

Rayat Shikshan Sanstha's  
Arts, Science and Commerce College, Mokhada, Dist. Palghar  
Department of Botany  
List of Programs and Courses

Sr. No.	Program Name	Course code	Course Name
1	F.Y.B.Sc. Sem-I	USBO101	PLANT DIVERSITY I
2	F.Y.B.Sc. Sem-I	USBO102	FORM AND FUNCTION I
3	F.Y.B.Sc. Sem-I	USBOP1	PRACTICAL I
4	F.Y.B.Sc. Sem-II	USBO201	PLANT DIVERSITY I
5	F.Y.B.Sc. Sem-II	USBO202	FORM AND FUNCTION I
6	F.Y.B.Sc. Sem-II	USBOP2	PRACTICAL I
7	S.Y.B.Sc. Sem-III	USBO301	PLANT DIVERSITY II
8	S.Y.B.Sc. Sem-III	USBO302	FORM AND FUNCTION II
9	S.Y.B.Sc. Sem-III	USBO303	CURRENT TRENDS IN PLANT SCIENCES I
10	S.Y.B.Sc. Sem-III	USBOP3	PRACTICAL I
11	S.Y.B.Sc. Sem-IV	USBO401	PLANT DIVERSITY II
12	S.Y.B.Sc. Sem-IV	USBO402	FORM AND FUNCTION II
13	S.Y.B.Sc. Sem-IV	USBO403	CURRENT TRENDS IN PLANT SCIENCES I
14	S.Y.B.Sc. Sem-IV	USBOP4	PRACTICAL I
15	T.Y.B.SC. Botany Sem-V	USBO501	PLANT DIVERSITY III
16	T.Y.B.SC. Botany Sem-V	USBO502	FORM AND FUNCTION III
17	T.Y.B.SC. Botany Sem-V	USBO503	CURRENT TRENDS IN PLANT SCIENCES II

18	T.Y.B.SC. Botany Sem-V	USBO504	CURRENT TRENDS IN PLANT SCIENCES III
19	T.Y.B.SC. Botany Sem-V	USBOP5	PRACTICAL I
20	T.Y.B.SC. Botany Sem-V	USBOP6	PRACTICAL II
21	T.Y.B.Sc. Sem-VI Botany	USBO601	PLANT DIVERSITY III
22	T.Y.B.Sc. Sem-VI Botany	USBO602	FORM AND FUNCTION III
23	T.Y.B.Sc. Sem-VI Botany	USBO603	CURRENT TRENDS IN PLANT SCIENCES II
24	T.Y.B.Sc. Sem-VI Botany	USBO604	CURRENT TRENDS IN PLANT SCIENCES III
25	T.Y.B.Sc. Sem-VI Botany	USBOP8	PRACTICAL I
26	T.Y.B.Sc. Sem-VI Botany	USBOP9	PRACTICAL II

RAYAT SHIKSHAN SANSTHA'S  
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DEPARTMENT OF BOTANY

**Programme Name: B.Sc. Botany**

<p><b>Programme Outcomes</b></p>	<ol style="list-style-type: none"> <li>1. Identify the different groups of botany and appreciate plant diversity</li> <li>2. Understand the importance of plants, their diversity and its conservation.</li> <li>3. Understand the current developments in the different areas of botany</li> <li>4. Understand contribution of botany in increase and improve our supply of medicines, food, fibers and other plant products.</li> <li>5. Understand health and environmental protection and to solve the pollution problems.</li> <li>6. Understand knowledge of botany is an essential pre-requisite for the pursuit of many applied sciences like Agriculture, Horticulture, Sericulture, Forestry, Pharmacology and Medicine.</li> <li>7. Analyze and apply the methodologies and techniques learnt during the course of studying botany</li> <li>8. Share social and environmental consciousness with their fellow citizens.</li> <li>9. Organize and deliver relevant applications of knowledge through effective written, verbal, graphical/virtual communications and interact productively with people from diverse backgrounds</li> </ol>
<p><b>Course Outcomes</b></p>	<p><b>CO. 101 F. Y. B. Sc. Sem I - Paper I -Plant Diversity</b></p> <ul style="list-style-type: none"> <li>✓ Understand the diversity among Algae.</li> <li>✓ Know the systematic, morphology and structure, of Algae.</li> <li>✓ Understand the life cycle pattern of Algae.</li> <li>✓ Understand the useful and harmful activities of Algae.</li> <li>✓ Understand the Biodiversity of Fungi</li> <li>✓ Know the Economic Importance of Fungi</li> </ul>

✓ Understand the morphological diversity of Bryophytes.

✓ Understand the economic importance of the Bryophytes.

**CO.102. F. Y. B. Sc. sem-I –Paper II –Form and function-I**

✓ To understand basic units of the organism.

✓ To know components of the cell and their division.

✓ To differentiate the organism by its cell structure.

✓ To understand energy pyramids in detail.

