DEPARTMENT OF BOTANY
INDAS MAHAVIDYALAYA

PROGRAMME COURSE

PROGRAMME OUTCOME

PO1. Students will be able to develop the basic concepts on different courses.
PO2. Students will be able to perform hands on experiment in practical classes.
PO3. Field excursions help the students to develop knowledge about flora in different regions.
PO4. Students will be able to develop awareness of environmental-related issues such as biodiversity conservation, pollution monitoring, etc.
PO5. Students will be able to develop skills through skill enhancement courses such as Bio-fertilizer, Nursery and Gardening, Medicinal Botany, and Mushroom Culture Technology provide job opportunities for the students.

COURSE OUTCOME

SEMESTER – I

Course Title: Plant Biodiversity (Microbes, Algae, Fungi, Archegoniate)

Course code: SPBOT/101/C-1A

CO1. Students will be able to describe characteristics, methods of reproduction and economic importance Virus and Bacteria.

CO2. Students will be able to describe characteristics, methods of reproduction and economic importance of Algae.

CO3. Students will be able to describe general characteristics and life cycle of Fungi; different symbiotic association.

CO4. Students will be able to describe morphological, anatomical and reproductive characters of different genus under Archegoniate (Bryophytes, Pteridophytes and Gymnosperms); ecological and economic importance of Bryophytes, Pteridophytes and Gymnosperms

CO5. Students will be able to explain morphological and reproductive evolution between Bryophytes, Pteridophytes and Gymnosperms

SEMESTER – II

Course Title: Plant Ecology. Morphology & Taxonomy

Course code: SPBOT/201/C-1B

CO1. Students will be able to explain different ecological factors like soil, water, light and temperature and describe the adaptation of hydrophytes and xerophytes.

CO2. Students will be able to describe about the structure and organisation of ecosystem and Biogeochemical cycling; Plant communities, Ecotone and edge effect, succession processes and types.

CO3. Students will be able to describe about bio geographical zones and endemism.

CO4. Students will be able to describe about different types of leaves, Inflorescence, Flower, Fruits.

CO5. Students will be able to explain different type of classification, interpret principles and rules of ICN in botanical nomenclature, the functions of Herbarium and name of different important herbaria and botanical gardens of the world and India, application of palynology, cytology, phytochemistry and molecular data in Taxonomy.

CO6. Students will be able to distinguish between different families based on characters and describe economic importance of these families.

SEMESTER III

Course Title: Genetics and Plant Breeding

Course code: SPBOT/301/C-1C

CO1. Students will be able to describe mendelian ratios and modified mendelian ratios; multiple allelism; inheritance; Sex-determination, and Sex-linked inheritance.

CO2. Students will be able to describe the concept of linkage and crossing over.

CO3. Students will be able to calculate different mathematical problems related to Chi-Square and linkage.

CO4. Students will be able to describe different types of mutation and effects of physical and chemical mutagens; structural and numerical chromosomal changes.

CO5. Students will be able to describe different modes of reproduction in crop plants.

CO6. Students will be able to describe selection methods and hybridization.

CO7. Students will be able to describe inbreeding depression and heterosis.

CO8. Students will be able to describe role of biotechnology in crop improvement.

SEMESTER IV

Course Title: Plant Physiology & Metabolism

Course code: SPBOT/401/C-1D

CO1. Student will be able to describe water relation of plants in relation to different physiological process; describe the concept of essential elements and different transport system.

CO2. Students will be able to describe the composition of phloem sap, girdling experiment; Pressure flow model; phloem loading and unloading.

CO3. Student will be able to describe different photosynthetic Pigments, Photosystem I and II, reaction center, antenna molecules; Electron transport and mechanism of ATP synthesis; C3, C4 and CAM pathways of carbon fixation; Photorespiration.

CO4. Students will be able to explain glycolysis, anaerobic respiration, TCA cycle; oxidative phosphorylation, glyoxylate, oxidative pentose phosphate pathway.

CO5. Students will be able to explain Structure and properties, mechanism of enzyme catalysis and enzyme inhibition.

CO6. Student will be able to describe biological nitrogen fixation; Nitrate and ammonia assimilation.

CO7. Student will be able to describe discovery and physiological roles of auxins, gibberellins, cytokinins, ABA, ethylene.

CO8. Students will be able to describe Photoperiodism; Phytochrome, red and far red light responses on photomorphogenesis;Vernalization.

SEMESTER IV

Course Title: Nursery and Gardening

Course code: SPBOT/404/SEC-2

CO1. Students will be able to define and describe different objectives and scope in nursery and gardening.

CO2. Students will be able to define and describe structure and types of seed, seed dormancy, breaking dormancy and seed storage.

CO3. Students will be able to explain different type of vegetative propagation.

CO4. Students will be able to apply about sowing/raising of seeds and seedlings, Transplanting of seedlings.

CO5. Students will be able to describe cultivation and Storage, marketing procedure of different vegetables.

SEMESTER V

Course Title: Cell and Molecular Biology

Course code: SPBOT/501/DSE-1A

CO1. Students will be able to define and describe different types of microscopy.

CO2. Students will be able to define and describe structure and role of different cell organelles.

CO3. Students will be able to explain structure of cell membeane and cell wall; the function of cell membranes.

CO4. Students will be able to describe cell cycle, cell division.

CO5. Students will be able to explain genetic material, DNA replication, Transcription, Translation and gene expression.

SEMESTER V

Course Title: Medicinal Botany

Course code: SPBOT/504/SEC-3

CO1. Students will be able to describe scope and importance of medicinal plants.

CO2. Students will be able to describe Ayurveda, Siddha, Unani.

CO3. Students will be able to explain different conservation process.

CO4. Students will be able to gather knowledge on Ethnobotany and Folk medicines.

SEMESTER VI

Course Title: Economic Botany & Biotechnology

Course code: SPBOT/601/DSE-1B

CO1. Students will be able to describe the concept of centres of origin, their importance with reference to Vavilov's work.

CO2. Students will be able to describe origin, morphology, uses of wheat and explain Botanical name, family, parts used, morphology, uses of gram, soybean, tea, groundnut, cotton, clove and black pepper; processing of tea.

CO3. Students will be able to explain the concet of micropropagation, androgenesis and gynogenesis, embryo & endosperm culture and their application.

CO4. Students will be able to describe the process and application of different recombinant DNA techniques.