



SECOND YEAR BACHELOR OF SCIENCE MINOR BOTANY REVISED SYLLABUS ACCORDING TO CBCS NEP2020

COURSE TITLE: PLANT DIVERSITY AND PHYSIOLOGY
SEMESTER-IV, W.E.F. 2024-2025

**RECOMMENDED BY THE BOARD OF STUDIES IN BOTANY
AND**

APPROVED BY THE ACADEMIC COUNCIL

Devrukh Shikshan Prasarak Mandal's

Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and
Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh.
Tal.Sangmeshwar, Dist. Ratnagiri-415804, Maharashtra, India

Academic Council Item No: 03

Name of the Implementing Institute	:	Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh. Tal. Sangmeshwar, Dist. Ratnagiri-415804,
Name of the Parent University	:	University of Mumbai
Name of the Programme	:	Bachelor of Science
Name of the Department	:	Botany
Name of the Class	:	Second Year
Semester	:	Fourth
No. of Credits	:	02
Title of the Course	:	Plant Diversity and Physiology
Course Code	:	S203BTT
Name of the Vertical in adherence to NEP 2020	:	Minor
Eligibility for Admission	:	FY B.Sc. Pass seeking Admission to SY B.Sc. in adherence to Rules and Regulations of the University of Mumbai and Government of Maharashtra
Passing Marks	:	40%
Mode of Assessment	:	Formative and Summative
Level	:	UG
Pattern of Marks Distribution for TE and CIA	:	60:40
Status	:	NEP-CBCS
To be implemented from Academic Year	:	2024-2025
Ordinances /Regulations (if any)	:	

Syllabus for Second Year of Bachelor of Science in Botany

(With effect from the academic year 2024-2025)

SEMESTER-IV

Paper No.– Botany Paper – I

Course Title: Plant Diversity and Physiology

No. of Credits - 02

Type of Vertical: Minor

COURSE CODE: S203BTT

Learning Outcomes Based on BLOOM's Taxonomy:

After completing the course, the learner will be able to...

Course Learning Outcome No.	Blooms Taxonomy	Course Learning Outcome
CLO-01	Remember	Recall the systematic position, occurrence, uses of Fungi, <i>Pinus</i> and Economic important families. Memorise dicot stem, root, growth rings, vascular bundles, respiration, photoperiodism, vernalization, biogeochemical cycles and community characters.
CLO-02	Understand	Explain the structure of Fungi, <i>Pinus</i> and important characters of families. Recognise the dicot stem, root, growth rings, vascular bundles, respiration, photoperiodism, vernalization, biogeochemical cycles and importance of community
CLO-03	Apply	Execute the vegetative, asexual and sexual reproduction stages in Fungi, <i>Pinus</i> and economic importance of angiosperm families. Accomplish dicot stem- root structure, growth rings, vascular bundles differences, respiration, effect of light and cold temperature on flowering in plants, recycling of important elements and community
CLO-04	Analyse	Analyse symptoms, causative organism, disease cycle and control measures of Powdery mildew. Differentiate among dicot stem- root structure, growth rings, vascular bundles differences, respiration, effect of light and cold temperature on flowering in plants, recycling of important elements and community
CLO-05	Evaluate	Justify alternation of generations in life cycle of Fungi, <i>Pinus</i> , dicot stem, root, vascular bundle, respiration, photoperiodism, vernalization, biogeochemical cycles and quantitative and qualitative characters of community

