



**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**

### **MASTER OF SCIENCE –MEDICAL BIOCHEMISTRY**

ATTESTED 

**Dn Gangadhara Somayaji K S**  
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## PROGRAM OUTCOMES

### MASTER OF SCIENCE – MEDICAL BIOCHEMISTRY

At the end of the MSc Biochemistry training programme in Biochemistry, the post graduate student should have acquired competencies in the following areas, as detailed below.

- PO1 Acquisition of knowledge: The student should be able to explain clearly concepts and principles of biochemistry and cell biology, including correlations of these with cellular and molecular processes involved in health and disease
- PO2 Teaching and training: The student should be able to effectively teach undergraduate students in medicine and allied health science courses so they become competent health care professionals and able to contribute to training of postgraduate post graduate students
- PO3 Diagnostic services: The student should be able to set up/supervise/manage a diagnostic laboratory in Biochemistry in a hospital, ensuring quality control, and providing a reliable support service. The student should be able to provide clinicians with consultation services for diagnostic tests in biochemistry and in interpretation of laboratory results
- PO4 Research: The student should be able to carry out a research project 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

### MASTER OF SCIENCE – MEDICAL BIOCHEMISTRY

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

#### A. Cognitive domain

1. Describe and apply biochemical principles to explain the normal state, abnormal disease conditions and mechanism of action used in the perception, diagnosis and treatment of diseases.
2. Explain energy transactions in a living system, and describe importance of biomolecules in sustaining the life process.
3. Describe pathways of the intermediary metabolism along with their individual and integrated regulation and apply that in understanding the functioning of the body.
4. Describe and apply the concept of nutrition in health and disease, micro-and macro- nutrition and essential nutrients, and interlinks of nutrients with metabolism and functions of a living system.
5. Apply and integrate knowledge of molecular and metabolic conditions in normal and disease states for clinical problem solving and research
6. Acquire knowledge on application of various aspects of genetic engineering in medicine
7. Acquire knowledge and apply the principle of statistics, biostatistics and epidemiology to the evaluation and interpretation of molecular and metabolic disease states.
8. Evaluate, analyze and monitor disease states by applying relevant biochemical investigations and interpreting the clinical and laboratory data.
9. Able to integrate principles of immunology in biochemistry.
10. Demonstrate knowledge of basics of research methodology, develop a research protocol, 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.
11. Describe the principles of teaching-learning technology towards application and take interactive classroom lectures, prepare modules for PBL, organize and conduct PBLs, case discussions, small group discussions, Seminars, Journal club and research presentations
12. Demonstrate knowledge of principles of Instrumentation.
13. Demonstrate knowledge about recent advances and trends in research in the field of clinical biochemistry.

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## **B. Affective domain**

1. Effectively explain to patients from a variety of backgrounds, the molecular and metabolic basis of disease states and lifestyle modifications.
2. Communicate biochemical reasoning effectively with peers, staff and faculty, and other members of the healthcare team.
3. Demonstrate ethical behaviour and integrity in one's work.
4. Demonstrate effective use of nutrition, life style and genetic counselling.
5. Be aware of the cost of diagnostic tests and economic status of patients.
6. Acquire skills for self-directed learning to keep up with developments in the field and to continuously build to improve on skills and expertise

## **C. Psychomotor domain**

1. Able to select, justify, and interpret the results of clinical tests in biochemistry.
2. Develop differential diagnoses for molecular and metabolic causes of diseases.
3. Predict effectiveness and adverse effects associated with disease intervention.
4. Demonstrate skills for clinical diagnosis, testing, understanding of biochemical conditions and diagnostic service.
5. Perform important biochemical, immunological and molecular biology techniques.
6. Observed working of important advanced techniques.
7. Demonstrate standard operating procedures of various methods and techniques used in clinical biochemistry.
8. Determination of enzyme activity and study of enzyme kinetics. Ideally it should be accompanied by purification(partial) of the enzyme from a crude homogenate to emphasise the concepts of specific activity, yield and fold purification
9. Demonstrate presentation skills at academic meetings and publications.

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