PROGRAM EDUCATIONAL OBJECTIVES (PEOS), PROGRAM OUTCOMES (POS) & PROGRAM SPECIFIC OUTCOMES (PSOS)

DEPARTMENT OF BIOTECHNOLOGY
MATA GUJRI MAHILA MAHAVIDYALAYA (AUTONOMOUS), JABALPUR
NAAC ACCREDITED A$^+$ INSTITUTION
AFFILIATED TO RANI DURGAWATI UNIVERSITY JABALPUR

M.Sc. (BIOTECHNOLOGY)

Vision

- To produce competent biotechnologists who can apply their knowledge to various fields like agriculture, industry, health care and environment and greatly influence the existing paradigm
- To inculcate a problem solving approach in students through logical and analytical thinking thus promoting research culture.

Mission

- To achieve excellence in teaching theoretically as well as practically
- To introduce future biotechnologists to simulation of real world applications using the concepts learned
- To impart knowledge of latest technologies being introduced in the discipline
- To educate the students about the various less explored career opportunities.

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

The graduates of this degree will

PEO 1: Excel in their chosen profession or progress towards an advanced degree
PEO 2: Acquire leadership positions in their organizations
PEO 3: Have good communication skills and work ethics
PEO 4: Demonstrate a commitment to teamwork

PROGRAM OUTCOMES (POS)

The graduates of this degree program will have the ability to

PO 1: Demonstrate proficiency in basic laboratory skills
PO 2: Design experiments, gather relevant data and analyze and interpret quantitative and qualitative data

PO 3: Prepare scientific communications representing the results in a way which clearly explain conclusions
PO 4: Work independently and collaboratively

PROGRAM SPECIFIC OUTCOMES (PSOS)

The graduates of this program:

PSO 1: Can understand the important components of environment and its betterment
PSO 2: Get the knowledge about chemical processes within and relating to living organisms.
PSO 3: Have hands-on experience of basic molecular biology, immunological, microbiology and cytology techniques and instruments used in these areas.
PSO 4: Have the knowledge about general principles of generating transgenic plants and animals

COURSE OUTCOME (CO)

- **Course I- Cell Biology-** A brief exposure to origin, structure, metabolic pathways, cell cycle and diseases related to cell opens new insights into basic research and using them as experimental material. This will motivate students to contribute to scientific growth.

- **Course II- Biomolecules-** Understanding the structure and roles of macro and micromolecules present in the biological system and the techniques used to study these molecules will help the students to understand and cure any abnormalities, explore newer biomolecules having numerous applications from different sources.

- **Course III-Microbial Physiology-** Studying microbes from diverse environments and their applications have proved to be very useful for mankind. This course prepares to continue to explore more and more microorganisms with specific innovative uses.

- **Course IV- Animal Cell Science and Techniques-** This course aims to teach cell culture practices and to help solve biomedical engineering problems.

- **Course V- Molecular Biology and Genetics-** At the end of this course the students have considerable expertise in advanced fields like molecular biology which helps them to take up research in latest areas.

- **Course VI- Macromolecules and Basic Enzymology-** This course will help students to learn about biological macromolecules and various aspects of enzyme technology which will be helpful in industries and drug designing and development.

- **Course VII- Biology of Immune System-** The students will be introduced to basic techniques for identifying antigen antibody interactions, immunological response against tumor, blood transfusion and transplantation procedures. This will prepare them for research and developments in biomedical engineering.

- **Course VIII- Biostatistics and Computer Application-** This course helps the students to learn different research methodology and mathematical analysis of results obtained from biological experimentation.
- **Course IX- Environmental Biotechnology-**Students will be taught about existing and emergingtechnologies that are important in the area of environment that can address environmental issues like pollution, mineral resource, renewable energy and water recycling with special focus on bioremediation. They will also be provided with conceptual knowledge and significance of genetically modified microbes.

- **Course X- Genetic Engineering-**In this course students will learn the versatile techniques involved in recombinant DNA technology. Also they will have an understanding on application of genetic engineering techniques and proficiency in designing and conducting experiments involving genetic manipulations.

- **Course XI- Plant Biotechnology-**This course will widen the knowledge acquired in other courses by handling classical and modern plant biotechnology process including breeding of healthy plants and plants with improved characteristics.Thus students will contribute to research in agriculture.

- **Course XII- Bioprocess Engineering and Technology-** Students will be introduced tobioprocess industries related to agriculture, food, chemicalsand pharmaceuticals which will enhance studies and innovation towards newer product formation.