

COURSE HANDOUT
REMEDIAL BIOLOGY (PRACTICAL)
COURSE CODE: BP112RBP

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	Bachelor of Pharmacy (B. Pharmacy)
Course Name	Remedial Biology (Practical)
Course Code	BP112RBP
Session	
Semester	I
Labs (Per Week)	1 (0-0-2)
Course Credit	1
Course Coordinator Name	

1. Scope of the Course:

To learn and understand the components of living world, structure and functional system of plant and animal kingdom.

2. Course Outcomes (COs):

- C112.1 To know the handling of microscope and permanent slide preparation techniques.
- C112.2 To understand the structure of cell and its inclusions.
- C112.3 To identify various plant parts, and to organize their modifications.
- C112.4 To categorize the physiology of frog by using computer models and to compile the bones identification, blood group, blood pressure and tidal volume determination.
- C112.5 To assess the identification of tissues pertinent to stem, root, leaf, seed, fruit and flower.

3. Reference Books:

- RB.1 Practical human anatomy and physiology by S.R. Kale and R.R. Kale.
- RB.2 A Manual of pharmaceutical biology practical by S.B. Gokhale, C.K. Kokate and S.P. Shrivastava.
- RB.3 Biology practical manual Biology forum of Karnataka. M. J. H. Shafi

4. Other Readings & Relevant Websites:

Sr. No.	Link of Journals, Magazines, Websites and Research Papers
1	https://pubchem.ncbi.nlm.nih.gov/
2	https://www.miperknlapindia.ac.in/miper-kurnool-remedial-biology.pdf

5. Lab Plan:

Sr. No.	Experiment	Dates (tentative)	
		Section A	Section B
1.	Introduction to experiments in biology and Study of Microscope	23.09.23	23.09.23
2.	To perform the section cutting techniques	30.09.23	30.09.23
3.	To perform the mounting and staining techniques	07.10.23	07.10.23
4.	To perform the permanent slide preparation	14.10.23	14.10.23
5.	To study the type of cell and its inclusions	21.10.23	21.10.23
6.	To study the different part of stem and their modifications	28.10.23	28.10.23
7.	To study the different part of root and their modifications	04.11.23	04.11.23
8.	To Study of Leaf and their modifications	11.11.23	11.11.23
9.	To study the different part of seed and their modifications	18.11.23	18.11.23
10.	To study the different part of fruit and their modifications	25.11.23	25.11.23
11.	To study the different part of flower and their modifications	02.12.23	02.12.23
12.	Detailed study of frog by using computer models	09.12.23	09.12.23
13.	Microscopic study and identification of tissues pertinent to Stem, Root Leaf, seed, fruit and flower	16.12.23	16.12.23
14.	To study the identification of bones	13.01.24	13.01.24
15.	To perform the Determination of blood group	20.01.24	20.01.24
16.	To perform the Determination of blood pressure	24.01.24	24.01.24
17.	To perform the Determination of tidal volume	03.02.24	03.02.24

6. Content Beyond Syllabus (CBS):

Sr. No.	Topics	PO (Annexure 1)
1	To prepare model specimens showing symbolic association in root modules	PO1, PO3, PO4, PO6, PO8
2	Different techniques of flower adapted to pollination by different agencies (wind, insects, birds)	PO1, PO3, PO4, PO6, PO7, PO8, PO9, PO11

7. 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 5 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	05
	2. Practical Sessional Exams	05
2	End Semester Practical Exam	15
	Total	25

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.
11. **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.