

R.K. PHARMACY COLLEGE

COURSE HANDOUT

Pharmacology (Theory)

COURSE CODE: ER20-21T

VISION

Train the minds to think logically and become a success

MISSION

To Develop inventive, pioneering research & high-quality technical education

PROGRAMME EDUCATIONAL OBJECTIVES

- PEO 1:** To produce graduates with sound theoretical knowledge and technical skills required for career opportunities in various domains.
- PEO 2:** To incite the students towards research and to address the challenges with their innovative Contributions for the benefit of mankind.
- PEO 3:** To bring forth a quality professional equipped with technological advances to adapt easily to changes in the ever-evolving pharma and allied industry, hospital and clinical pharmacy setup, pharma retailing and distribution, and governmental and health agencies.
- PEO 4:** To engage graduates in professional ethical practices in a multidisciplinary environment, while contributing to organization through leadership and building team spirit.
- PEO 5:** Pharmacists can become lifelong learners, absorb new technologies, and then offer leadership roles in society.

Programme Name	Diploma in Pharmacy (D. Pharm)
Course Name	Pharmacology (Theory)
Course Code	ER20-21T
Session	2025-26
Year	II
Labs (Per Week)	3
Course Credit	2
Course Coordinator Name	

1. Scope of the Course:

This course provides basic knowledge about different classes of drugs available for the pharmacotherapy of common diseases. The indications for use, dosage regimen, routes of administration, pharmacokinetics, pharmacodynamics, and contraindications of the drugs discussed in this course are vital for successful professional practice

2. Course Outcomes (COs):

- CO.1. Describe the basic concepts of pharmacokinetics and pharmacodynamics
- CO.2. Enlist the various classes and drugs of choices for any given disease condition
- CO.3. Advise the dosage regimen, route of administration and contraindications for a given drug
- CO.4. Describe the common adverse drug reactions

3. Reference Books:

1. Pharma Satoskar, R.S. and Bhandarkar, S.D. Pharmacology and Pharmacotherapeutics
2. B. Suresh, A Text Book of Pharmacology
3. Derasari and Gandhi's Elements of Pharmacology
4. S.K. Kulkarni, Practical Pharmacology and Clinical Pharmacy
5. H.K. Sharma. Principles of Pharmacology
6. Mary J. Mycek, Lippincott Williams and Wilkins. Lippincott's illustrated Reviews: Pharmacology

7. Tripathi, K.D. Essentials of Medical Pharmacology.

Other Readings & Relevant Websites:

Sr.No.	Link of Journals, Magazines, Websites and Research Papers
1	https:// www.ijpsm.com /
2	https:// www.ijisrt.com /
3	http://doi.org/10.2147/DHPS.S282420
4	http://dx.doi.org/10.22270/ajprd.v9i3.955
5	https://www.researchgate.net/publication/5533900
6	https://www.dixonvalve.com/

4. Lab Plan:

Sr. No	TOPICS	No. of Lectures
01	<p>General Pharmacology</p> <ul style="list-style-type: none"> • Introduction and scope of Pharmacology • Various routes of drug administration - advantages and disadvantages • Drug absorption - definition, types, factors affecting drug absorption • Bioavailability and the factors affecting bioavailability • Drug distribution - definition, factors affecting drug distribution • Biotransformation of drugs - Definition, types of biotransformation reactions, factors influencing drug metabolisms • Excretion of drugs - Definition, routes of drug excretion • General mechanisms of drug action and factors modifying drug action 	10
02	<p>Drugs Acting on the Peripheral Nervous System</p> <ul style="list-style-type: none"> • Steps involved in neurohumoral transmission • Definition, classification, pharmacological actions, dose, indications, and contraindications of a) Cholinergic drugs b) Anti-Cholinergic drugs c) Adrenergic drugs d) Anti-adrenergic drugs e) Neuromuscular blocking agents f) Drugs used in Myasthenia gravis g) Local anaesthetic agents h) Non-Steroidal Anti-Inflammatory drugs (NSAIDs) 	11
03	<p>Drugs Acting on the Eye</p> <p>Definition, classification, pharmacological actions, dose, indications and contraindications of</p> <ul style="list-style-type: none"> • Miotics • Mydriatics • Drugs used in Glaucoma 	2
04	<p>Drugs Acting on the Central Nervous System</p> <p>Definition, classification, pharmacological actions, dose, indications, and contraindications of</p> <ul style="list-style-type: none"> • General anaesthetics • Hypnotics and sedatives • Anti-Convulsant drugs • Anti-anxiety drugs • Anti-depressant drugs • Anti-psychotics • Nootropic agents • Centrally acting muscle relaxants • Opioid analgesics 	8
05	<p>Drugs Acting on the Cardiovascular System</p> <p>Definition, classification, pharmacological actions, dose, indications, and contraindications of</p> <ul style="list-style-type: none"> • Anti-hypertensive drugs • Anti-anginal drugs • Anti-arrhythmic drugs • Drugs used in atherosclerosis and • Congestive heart failure • Drug therapy for shock 	6

