

Department of Botany

Govt. Autonomous College, Rourkela

Program Outcomes

PO1. Students gain knowledge on the fundamentals of plant science and implement it for socioeconomic benefits.

PO2. To make the students understand the value of society by involving them in different social activities and group endeavors.

PO3. To bring out the problem solving abilities of the students by exposing them to different perspectives of learning which would help them in cracking national level examinations.

PO4. To make the student realize the cultural values which will keep them rooted and help in enhancing their moral value.

PO5. To meet the human developmental goals along with sustaining the ability of natural systems to provide the natural recourses and ecosystem services.

PO6. Apply ethical principles and committee to professional ethics and responsibilities towards the duties.

PO7. To gain knowledge of horticulture, industrial and environmental microbiology as the future prospective.

PO8. To develop awareness to save plant and environment.

Program Specific Outcomes

PSO1. Learning the diversity of plant world, the habit, habitat and life history and evolution.

PSO2. To understand the basic concepts of morphology, anatomy, physiology, biochemistry, environmental biology, horticulture, molecular biology, embryology and developmental biology etc.

PSO3. Learn heredity through genetics.

PSO4. To have hands on experience in experiments related to theoretical knowledge.

PSO5. To utilize the knowledge gained for pursuing carrier in research and academics.

PSO6. Maintenance of high standard of learning in plant science.

Course outcome (Bsc. Botany)

Semester-1

Core-1: Microbiology and Phycology: To understand the microbial world and algae.

Core-2: Biomolecules and Cell biology: A detailed idea about cell and its parts as well as the biomolecules present in the cell.

Semester-2

Core-3: Mycology and Phytopathology: To understand structure, nutrition, reproduction of fungi. Also different plant diseases caused due to virus, bacteria, mycoplasma and fungi and its control measures.

Core-4: Archegoniate: understand diversity of plants related to Bryophytes, Pteridophytes and Gymnosperms. Also students have some idea about Palaeobotany.

Semester-3

Core-5: Anatomy of angiosperms: Understanding the internal structure of different plants of the plant and their function.

Core-6: Economic Botany: Understanding origin, cultivation and economic importance of cereals, legumes, spices, oil, drug, woods etc.

Core-7: Genetics: Understanding gene, gene mutation, Mendelian genetics, Population and evolutionary genetics

Semester-4

Core-8: Molecular Biology: Understanding in details about nucleic acids, DNA replication and mechanism of protein synthesis.

Core-9: Plant ecology and Phytogeography: Understanding concept about environment and its function as well as Phytogeography.

Core-10: Plant systematics: Study about plant classification, nomenclature and phylogeny of angiosperm. Description of different families of angiosperm.

Semester-5

Core-11: Reproductive Biology of angiosperms: Understanding stages of sexual reproduction and life cycle of angiosperms

Core-12: Plant physiology: Understanding different physiological processes such as nutrient uptake, plant growth regulator, mechanism of flowering etc.

DSE-1: Analytical techniques in plant sciences : Learning different instrumental principles and techniques such as chromatography, microscopy, electrophoresis, spectrophotometry, centrifugation etc. Also students have some idea on biostatistics.

DSE-2: Natural Resource management: Understanding different natural, biological resources, their management and conservation.

Semester-6

Core -13: Plant metabolism: Understanding carbohydrates, lipid and nitrogen metabolism in plants along with photosynthesis and respiration.

Core-14:Plant Biotechnology: Understanding plant tissue culture , Recombinant DNA technology and various applications of Biotechnology in agriculture.

DSE-3: Horticultural techniques and post harvest technology: Understanding scope importance and use of horticultural techniques, post harvest technology, disease control and management.

DSE-4 :Project:related to DSE-3

Course outcome (Msc. Botany)

Semester 1

Paper 101 : Microbiology : To get knowledge of history and development of microbiology, general feature , genetics recombination in virus and bacteria , microbial toxins(mode of action and pathogenicity)

Paper 102 : Genetics : To get knowledge of classical genetics , gene interaction, linkage , crossing over, construction of linkage map, structural and numerical alteration in chromosome , population genetics.

Paper 103 : Biochemistry : Understanding the classification, properties and function of macro molecules such as amino acids , proteins , carbohydrates, enzymes , lipids.

Paper 104 : Plant physiology : Understanding the mechanism of water absorption and transport , photochemistry and photosynthesis , nitrogen metabolism and plant growth regulators.

Paper 105 : Practical : Practical related to the theoretical aspects of Paper 101, 102, 103, 104.

Semester 2

Paper 201 : Plant Diversity : To gain knowledge of morphology, anatomy, lifecycle , origin , evolution and classification of different orders related to Algae , Bryophyte , Pteridophyta, Gymnosperm.

Paper 202 : Cell biology : Explain the structure and purposes of basic components of prokaryotic and eukaryotic cells, especially macro molecules , membrane and organelles. Explain the role of compartmentalization and cell division, transport across cell membrane.

Paper 203: Molecular Biology : Understanding the mechanism of DNA replication , protein synthesis. RNA editing along with scope of genetic engineering

Paper 204 : Instrumentation and Analytic techniques :Understanding Principle of operation and instrumentation of microscopy, spectroscopy, radioactivity chromatography, centrifugation, electrophoresis etc. Students also gain knowledge on statistical methods such, central tendency ,distribution , probability, ANOVA, regression and correlation.

Paper 205 : Practical related to the theoretical aspects of papers 201, 202, 203, 204.

Semester 3

Paper 301 : Computer Fundamentals and Ecology:To gain knowledge about computer application, community ecology , Models of succession , concepts of population ecology, environmental pollution.

Paper 302 : Conservation Biology: To understand concepts and importance of biodiversity and conservation of biodiversity , Ethnobotany .

Paper 303 : Taxonomy and Plant Pathology: To understand concepts of species , Phenetic and Phylogenetic system of classification ,Cladistics in taxonomy, range of floral structure in dicot and monocot groups , classification of fungi, fungal toxin and their mode of action.

Paper 304 : Plant development and tissue culture:To Understand differentiation and development of plant cell , molecular and cytological analysis of fruit development , study of male gametophyte and female gametophyte, structure of pistil, pollen , self incompatibility in plants , tissue culture of plants, methods of gene transfer in plants.

Paper 305 : Practical related to the theoretical aspects of papers 301, 302, 303, 304.

Paper 306 : Seminar presentation, field study and review of literature

Semester 4

Paper 401 :Bioenergetics, Biomolecules and biosignalling: To get the idea about the concept of bioenergetics, types of biomolecules and bio signaling mechanism.

Paper 402 : Photosynthesis and Biomolecules Metabolism: To study about the mechanism of photosynthesis, carbohydrates and lipid metabolism, chaperones and protein binding effects.

Paper 403 : Enzymology and Nitrogen metabolism:To gain the knowledge about amino acid biosynthesis , nitrogen metabolism , enzyme regulation and enzyme kinetics.

Paper 404 :Plant metabolism and Instrumentation: To understand the concept of stress physiology, plant growth regulators mechanism of action , transport type and various instrumental analysis of samples.

Paper 405 : Project

Paper 406 : Practical related to the theoretical aspects of papers 401, 402, 403, 404.