

DEPARTMENT OF MICROBIOLOGY

Mrs. K. S. K. College, Beed.

Academic Year: 2026-2027

B.Sc. (NEP)

Programme Educational Objectives (PEOs):

Programme Educational Objectives (PEOs) for the Bachelor of Science Curriculum under the National Education Policy 2020.

1. Mastery of Discipline-Specific Knowledge: Graduates of the Bachelor of Science program will demonstrate a deep understanding of fundamental principles, theories, and methodologies in their chosen scientific discipline, enabling them to analyze complex problems, propose innovative solutions, and contribute to advancements in their field.

2. Interdisciplinary Proficiency: Graduates will possess the ability to integrate knowledge and skills from multiple scientific disciplines, fostering a holistic approach to problem-solving and innovation. They will be equipped to address multifaceted challenges by drawing upon diverse and methodologies.

3. Critical Thinking and Analytical Skills: Graduates will develop strong critical thinking abilities, enabling them to evaluate information rigorously, analyze data effectively, and make informed decisions based on evidence. They will demonstrate proficiency in applying logical reasoning and scientific methods to solve problems and generate new knowledge.

4. Leadership and Innovation: Graduates will demonstrate leadership qualities and entrepreneurial mindset, capable of initiating and driving change in their organizations and communities. They will exhibit creativity, resilience, and adaptability, harnessing innovation to address complex challenges and seize opportunities for growth and advancement.

5. Global Citizenship and Cultural Sensitivity: Graduates will possess a global and cultural sensitivity, recognizing the interconnectedness of diverse communities and the importance of collaboration across borders. They will engage in cross-cultural dialogue, embrace diversity, contribute to the advancement of

knowledge and understanding on a global scale.

These Programme Educational Objectives serve as guiding principles for the Bachelor of Science curriculum, reflecting our commitment to nurturing well-rounded graduates who are prepared to excel in their careers, contribute to society, and lead meaningful lives in a rapidly changing world.

Programme Outcomes (POs):

The National Education Policy (NEP) 2020 for India emphasizes several key aspects for Bachelor of Science (B.Sc.) programs, aiming to produce graduates who are not only well-versed in their respective disciplines but also equipped with skills necessary for holistic development and employability. While specific program outcomes may vary between institutions and disciplines within B.Sc. programs, here are some common outcomes aligned NEP 2020:

PO1. The citizenship and society: Apply broad understanding of ethical and professional skill in science subjects in the context of global, economic, environmental and societal realities while encompassing relevant contemporary issues.

PO2. Environment and sustainability: Apply broad understanding of science subjects in a global, economic, environmental and societal context and demonstrate the knowledge of, and need for sustainable development.

PO3. Ethics: Apply ability to develop sustainable practical solutions for science subject related problems within positive professional and ethical boundaries.

PO4. Individual and team work: Function effectively as a leader and as well as team member in diverse multidisciplinary environments.

PO5. Communication: Communicate effectively on complex science subject related activities with the scientific community in particular and with the society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO6. Project management and finance: Demonstrate knowledge and understanding of the first principles of science and apply these to one's own work as a member and leader in a team, to complete project in any environment.

PO7. Life-long learning: Recognize the need for lifelong learning and have the ability to engage in and life-long learning in the broadest context of technological change.

These program outcomes align with the broader goals of NEP 2020 to transform higher education in India and prepare students for the challenges and opportunities of the 21st century. Board of Studies designing B.Sc. curricula are encouraged to incorporate these outcomes into their program objectives and learning outcomes.

Programme Specific Outcomes (PSOs):

PSO1. Domain knowledge: Acquire knowledge and gain understanding of concepts in microbiology and its applications in various fields.

PSO2. Problem Analysis: Applying the knowledge acquired to explore the world of and analysing the benefits.

PSO3. Design Development of solutions: Design/ develop solutions for problems at varied complexity in various areas of Microbiology to address changing challenges in various industries and environment thereby developing keen interest in research.

PSO4. Conduct Investigation of complex problems: Use established knowledge and methods to design of experiments, analyze resulting data statistically and interpret the same to provide valid conclusions for applied research.

PSO5. Modern tools: Create, select, and apply appropriate techniques, resources, and relevant IT tools including prediction and modelling to complex related with clear understanding of the limitations for solving real world problems.