06	Drugs Acting on Blood and Blood Forming Organs Definition, classification, pharmacological actions, dose, indications, and contraindications of • Hematinic agents • Anti-coagulants • Anti-platelet agents • Thrombolytic drugs	4
07	Definition, classification, pharmacological actions, dose, indications, and contraindications of • Bronchodilators • Expectorants • Anti-tussive agents • Mucolytic agents	2
08	Drugs Acting on the Gastro Intestinal Tract Definition, classification, pharmacological actions, dose, indications, and contraindications of • Anti-ulcer drugs • Anti-emetics • Laxatives and purgatives • Anti-diarrheal drugs	5
09	Drugs Acting on the Kidney Definition, classification, pharmacological actions, dose, indications, and contraindications of • Diuretics • Anti-Diuretics	2
10	Hormones and Hormone Antagonists Physiological and pathological role and clinical uses of • Thyroid hormones • Anti-thyroid drugs • Parathormone • Calcitonin • Vitamin D • Insulin • Oral hypoglycemic agents • Estrogen • Progesterone • Oxytocin • Corticosteroids	8
11	Autocoids • Physiological role of Histamine, 5 HT and Prostaglandins • Classification, clinical uses, and adverse effects of antihistamines and 5 HT antagonists	3
12	Chemotherapeutic Agents: Introduction, basic principles of chemotherapy of infections, infestations and neoplastic diseases, Classification, dose, indication and contraindications of drugs belonging to following classes: • Penicillins • Cephalosporins • Aminoglycosides • Fluoroquinolones • Macrolides • Tetracyclines • Sulphonamides • Anti-tubercular drugs • Anti-fungal drugs • Anti-viral drugs • Anti-amoebic agents • Anthelmintics • Anti-malarial agents • Anti-neoplastic agents	12
13	Biologicals Definition, types, and indications of biological agents with examples	2

5. Content Beyond Syllabus (CBS):

Sr.No.	Topics	PO (Annexure 1)
1)	To demonstrate the working of UV spectrophotometry instrumentation.	PO1, PO3, PO4

6. Evaluation Scheme:

The marks allocated for the continuous mode of internal assessment shall be awarded for attendance, practical records, regular viva voce, etc. Two practical sessional exams shall be conducted during mid of the semester. The average marks of the two practical sessional exams shall be computed for internal assessment. A practical sessional exam shall be conducted for 40 marks and shall be computed for 10 marks. Weightage for various evaluation components is as below:

Sr.No.	Evaluation Component	Weightage
1	Internal Assessment 1. Continuous Mode 2. Practical Sessional Exams	15 15
2	End Semester Practical Exam	10
	Total	40

As per PCI and University guidelines, minimum 75% attendance is required to become eligible for appearing in the End Semester Practical Examination.

This document is approved by:

Designation	Name	Signature
Course Coordinator		
HOD		
Principal		



ANNEXURE I: PROGRAM OUTCOMES

1. **Pharmacy knowledge:** Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices.
 2. **Planning abilities:** Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.
 3. **Problem analysis:** Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.
 4. **Modern tool usage:** Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.
 5. **Leadership skills:** Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfillment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and wellbeing.
 6. **Professional identity:** Understand, analyze and communicate the value of their professional roles in society (e.g., health care professionals, promoters of health, educators, managers, employers, employees).
 7. **Pharmaceutical ethics:** Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.
 8. **Communication:** Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.
 9. **The pharmacist and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice.
 10. **Environment and sustainability:** Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.
- 11.

