

Programme Outcomes (POs) for UG courses of Faculty of Life Sciences

1. To develop skills in graduate students to be able to acquire theoretical and practical knowledge in fundamentals of biology in respective disciplines of plants, animals, microbes and environment.
2. To inculcate ability to critically evaluate problems and apply lateral thinking and analytical skills for professional development.
3. To create awareness on ethical issues, good laboratory practices and biosafety.
4. To develop ability in youth for understanding basic scientific learning and effective communication skills.
5. To prepare youth for career in teaching, industry, government organizations and self reliant Entrepreneurship.
6. To make students aware of natural resources and environment and its sustainable utilization.
7. To provide learning experience in students that instills deep interest in biological science for the benefit of society.

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Semester I

After completing this course, the learner will be able to:

1. Understand the concepts in biotechnology
2. Gain the knowledge of scope and applications of plant biotechnology
3. Gain the knowledge of scope and applications of animal biotechnology
4. Get an insight of scope and applications of biotechnology in environment, food and chemical industries
5. Gain knowledge of structure, working, maintenance/calibration and safety measures during handling of biotech lab instruments and biochemicals. Also get insight of maintenance of hygiene/ aseptic conditions and proper disposal of biochemicals.

Semester II

After completing this course, the learner will be able to:

- 1 Illustrate the knowledge of history, scope, classification and various approaches of study of microbes. Compare and characterize prokaryotic and eukaryotic cells based on morphology, different groups of microorganisms based on their structures.
- 2 Illustrate the knowledge of microbial growth, reproduction and exhibit skill of isolation, purification, and preservation of microbial cultures.
- 3 Gain the knowledge of characteristics of viruses, their types and mode of multiplication. Also understand the various control measures of microbes.
- 4 Understand the role of micro-organisms in the environment, for making industrially important fermented foods and also gain the knowledge of spoilage of food and food borne diseases.
5. Exhibit practical skills in preparation of media and staining of microbes, Isolate bacteria from different sources and determine their count and cell size. Testing of antibiotic sensitivity and MIC value.

Semester III

After completing this course, the learner will be able to:

1. Understand the structures and functions of basic components of plant and animal cell, especially macromolecules, membranes and organelles.
2. Understand how these cellular components are synthesized and degraded in cells
3. Explain the structure and function of prokaryotic cell & its components

4. Describe the various models and solute transporter systems belonging to cell membrane and will explain cell cycle and apoptosis.

5*. Prepare slides of animal and plant cells and cell division and conduct the morphometric analysis of chromosomes

Semester IV

After completing this course, the learner will be able to:

1. Understand concept and scopes of Genetic Engineering and central role of recombinant DNA technology in all fields of Biotechnology.
2. Acquire the knowledge of basic concepts and different methodologies used for isolation, purification and manipulation of nucleic acids, gene cloning, transformation, selection of desired clones.
3. Understand the concepts and methodology of PCR and its uses in diverse fields of life sciences.
4. Work in the latest research areas of biotechnology like microbial, industrial, plant, animal, environmental, health etc. using genetic engineering techniques.
5. Get acquainted with different tools and techniques used in Genetic Engineering experiments and manipulate DNA for its diverse use in different Biotechnology areas.