

B.Sc. BOTANY PROGRAMME OUTCOME

- 1. Critical Thinking:** Take informed actions after identifying the assumptions that frame students' thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at their ideas and decisions (intellectual, organizational, and personal) from different perspectives.
- 2. Problem Solving:** Understand and solve problems of relevance to society to meet the specified needs using the knowledge, skills and attitudes acquired.
- 3. Effective Communication:** Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.
- 4. Effective Citizenship:** Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
- 5. Environment and Sustainability:** Understand the issues of environmental contexts and sustainable development.
- 6. Self-directed and Life-long Learning:** Acquire the ability to engage in independent and lifelong learning in the broadest context of socio-technological changes

PROGRAMME SPECIFIC OUTCOMES

- 1. Scope and importance of Botany:** Understand scope and importance of Botany in every field especially in dealing with societal and environmental issues, agriculture, ethics and healthcare.
- 2. Environmental concern:** Understand the and the role of plants in sustaining life on earth and the interrelationship between human beings and nature, create awareness on natural resources and their importance in sustainable development, analyse the importance of biodiversity conservation, estimate biodiversity loss and develop conservation strategies.
- 3. Scientific temper:** Develop scientific temper and undertake scientific projects.
- 4. Practical applications:** Identify and classify plants according to the principles of plant systematics, apply techniques like plant propagation methods, organic farming, mushroom cultivation, preparation of biofertilizers, biopesticides etc. in daily life.

5. Awareness on life processes: Understand plant life processes, biomolecules, basic hereditary and evolutionary principles.

CORE COURSE OUTCOME

CORE COURSE: 1 ANGIOSPERM ANATOMY, REPRODUCTIVE BOTANY AND PALYNOLOGY

1. Demonstrate the ability to differentiate plant organs by observing anatomical features.
2. Understand the non-living inclusions of plants and their significance.
3. Differentiate tissues and their functions.
4. Illustrate primary and secondary (normal and anomalous) structures of plant organs.
5. Explain various developmental details of angiosperms.
6. Realize the significance and applications of palynology.

CORE COURSE: 2 MICROBIOLOGY, MYCOLOGY, LICHENOLOGY AND PLANT PATHOLOGY

1. Understand basics of microbial life and their economic importance.
2. Develop general awareness on the diversity of microorganisms, fungi and lichens.
3. Analyze the ecological role played by bacteria, fungi and lichens
4. Identify plant diseases and find out control measures.
5. Realize the significance of plant diseases as far as crop production is concerned.

CORE COURSE: 3 PHYCOLOGY, BRYOLOGY AND PTERIDOLOGY

1. Appreciate the diversity and evolutionary significance of lower plant groups.
2. Classify algae, bryophytes and pteridophytes.
3. Understand the economic and ecological importance of lower plant groups

CORE COURSE: 4 METHODOLOGY AND PERSPECTIVES IN PLANT SCIENCE

1. Develop scientific temper and problem-solving skills.
2. Undertake scientific projects and prepare project reports
3. Summarize, organize and display quantitative data and derive conclusions

4. Prepare permanent slides, applying the histochemical techniques

CORE COURSE: 6 GYMNOSPERMS, PALAEOBOTANY, PHYTOGEOGRAPHY AND EVOLUTION

1. Understand the role of gymnosperms as a connecting link between pteridophytes and angiosperms
2. Appreciate the process of organic evolution.
3. Realize the importance of fossil study.
4. Understand the climatic conditions of the past and realize the changes happened
5. Recognize the phytoecographic zones of India.

CORE COURSE: 7 ANGIOSPERM MORPHOLOGY AND SYSTEMATICS

1. Appreciate the diverse morphology of angiosperms.
2. Identify and classify plants based on taxonomic principles.
3. Make scientific illustrations of vegetative and reproductive structures of plants.
4. Develop the skill of scientific imaging of plants.
5. Realize the importance of field study.
6. Change their attitude towards over exploitation of rare/endemic plants.

