



**YENEPOYA**

(DEEMED TO BE UNIVERSITY)

Recognized under Sec 3(A) of the UGC Act 1956

Accredited by NAAC with 'A' Grade

# **YENEPOYA MEDICAL COLLEGE**

## **PROGRAM AND PROGRAM SPECIFIC/COURSE OUTCOMES**

### **POSTGRADUATE PROGRAM**

### **MD PHARMACOLOGY**

**ATTESTED**

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**PROGRAM OUTCOMES**  
**POSTGRADUATE PROGRAM**  
**MD PHARMACOLOGY**

At the end of the MD training programme in Pharmacology, the student should acquire competencies in the following areas:

- PO1 Acquisition of knowledge: The student should be able to explain clearly concepts and principles of Pharmacology and therapeutics. The student should also be able to explain the drug development processes. S/he should be able to explain Drugs and Cosmetics Act, in addition to clinical trial procedures.
- PO2 Teaching and training: The student should be able to effectively teach undergraduate students in medicine (MBBS) and allied health science courses (Dentistry and Nursing) so they become competent healthcare professionals and able to contribute to training of postgraduate trainees.
- PO3 Research: The student should be able to carry out a research project (both basic and clinical) from planning to publication and be able to pursue academic interests and continue life-long learning to become more experienced in all the above areas and to eventually be able to guide postgraduates in their thesis work.

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# PROGRAM SPECIFIC/COURSE OUTCOMES

## POSTGRADUATE PROGRAM

### MD PHARMACOLOGY

The student during the training program should acquire the following competencies:

#### A. Cognitive domain

1. Describe and apply pharmacological principles to explain the mechanism/s of the effects of drugs used in diagnosis, prevention and treatment of diseases of all systems of human body.
2. Explain pharmacodynamics and pharmacokinetics of drugs.
3. Describe mechanisms of drug-drug interactions and their clinical importance.
4. Apply and integrate knowledge of pathophysiology of diseases and its modulation by drugs.
5. Acquire knowledge on pharmacogenetics and pharmacogenomics
6. Acquire knowledge on principles of pharmacoconomics
7. Acquire knowledge on pharmacoepidemiology, including drug utilization studies.
8. Acquire knowledge and understanding of principles of Good clinical practice (GCP) and Good laboratory practice (GLP) guidelines
9. Acquire knowledge on essential medicines
10. Acquire knowledge on pharmacovigilance
11. Acquire knowledge and apply the principle of biostatistics in the evaluation and interpretation of drug safety and efficacy studies
12. Describe how to evaluate, analyse and monitor preclinical and clinical data in drug discovery
13. Able to integrate principles of immunology in biochemistry.
14. Demonstrate knowledge of basics of research methodology, develop a research protocol, conduct the study, record experimental observations, analyse data using currently available statistical software, interpret results and disseminate these results and to have the potential ability to pursue further specializations and eventually be competent to guide students.

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15. Describe the principles of teaching - learning technology towards application and take interactive classroom lectures, modules for problem based learning (PBL), case discussions, small group discussions, seminars, Journal club and research presentations
16. Demonstrate knowledge about computer assisted learning (CAL) softwares and ability to use them efficiently to promote learning of pharmacology.
17. Demonstrate knowledge of principles of Instrumentation.
18. Demonstrate knowledge about recent advances and trends in research in the field of pharmacology and clinical pharmacology.
19. Acquire knowledge on generic drugs and generic prescription.
20. Acquire knowledge on rational use of drugs and prescription auditing
21. Acquire knowledge about antimicrobial stewardship programs and strategies for containment of antibiotic resistance
22. Acquire knowledge on animal toxicity studies
23. Acquire knowledge on common poisoning
24. Acquire knowledge on the legal and ethical issues involved in drug development and research.
25. Acquire knowledge in Biostatistics including use of statistical softwares :
  - Estimation Sample size for a clinical trial
  - Scales of measurement, data display, measures of central tendency (mean, median, mode)
  - Dispersion of data (variance, standard deviation)
  - Selection of tests (of significance) and their applicability
  - Correlation and regression analysis
  - Basics of systematic reviews and meta-analysis

## **B. Affective domain**

1. Effectively explain to patients, the effects and side effects of drugs, including the need for medication adherence.
2. Communicate effectively with pharmacological reasoning with students, peers, staff and faculty, and other members of the health care team on rational use of drugs and improving spontaneous reporting of adverse events.

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3. Demonstrate respect in interactions with peers, and other healthcare professionals.
4. Demonstrate ethical behavior and integrity in one's work.
5. Demonstrate ability to generate awareness about the use of generic drugs in patients.
6. Acquire skills for self-directed learning to keep up with developments in the field and to continuously build to improve on skills, expertise and perpetual professional development.

### **C. Psychomotor domain**

1. Able to predict efficacy and adverse effects associated with use of drugs, along with causality assessment.
2. Demonstrate skills for prescription writing.
3. Perform major in vivo and in vitro animal experiments.
4. Observe and understand basic principles of working of important advanced techniques, like High Performance Liquid Chromatography (HPLC).
5. Demonstrate standard operating procedures of various methods and techniques used in clinical trials and research.
6. Determine levels of common poisons in blood
7. Demonstrate presentation skills at academic meetings, publications and writing research projects for funding agencies.
8. Be able to analyze and evaluate a research paper.

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