00	12:00-1:00	12:00-1:00	12:00-1:00	12:00-1:00	12:00-1:00

10.0. LEARNING RESOURCES:

Sr.No.	Title of Learning Material	Details
1	Text books	Goodman and Gilman's 2001. "The Pharmacological Basis of Therapeutics" 10 th Ed., McGraw-Hill. Rang. M.P., Dale M.M., Ritter J. M. /4 th ed, Pharmacology, Churchill, Livingstone. B.G. Katzung, 2001. " Basic and Clinical Pharmacology" 9 th Ed. Lange Medical Books/McGraw-Hill
2	Reference material	Text books in college library

3	E-materials and websites	You tube videos
4	Other learning material	Handwritten notes

11.0. FACILITIES REQUIRED:

Sr.No.	Particular of Facility Required
1	Lecture Rooms (capacity for 60 students)
2	Laboratory (capacity for 20 students)
3	Computing resources: PC with latest version and hardware/software and utilization of open source and licensed application software
4	Other resources: Appropriate laboratory tools, Chemicals, Glass ware, Apparatus, Instrumentation

12.0. COURSE IMPROVEMENT PROCESSES:

12.1. Strategies for obtaining student feedback on effectiveness of teaching:

Course delivery evaluation by students using: Questionnaire forms and online questionnaires

12.2. Other strategies for evaluation of teaching by the instructor or by the department:

Periodic review by Academic Planning & Monitoring Committee and departmental review committee, Observations and assistance of colleagues, External assessments by advisors/ examiners and auditors.

12.3. Process for improvement of teaching:

Use of ICT tools, teaching aids, Simultaneous practical orientation and theory classes (SPOT), Adoption of reflective teaching.

12.4. Describe the planning procedures for periodically reviewing of course effectiveness and planning for improvement:

Periodic review by departmental meeting , Review of course delivery and outcome through assessment and feedback from all stake holders.

12.5. Course development plans:

Provide inputs for course improvement and update to University Course development Committees (Board of Studies)

13.0. INFORMATION ABOUT FACULTY MEMBER RESPONSIBLE FOR THE COURSE:

Name	Dr. Hemant. D. Une
Location	Department of Pharmacology
Contact Detail (e-mail & cell no.)	9823015556
Office Hours	10:00 AM to 5:00 PM

Name	Dr. Syed Ayaz Ali
Location	Department of Pharmacology
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Office Hours	10:00 AM to 5:00 PM