✓ To know the various types of ecosystem.

✓ To understand the “Science of Heredity”.

✓ To understand linkage, segregation and mutation of genes.

✓ To understand phenotypic, genotypic ratios and epistatic, non-epistatic interactions.

**CO. 201. F. Y. B. Sc. Sem- II- Paper-I Plant Diversity-I**

✓ Identify different plant groups using representative life forms.

✓ Understand similarities & differences among these groups at least at macroscopic level.

✓ Appreciate their economic importance, ecological & environmental significance.

✓ Understand Angiosperm plant families and their economic importance

✓ Understand leaf and inflorescence morphology

**CO.202 F.Y. B. Sc. Sem II Paper II Form and Function I**

✓ To study simple tissues and complex tissues.

✓ To study primary structure of dicot and monocot root, stem, leaf.

✓ To study epidermal tissue system such as types of hair and stomata.

✓ To study photosynthesis in detail.

✓ To understand light reaction, photolysis of water and photophosphorylation pathway.

✓ To know concept of primary and secondary metabolites and difference between primary and secondary metabolites.

✓ To study the various types of medicinal plants and their uses.

**CO.301. S. Y. B. Sc. Sem- III- Paper-I Plant diversity-II**

- ✓ Understand Modern Techniques to study of Plant Diversity
- ✓ Identify different plant groups using representative life forms.
- ✓ Understand the diversity of Brown Algae
- ✓ Know the systematic position, range of variation and economic importance of brown algae.
- ✓ Know the systematic position and life cycle of Bryophytes
- ✓ Have a better understanding of plant morphology terminology.
- ✓ Understand Angiosperm plant families and their economic importance
- ✓ Understand the nomenclatural problems.

**CO.302 S.Y. B. Sc. Sem III Paper II Form and Function II**

- ✓ To understand the basic unit of the organism.
- ✓ To differentiate the organism by its cell structure.
- ✓ To know components of the cell and their division.
- ✓ Provide an understanding of the laboratory methods used to identify and analyse.
- ✓ To understand cytogenetics alteration and relationship to specific clinical expression.

**CO. 303. S. Y. B. Sc. Sem-III - Paper III -Current Trends in Plant Science**

- ✓ The study of Economic botany helps to the importance and uses of plant and plant parts.
- ✓ Ethnobotany give a chance to familiarize the traditionally useful medicinal plants.
- ✓ To equip the students with skills related to laboratory as well as industries based
- ✓ studies.
- ✓ Understand the role plants in human welfare.
- ✓ Gain knowledge about various plants of economic use.
- ✓ Know importance of plants & plant products.

- ✓ Understand the chemical contents of the plant products.
- ✓ Know about the utility of plant resources.
- ✓ Forestry provides a focused lense through which to understand, influence and practice
- ✓ sustainable resource management and utilization, as well as sustainable development.
- ✓ Become aware of applications of different plants in various industries.
- ✓ To highlight the potential of these studies to become an entrepreneur.

**CO. 401. S. Y. B. Sc. Sem-IV- Paper I - Plant Diversity**

- ✓ Understand the Biodiversity of Fungi
- ✓ Know the Economic Importance of Fungi.
- ✓ Know the terminologies in plant pathology.
- ✓ Understand the scope and importance of Plant Pathology.
- ✓ Know the prevention and control measures of plant diseases and its effect on economyof crops.
- ✓ Understand the morphological diversity of Pteridophytes and Gymnosperms.
- ✓ Understand the economic importance of the Pteridophytes and Gymnosperms.
- ✓ Know the evolution of Pteridophytes and Gymnosperms.
- ✓ Know the scope of Paleobotany, types of fossils, its role in global economy and geological time scale.
- ✓ Understand the various fossil genera representing different fossil groups.

**CO.402-S.Y.B.Sc.sem-IV-paper-II-Form and function-II**

- ✓ To study the normal secondary growth in dicotyledonous stem and root.
- ✓ To understand the mechanical tissue system in detail.
- ✓ To study the types of vascular bundles.
- ✓ To understand the process of respiration and their pathways.

- ✓ To study the process of photorespiration and photoperiodism in detail.
- ✓ To study biogeochemical cycles includes carbon, Nitrogen and water in detail.
- ✓ Study of ecological factors, soil as edaphic factor and their types.
- ✓ To study the community ecology in detail.

