UG (B.Sc.) Programme in BOTANY

Semester : V and VI

PROGRAMME LEARNING OUTCOMES:

Learning Outcome Curriculum Framework (LOCF) aims to equip students with knowledge, skills, values, attitudes, leadership readiness/qualities and lifelong learning. The fundamental premise of LOCF is to specify what graduates completing a particular programme of study are expected to know, understand and be able to do at the end of their programme of study. Besides this, students will attain various 21st century skills like critical thinking, problem solving, analytic reasoning, cognitive skills, self-directed learning etc.. A note on LOCF for under graduate education is available on the UGC website www.ugc.ac.in. It can serve as guiding documents for all Universities undertaking the task of curriculum revision and adoption of outcome based approach.

ThestudentgraduatingwiththeDegreeB.Sc.(Honours)Botanyshouldbeableto acquire:

PO 1: Knowledge: Students will acquire core competency in the subject Botany, and in allied subject areas. The student will be able to identify major groups of plants and compare the characteristics of lower (e.g. algae and fungi) and higher (angiosperms and gymnosperms) plants.

- Students will be able to use the evidence based comparative botany approach to explain the evolution of organism and understand the genetic diversity on the earth.
- Thestudentswillbeabletoexplainvariousplantprocessesandfunctions, metabolism, concepts of gene, genome and how organism's function is influenced at the cell, tissue and organ level.
- Students will be able to understand adaptation, development and behavior of different forms of life.
- The understanding of networked life on earth and tracing the energy pyramids through nutrient flow is expected from the students.
- Studentswillbeabletodemonstratetheexperimentaltechniquesandmethodsoft heir area of specialization in Botany.

PO 2: Critical Thinking and problem solving ability: An increased understanding of fundamental concepts and their applications of scientific principles is expected at the end of this course. Students will become critical thinker and acquire problem solving capabilities.

PO 3: Digitally equipped: Students will acquire digital skills and integrate the fundamental concepts with modern tools.

PO 4: Ethical and Psychological strengthening: Students will also strengthen their ethical and moral values and shall be able to deal with psychological weaknesses.

PO 5: Team Player: Students will learn team workmanship in order to serve efficiently institutions, industry and society.

PO 6: Independent Learner: Apart from the subject specific skills, generic skills, especially in botany, the program outcome would lead to gain knowledge and skills for further higher studies, competitive examinations and employment. Learning outcomes based curriculum would ensure equal academic standards across the country and broader picture of their competencies. The Bachelor program in Botany and Botany honours may be mono- disciplinary or multidisciplinary.

PO 7: Analytical ability: The students will be able to demonstrate the knowledge in understanding research and addressing practical problems. Application of various scientific methods to address different questions by formulating the hypothesis, data collection and critically analyze the data to decipher the degree to which their scientific works up ports their hypothesis.

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SEMESTER:V

DISCIPLINE SPECIFIC CORE COURSES:

SEM-V: SC23MJDSCBOT501: ECOLOGY AND PLANT SYSTEMATICS

Programme specific Learning Outcomes:

On completion of this course, the students will be able to:

- Understand core concepts of biotic and abiotic factors.
- Classify the soils on the basis of physical, chemical and biological components.
- Analysis the phytogeography or phytogeographical division of India.
- Evaluate energy sources of ecological system.
- Assess the adaptation of plant sinrelation to soil and water.
- Conduct experiments usings kills appropriate to subdivisions.
- Classify Plant systematic and recognize the importance of herbarium and Virtual herbarium.
- Evaluate the Important herbaria and botanical gardens.
- Interpret the rules of ICBN in botanical nomenclature.
- Assess terms and concept srelated to Phylogenetic Systematics.
- Generalize the characters of the families according to Bentham & Hooker's system of classification.

INDIANKNOWLEDGESYSTEM-MAJORDISCIPLINE SPECIFICCORE COURSES(IKS):

SEM-V: SC23MJDSCBOT501AIKS: ANCIENT INDIAN BOTANY: A LIVING TRADITION

Programme specific Learning Outcomes:

On completion of this course, the students will be able to:

- To create awareness on significance of historical Indian botanical practices
- To gain knowledge on ancient Indian botanical classification systems
- To understand value of ancient medicinal practices of Charaka, Sushruta and Ayurveda
- Tolearnt raditional agriculture practices of seeds aving, croprotation and rain water harvesting

- To cultivate respect for spiritual plant conservation methods and traditional ecological knowledge
- To integrate ancient Indian practices and modern practices for betterment of society.

MINOR DISCIPLINE SPECIFICCORE COURSES:

PROGRAMME CODE: SCIUG103

SEM-V: SC23MiDSCBOT502: PLANTMORPHOLOGY, INSTRUMENTATION AND METHODOLOGY

***Programme specific Learning Outcomes*:**

On completion of the course, the students will be able to:

- Understand Plant Structure: Demonstrate comprehensive knowledge of the external structure of various plant organs including roots, stems, leaves, flowers, fruits, and seeds.
- Differentiate Plant Forms: Identify and differentiate among various plant forms based on their morphological characteristics.
- Recognize Modifications: Analyze the morphological adaptations and modifications in plants that support survival in different environments.
- Correlate Form and Function: Establish relationships between the form and function of different plant parts.
- Use Morphology in Classification: Apply morphological characteristics for the identification and classification of plants.
- Appreciate Plant Diversity: Understand the morphological diversity of angiosperms and other plant groups.
- Apply Field Knowledge: Gain practical skills in plant identification through field studies and herbarium techniques.
- Develop Scientific Approach: Develop observation, analytical, and documentation skills essential for morphological studies.

- Support Ecological Understanding: Use morphological knowledge to understand ecological relationships and plant adaptations.
- Prepare for Advanced Studies: Build a strong foundation for further studies in botany, plant systematics, ecology, and related fields.
- To introduce students to the principles, design, and applications of key laboratory instruments.
- To familiarize students with essential biotechnological techniques and their real- world applications.
- To develop students' skills in conducting field work and maintaining scientific documentation like herbarium and field reports.
- To strengthen students' understanding of basic statistical tools used for analyzing biological data.
- To encourage scientific thinking, precise observation, anddata-driven report writing through practical and theoretical exposure.

SKILLENHANCEMENT COURSE:

PROGRAMME CODE: SCIUG103

SEM-V: SC23SECBOT506: NURSERY AND GARDENING

Programme specific Learning Outcomes:

On completion of the course, the students will be able to:

- Understand the process of sowing seeds in nursery.
- List the various resources required for the development to nursery.
- Distinguish among the different forms of sowing and growing plants.
- Analyse the process of Vegetative propagation.
- Appreciate the diversity of plants and selection of gardening
- Examine the cultivation of different vegetable sand growth of plants in nursery and gardening.

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