CORE COURSE: 8 TISSUE CULTURE, HORTICULTURE, ECONOMIC BOTANY AND ETHNOBOTANY

1. Critically evaluate the advantages of tissue culture and horticulture over conventional methods of propagation.
2. Apply various horticultural practices in the field.
3. Experiment on the subject and try to become entrepreneurs.
4. Identify the economically important plants

CORE COURSE: 9 CELL BIOLOGY AND BIOCHEMISTRY

1. Appreciate the ultra-structure of a plant cell.
2. Enumerate the functions of each cell organelle.
3. Draw and explain the structure of biomolecules.

CORE COURSE: 10 GENETICS AND PLANT BREEDING

1. Appreciate the facts behind heredity and variations.
2. Understand the basic principles of inheritance.
3. Solve problems related to classical genetics.
4. Predict the pattern of inheritance.
5. Understand various plant breeding techniques.
6. Realize the role of plant breeding in increasing crop productivity.

CORE COURSE: 11 BIOTECHNOLOGY, MOLECULAR BIOLOGY AND BIOINFORMATICS

1. Analyze the role of biotechnology in daily life.
2. Understand the basic aspects of bioinformatics.
3. Explain the concepts in molecular biology.

CORE COURSE: 12 PLANT PHYSIOLOGY AND METABOLISM

1. Identify the physiological responses of plants.
2. Analyze the role of external factors in controlling the physiology of plants.
3. Explain the metabolic processes taking place in each cell.
4. Appreciate the energy fixing and energy releasing processes taking place in cells.

CORE COURSE: 13 ENVIRONMENTAL SCIENCES

1. Realize the importance of ecological studies.
2. Develop environmental concern in all their actions and practise Reduce, Reuse and Recycle.
3. Try to reduce pollution and environmental hazards and change their attitude towards throwing away plastic wastes.
4. Spread awareness of the need of conservation of biodiversity and natural resources.
5. Analyze the reasons for climate change and find out ways to combat it.

CORE COURSE: 14 ELECTIVE-3: GENETICS AND CROP IMPROVEMENT

1. Understand various techniques employed for increasing crop productivity.
2. Identify diseases affecting crop plants.
3. Attain general awareness on various crop research stations of the country

COMPLEMENTARY COURSE OUTCOME

COMPLEMENTARY COURSE: 1 ANGIOSPERM ANATOMY AND MICROTÉCHNIQUE

1. Explain the types, structure and functions of plant tissues.
2. Explain primary and secondary (normal and anomalous) structures of plant organs.
3. Identify plant organs by observing anatomical features.
4. Illustrate primary and secondary (normal and anomalous) structures of plant organs.
5. Apply the histochemical techniques in laboratory works.

COMPLEMENTARY COURSE: 2 CRYPTOGAMS, GYMNOSPERMS AND PLANT PATHOLOGY

1. Analyze the role of the lower plants in the process of evolution.
2. Explain the ecological significance of lower plants.
3. Identify plant diseases and take remedial measures to control them.

COMPLEMENTARY COURSE : 3 MORPHOLOGY, SYSTEMATIC BOTANY, ECONOMIC BOTANY, PLANT BREEDING AND HORTICULTURE

1. Appreciate the diverse morphology of angiosperms.
2. Identify and classify plants based on taxonomic principles
3. Make scientific illustrations of vegetative and reproductive structures of plants
4. Identify the economically important plants
5. Understand the basic principles of plant breeding
6. Apply various horticultural practices in the field.

COMPLEMENTARY COURSE: 4 PLANT PHYSIOLOGY, ECOLOGY AND GENETICS

1. Explain the physiological processes in plants.
2. Understand the basic principles of heredity and variation.
3. Realize the importance of ecology.
4. Spread awareness of the necessity of conservation of biodiversity and natural resources
5. Solve problems related to classical genetics

OPEN COURSE OUTCOME

OPEN COURSE CHOICE: 3 BASIC TISSUE CULTURE

1. Understand plant tissue culture as a rapid propagation method.
2. Explain the steps involved in tissue culture.
3. Realize the applications of plant tissue culture