**CO. 403. S. Y. B. Sc. Sem- IV- Paper-III Current Trends in Plant Sciences-I**

- ✓ Understand the types and locations of gardens
- ✓ Know the national parks and botanical gardens
- ✓ Understand the plant tissue culture techniques
- ✓ Understand the gene cloning and vector used for gene cloning
- ✓ Know the chi square test and coefficient of correlations
- ✓ Understand the bioinformatics, BLAST and bioinformatics programme in India

**CO. 501. T. Y. B. Sc. Sem-V- Paper I - Plant Diversity**

- ✓ Over view of the microbial world, its structure and function.
- ✓ Familiar with the tools and techniques used in Microbiology.
- ✓ Familiarize the learner with the applied aspects of microbiology.
- ✓ Understand the concept, principle and types of sterilization methods.
- ✓ Developing interest in plant diversity.
- ✓ Developing skill of identification of Algae, Fungi.
- ✓ To study in depth about algae and fungi.
- ✓ Know the terminologies in plant pathology
- ✓ Understand the scope and importance of Plant Pathology
- ✓ Know the control measures of plant diseases.
- ✓ Studying basic knowledge of pathogens, diseases and their control.

**CO. 502. T. Y. B. Sc. Sem- V- Paper-II Plant Diversity -IV**

- ✓ Understand the fossil genera of plants
- ✓ Have a better understanding of plant morphology terminology

- ✓ Understand Angiosperm plant families & respective genera using proposed
- ✓ classification systems & standard floras & use identification keys
- ✓ Understand key methods and principles of angiosperm classification
- ✓ Understand anomalous secondary growths of stem and roots of plants
- ✓ To study of pollen morphology, analysis and viability

**CO.503-T.Y.B.Sc.sem-V-Paper-III-Form and function-II**

- ✓ To study the structure and functions of cell organelles in detail.
- ✓ To understand the giant chromosome and their types.
- ✓ To understand the concept of genetic code and process of transcription and translation in eukaryotes.
- ✓ To study the water relations in plants and solute transport.
- ✓ To study the translocation of solutes and their models in detail.
- ✓ To study the process of bioremediation and phytoremediation in detail.
- ✓ To understand the plant succession and their poly and monoclimax theories.
- ✓ To study the micropropagation techniques and plant cell suspension culture for the production of secondary metabolites.
- ✓ To study the techniques of protoplast fusion and somatic hybridization.

**CO.504. T. Y. B. Sc Sem V Paper IV Current Trends in Plant sciences I**

- ✓ To explain basic concept about ethnobotany.
- ✓ To express the historical development of ethnobotany.
- ✓ To explain the construction of c DNA and genomic library.
- ✓ To understand the step involved in recombinant DNA technology.
- ✓ Introduce the basic concept of qualitative analysis of a given sample.
- ✓ Discuss the terms, principle, instrumentation operation of spectroscopic techniques.
- ✓ To study medicinal plant and their uses.

**CO. 601. T. Y. B. Sc. Sem-VI - Paper I -Plant Diversity**



- ✓ Interpret the performance characteristics and life cycles of various lower plants.
  - ✓ Developing skill of identification of Bryophytes, pteridophytes and Gymnosperms.
  - ✓ Diversity in vascular plant.
  - ✓ Characters of vascular plants and classification of plants.
  - ✓ External & internal characters of plants.
  - ✓ Aware the students to understand the evolution and its importance.
- CO. 602. T. Y. B. Sc. Sem- VI- Paper-II Plant Diversity -IV**
- ✓ To study of Major Botanic gardens of India
  - ✓ Know the regional circles of botanical survey of India
  - ✓ Understand Angiosperm plant families & respective genera using proposed
  - ✓ classification systems & standard floras & use identification keys.
  - ✓ Understand Hutchinson's classification
  - ✓ Understand embryology and development of embryo in plants
  - ✓ Study anatomical peculiarities of different groups by using live specimens and micro preparation.
- C0.603-T.Y.B.Sc. Sem-VI-Paper-III-Form and function-III**
- ✓ To study the structure and of biomolecules includes carbohydrate, lipid and protein in detail.
  - ✓ To understand the structure of enzymes, their nomenclature and types in detail.
  - ✓ To study the Nitrogen metabolism includes nitrogen cycle, root nodule formation, nitrogenase activity.
  - ✓ Physiological effects and applications of auxin, gibberellins, cytokinins and abscissic acid.
  - ✓ To study the genetic mapping in eukaryotes, genetic linkage, three point crosses and their problems.
  - ✓ To study the gene mutations, types of mutations in detail.

- ✓ To understand the metabolic disorders caused by genetic mutations.
- ✓ To study the organization of biological data and databases, BLAST.
- ✓ To study the protein structure analysis, multiple sequence analysis and phylogenetic analysis.

**CO.604. T.Y.B.Sc. Sem VI Paper IV Current Trends in Plant sciences II**

- ✓ To understand the step involved in recombinant DNA technology.
- ✓ To study various techniques of DNA sequencing.
- ✓ To study DNA barcoding and its basic features.
- ✓ To study various phytogeographical regions of India with respect to definition, diversity of flora found in various forest types of India.
- ✓ To study evolution of biodiversity.
- ✓ To study methods of extraction of essential and fatty oils.
- ✓ To study drying oil semidrying oil non-drying oil.
- ✓ To study storage and preservation techniques of fruits and vegetable.