Department of Botany

Shree Shivaji Arts, Commerce & Science College, Rajura

Learning Outcome (2020-21 onwards)

Course Outcomes:

After completion of B. Sc. with botany as a subject, students will gain following knowledge.

i. Students will be able to understand and present scientific hypotheses and data both orally and practically regarding plants in terms of morphology, anatomy, physiology, embryology, cytology and genetics.
ii. Students can recognize the position of plants in the broad classification and phylogenetic level.
iii. Students will be able to explain the ecological interconnectedness of life on earth by tracing energy and nutrient flow through the environment.
iv. Students can understand economic and ecological benefits of plants.
v. Students will be able to demonstrate proficiency in the experimental techniques and methods of analysis appropriate for their area of specializations like tissue culture and plant breeding.

Program Specific Outcomes:

B.Sc. Part-I, Semester-I

On completion of the course, students are able to:

- Understand the nature of virus, bacteria, mycoplasma & cyanobacteria
- Understand the diversity among Algae & Fungi
- Know the structure, & reproduction of Algae & Fungi
- Learn the useful and harmful activities of Algae & Fungi
- Understand plant disease in terms of causal organism, symptoms and controle.
- Understand the diversity, classification, morphology and reproduction of Bryophytes, Pteridophytes & Gymnosperms.
- Understand the geological time scale
- Understand process of fossilization and types of fossils

B.Sc. Part-I, Semester-II

On completion of the course, students are able to:

- Learn about the vegetative & reproductive characteristics of the plant.
- Know about various tissue systems.
- Understand the normal and anomalous secondary growth in plants and their causes.
- Understand the origin, Phylogeny and evolution of angiosperms
- Understand various rules, principles and recommendations of plant nomenclature produces in plant identification.
- Learn various classification systems
- Understand herbarium techniques
- Learn about the characters, floral variations and economic importance of important families of angiosperms.

B.Sc. Part-II, Semester-III

On completion of the course, students are able to:

- Understand development of gametes in angiosperms
- Know the methods of pollination and fertilization.
- Understand development and types of endosperm and embryo.
- Understand the growth and developmental processes in plants.
- Learn the concepts like photoperiodism, phytochrome, senescence, abscission and seed dormancy.
- Know the chemical nature and interaction of biomolecules.
- Understand Structure, general features and activity of enzymes.
- Learn and understand about mineral nutrition in plants.
- Learn about the transport of water and food in plants.
- Understand in detail about Photosynthesis and Respiration in plants.

B.Sc. Part-II, Semester-IV

On completion of the course, students are able to:

- Understand Cell wall Plasma membrane, Cell organelles and cell division.
- Understand the biochemical nature and activity of nucleic acids.
- Understand Mendelian and post-mendelian genetics.
- Learn structural and numerical variation of chromosomes.
- Understand mutation, linkage and crossing over.
- Understand the principle and basic protocols for Recombinant DNA Technology, Genetic Engineering & Plant Tissue Culture.
- Understand basic concepts of ecology and environment
- Understand interaction between living and no living componants of nature
- Know biogeochemical cycles in nature
- Understand causes and controle of environmental pollution
- Analyse population and community characters
- Understand evolution and distribution of flora.

B.Sc. Part-III, Semester-V

On completion of the course, students are able to:

- Understand in depth about Mendalism and different gene interaction.
- Understand different ways of inheritance of characters.
- Understand genetic maps and different theories of sex determination.
- Learn plant breeding techniques and crop improvement procedures.
- Learn the concept of gene and its regulation
- Understand structure and duplication of nucleic acids.
- Understand the process of synthesis of proteins and role of genetic code in polypeptide
- Understand population genetics and analyze pedigree
- Understand the concept of germplasm and its conservation
- Understand the role of biotechnology in crop breeding

B.Sc. Part-III, Semester-VI

On completion of the course, students are able to:

- Understand basic and advanced concepts of plant tissue culture.
- Understand and perform different techniques of tissue culture.
- Understand application of plant biotechnology and ways of productiontransgenic crops.