

RAJARAM COLLEGE, KOLHAPUR

DEPARTMENT OF BOTANY

Course Outcomes [CO] and Program Specific Outcomes [PSO]

OBJECTIVES OF THE COURSE:

1. To impart knowledge of Botanical science.
2. To develop scientific attitude to make students open minded, critical and curious.
3. To develop skill in practical work, experiments and laboratory materials and equipment along with the collection and interpretation of scientific data to contribute the science.
4. To understand scientific terms, concepts, facts, phenomenon and their relationships.
5. To make students aware of natural resources and environment.
6. To provide practical experience to students to develop scientific ability to work in the field of research and other fields of their own interest and to make them fit for the society.
7. To acquire knowledge of plants and related subjects so as to understand natural phenomenon, manipulation of nature and environment in the benefit of human beings.
8. To develop ability for the application of the acquired knowledge to improve agriculture and other related fields to make the country self-reliant and self-sufficient.
9. To create the interest of the society in the subject and scientific hobbies, exhibitions and other similar activities.

COURSE OUTCOMES

| CLASS | SEMESTER | COURSE | Marks allotted | COURSE OUTCOMES The students will learn- |
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| | | | Theory | Practical | Term-work | |
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| B.Sc. I | I | Paper I DSC-13A Biodiversity of Microbes, Algae and Fungi | 50 | 50 | - | General characters, classification, economic importances and life cycles of some Viruses, Bacteria, Algae and Fungi |
| | | Paper II DSC-14A Biodiversity of Archegoniates- Bryophytes, Pteridophytes, Gymnosperms | 50 | | - | General characters, classification, economic importance and life cycles of some Bryophytes, Pteridophytes and Gymnosperms. |
| | II | Paper III DSC-13B Plant Ecology | 50 | | - | Introduction, definition, scope of ecology, ecological factors, plant communities and succession, ecosystems, phytogeography |
| | | Paper IV DSC-14B Plant Taxonomy | 50 | | - | Introductory taxonomy, ICBN, Botanical gardens, Angiosperms and systems of classification, study of some families. |
| B.Sc. II | III | Paper V-DSC-C13 Embryology of Angiosperms | 50 | 100 | - | Organization of flower, pollination and fertilization, embryo and endosperm development, polyembryony and apomixis |
| | | Paper VI-DSC-C14 | 50 | | | Plant water relationships, Mineral nutrition, |

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| | | Plant Physiology | | | | Photosynthesis, Growth and development |
| | IV | Paper VII DSC-D13 Plant Anatomy | 50 | | | Organization of higher plant body, meristematic and permanent tissues, primary and secondary structure of the plant body, tissue systems. |
| | | Paper VIII DSC-D14 Plant metabolism | 50 | | | Enzymes, Nitrogen metabolism, Respiration, Seed dormancy and germination |
| B.Sc. III | V | Paper IX Biology of Non-vascular plants and Palaeobotany | 40 | 200 | 10 | Occurrence, distribution of algae, origin and evolution of algae, types of life cycles in algae, life cycles of some algae, occurrence and distribution of fungi, reproduction and study of some types in fungi, comparative account of morphology, gametophyte and sporophytes in Bryophytes, alternation of generations, life cycles of some bryophytes, fossilization, types of fossils, form genera, applications of paleobotany. |
| | | Paper X Genetics and Analytical techniques in Plant Sciences | 40 | | 10 | Sex chromosomes, determination and population genetics, extrachromosomal inheritance, variation in chromosome number and structure, microscopy, chromatography, micrometry, microtomy and microphotography. |
| | | Paper XI Fundamentals of Plant | 40 | | 10 | Mineral nutrition and nitrogen metabolism, Photosynthesis and respiration, Population ecology, |

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| | | Physiology and Ecology | | | Ecosystem |
| | | Paper XII Plant Biochemistry | 40 | 10 | Carbohydrate metabolism, Lipid metabolism, Protein metabolism, Nucleic acids |
| | VI | Paper XIII Biology of Vascular plants | 40 | 10 | Pteridophytes-structure of gametophytes, alternation of generatios, stelar evolution, life cycle study, Gymnosperms- life cycle of Gnetum and evolutionary significance, Angiosperms- phylogeny, systems of classification, modern taxonomy, flower, Pollination and fertilization, Anatomy-meristems, tissue systems |
| | | Paper XIV Microbiology and Plant Pathology | 40 | 10 | Methods in microbiology, industrial applications, microbial genetics, plant pathology- classification of plant diseases, transmission, prevention and control, Viral, bacterial, fungal and AM plant diseases. |
| | | Paper XV Plant Breeding, Biostatistics, Ethnobotany and Horticulture | 40 | 10 | Plant breeding, methods, ethnobotany, biostatistics- data, central tendency, variance, std deviation, T-test, Chi-square test, Horticulture-gardening, ornamental plants, plant nurseries. |
| | | Paper XVI Molecular Biology and | 40 | 10 | Nucleic acid, recombinant DNA technology, genetic engineering, Plant tissue culture |

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| | | Biotechnology | | | | |
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PROGRAM SPECIFIC OUTCOMES [PSO]

1. Students will be well versed with all concepts in Botany, some of them viz. Algae, Analytical techniques, Anatomy, Angiosperms, Biochemistry, Biostatistics, Biotechnology, Bryophytes, Cytology, Ecology, Ethnobotany, Fungi, Genetics, Gymnosperms, Horticulture, Industrial applications, Microbiology, Molecular Biology, Non-vascular plants, Paleobotany, Physiology, Plant Breeding, Plant Pathology, Pteridophytes, Utilization of Plants, Vascular plants, etc.
2. Students get admitted to post graduate programs in various subjects such as Life sciences, Agrochemicals and Pesticides, Biotechnology, Biochemistry, Environment studies, Law, Computers, Management, Food technology, Horticulture, laboratory technicians, Architecture, Journalism, Wild life photography, Tourism, Forestry, Pharmaceuticals, Pathology, enter administration through competitive examinations, etc.
3. Students will be equipped with skills that will help them to secure jobs or to establish start-ups in sectors of teaching and research, Herbal health care products, Beauty care products, food processing and marketing, Fermentation products, Mushroom cultivation, Nursery management, Floriculture, Exotic ornamental and vegetable industry, Biopesticides, Biofertilizers, Tissue culture, Hydroponics, Research and consultancy, Horticulture, Major and minor forest products, Spices and condiments, Oils and Perfumes, Organic farming, and many more.
4. The subject being universally vital, cosmopolitan, dynamic and directly related to the well-being of human life, the knowledge of the subject can be brought to practical use in person or society, in any situation, environment, geographical location, with no restrictions of boundaries or cultures throughout the world.
5. The course provides know-hows to deal with global issues of food and safety, environment degradation, conservation and sustainable development for balanced betterment of human life in future, which will in turn help to build a developed nation in its true sense.