

PROGRAM OUTCOME (POs)	
Course Code	M.Sc. MEDICAL MOLECULAR BIOLOGY
PO1	Nurture the scientific and/or clinical knowledge and skills for development of industrial application, health care practices and entrepreneurship
PO2	Develop the ability of critical thinking to analyse, interpret problems and to find out systematic approach for solution
PO3	Impart decision making capability of handling various circumstances in their respective areas
PO4	Demonstrate research skills for planning, designing, implementation and effective utilization of research findings for community
PO5	Develop an ability to function as an efficient individual and team player in multidisciplinary sectors for effective outcomes
PO6	Demonstrate an effective written and oral communication skills to communicate effectively in health care sector, industries, academia and research.
PO 7	Inculcate code of ethics in professional and social circumstances to execute them in daily practices and research irrespective areas of specialization
PO8	Develop lifelong learning attitude and values for enhancement professional and social skills for an overall development
Course Outcomes (COs)	
Course Code	M.Sc. MEDICAL MOLECULAR BIOLOGY
SEMESTER I	
MMB 101 T	Cell Biology
CO1	Students will gain an understanding of cell origin.
CO2	Basic understanding of cell structure and its components.
CO3	Students will understand the cell function.
CO4	Understanding of cell regulations and physiology.
MMB 102 T	Molecular Immunology
CO1	Students will gain understanding of the immune system and immunity.
CO2	It highlights understanding of the molecular structure of immune cells.
CO3	Understanding of role and expression of immune system during infection and immunity
CO4	Understanding of role and expression of immune system during infection and immunity
CO5	Exploration of immune system concepts into design and development of new therapeutics.
MMB 103 T	Molecular Enzymology
CO1	Post graduate students will understand the basics of enzymes and their function in biological systems.
CO2	They will understand the enzyme modulation during specific situations.
CO3	Basic understanding of the applications of the enzyme in various industries
CO4	Students will learn the basic techniques of enzymology.
CC 001 T	Research Methodology & Biostatistics (Core Course)
CO1	Student will be able to understand develop statistical models, research designs with the understating of background theory of various commonly used statistical techniques as well as analysis, interpretation & reporting of results and use of statistical software.
SEMESTER II	
MMB 108 T	Gene and Protein Science
CO1	Students will be able to understand the basis of inheritance, gene organization and structure of DNA.
CO2	They will be also understanding gene function and linkages with protein. Understanding of genome and proteome will be important learning outcome.
CO3	Understanding of basics of protein structure, purification and characterization will be major outcome of the section.

MMB 109 T	Bioinformatics and Computational Biology
CO1	The major outcome in this section will be basic knowledge of various data banks and datasets mainly for protein sequence and nucleic acid sequence.
CO2	Students will understand the basic skill data analysis including cluster analysis and sequence analysis.
MMB 110 T	DNA Recombinant technology
CO1	Student will be able to understand concept and process of DNA recombinant technology. It will also provide strategy and designs of experiment for product development. Course will also generate and teach as skills in molecular biology.
MMB 111 T	Metabolic Engineering
CO1	Students will understand the basics of metabolic pathways and network in cellular system.
CO2	Understanding different models of cellular reactions.
CO3	Students will understand the concept of metabolic flux analysis and metabolic control analysis.
CO4	Understanding of the concept of metabolic design in strain development
CO5	It will provide the understanding of the potential of metabolic engineering in industrial applications.
Skill Enhancement Courses	
SEC 001 T	Innovation and Entrepreneurship
CO1	Students will grasp the concepts of innovation, its ecosystem, and the role of various stakeholders such as government policies, startups, and innovation hubs.
CO2	Cultivating an entrepreneurial mindset and leadership qualities necessary
CO3	understanding the intersection of technology and innovation and leveraging emerging technologies for entrepreneurial ventures
SEC 002 T	One Health (NPTEL)
CO1	A comprehensive understanding of One Health's role in global health challenges, emphasizing interconnectedness among human, animal, and environmental health
CO2	Topics include research ethics, disease surveillance, and successes in controlling emerging infectious diseases.
CO3	Students explore disease emergence, transmission, antimicrobial resistance, and food safety, gaining insights into effective public health strategies.