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SEMESTER-IV

Paper No.– Botany Paper – I

Course Title: Plant Diversity and Physiology

No. of Credits - 02

Type of Vertical: Minor

COURSE CODE: S203BTT

COURSE CONTENT			
Module No.	Content	Credits	No. of Lectures
I Fungi, Gymnosperm, Angiosperm	<ol style="list-style-type: none"> 1. Fungi: General characters of Ascomycetae and Basidiomycetae (PT 18.1, 26.1) 2. Structure, life cycle and systematic position of <i>Xylaria</i> (GK 13.23) 3. Plant Pathology- Symptoms, causative organism, disease cycle and control measures of Powdery mildew (GK 25.9) 4. General characters of Coniferophyta (AC 6.3) Structure, life cycle and systematic position of <i>Pinus</i> (PM 50.1 to 50.5) 5. Study following families prescribed: morphological peculiarities and economic importance of the members <ol style="list-style-type: none"> 1. Fabaceae (BP 4.3) 2. Asteraceae (BP 28.1) 3. Arecaceae (BP 35.1) 	02	15
II Anatomy, Plant Physiology and Ecology	<ol style="list-style-type: none"> 1. Normal Secondary Growth in Dicotyledonous stem and root, types of Vascular Bundles (AD II- 1-5, PC 4-16) 2. Growth rings, periderm, lenticels, tyloses, heart wood and sap wood. (PC 4-16) 3. Respiration: Aerobic: Glycolysis, TCA Cycle, ETS, Anaerobic respiration, Photorespiration (SS 17-18, GG 4) 4. Photoperiodism: Role of phytochrome in flowering of SDPs and LDPs. (SS 24) 5. Vernalization with reference to flowering in higher plants (SS 24) 6. Biogeochemical Cycles: Carbon, Nitrogen (EP IV, EK 8) 7. Quantitative and qualitative characters of community AD IV- 1-4, (EP V) 	02	15
	Total	02	30

Required Previous Knowledge

Basic Knowledge of fundamentals of Biology, Plant Classification, Plant external and internal structure, basic metabolism in plants is necessary before starting to learn the course

Access to the Course

The course is available for all the students admitted for Bachelor of Science as minor. The students seeking admission in other disciplines may select the course as a minor considering the terms and conditions laid down by the University of Mumbai, the Government of Maharashtra, and the college, from time to time.

Forms of Assessment

The assessment of the course will be of Diagnostic, Formative and Summative type. At the beginning of the course diagnostic assessment will be carried out. The formative assessment will be used for the Continuous Internal Evaluation whereas the summative assessment will be conducted at the end of the term. The weightage for formative and summative assessment will be 60:40. The pattern will be followed as decided and passed in Academic Council of the college.

Grading Scale

The grading scale used is O to F. Grade O is the highest passing grade on the grading scale, and grade F is a fail. The Board of Examinations of the college reserves the right to change the grading scale.

Reference Books

- PT.** A Textbook of Botany Vol. I by S.N. Pandey, P.S. Trivedi, Vikas Publ.
- GK.** College Botany Volume II by H.C. Gangulee, and A. K. Kar by New Central Book Agency
- PM.** A Textbook of Botany Vol II by S.N. Pandey, S.P. Misra, P.S. Trivedi, Vikas Publ.
- AC.** Botany for Degree Students by A.C. Datta, Oxford Publ.
- BP.** A Textbook of Botany Angiosperms by S.P. Pandey, S. Chand Publ.
- AD.** Botany for Degree Students by A. C. Dutta, Oxford University Press.
- SS.** Plant physiology by S. Sundara Rajan, Anmol Publications Pvt. Ltd.
- EP.** Ecology by Eugene P. Odum, Oxford and IBH Publishing Co. Pvt. Ltd.
- EK.** Concepts of Ecology by Edward J. Kormondy, PHI Learning Pvt. Ltd.
- GG.** Introductory Plant Physiology by G. R. Noggle and G. J. Fritz, PHI Learning Pvt. Ltd.
- PC.** A Textbook of Botany by S. N. Pandey and A. Chadha, Vikas Publishing House Pvt. Ltd.

1. College Botany Volume I and II by Gangulee, Das and Dutta. Central Education Enterprises
2. Cryptogamic Botany Volume I and II by G M Smith, McGraw Hill.
3. Cryptogamic Botany Vol. I & II (2nd Edition) by Gilbert, M. S., Tata McGraw Hill Publishing Co., Ltd New Delhi.
4. Environmental Science: A Global Concern by Cunningham.W.P. and Saifo S.W. 1997. WCB. McGraw Hill.

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5. Biochemistry and Molecular Biology of Plants. by Buchanan. B.B. Grusse. W. and Jones. R.L. 2000. American Society of Plant Physiologists, Maryland, USA.
6. Plant Metabolism (2nd Edition) by Collins. H.A. and Edwards D.H. Lefebvre. D.D. and Layzell. D.B. (eds) 1997. Longman, Essex, England
7. Genetics by Russel. Wesley Longman inc publishers. (5th edition)
8. Plant Physiology by Taiz and Zeiger Sinauer Associates inc. publishers
9. Fundamentals of Ecology by E P Odum and G W Barrett. Thompson Asia Pvt Ltd. Singapore.
10. A Text Book of Systematic Botany by Sutaria R N
11. A text book of Plant Ecology by Ambasht R.S.
12. Prescott, L.M., Harley J.P., Klein D. A. (2005). Microbiology, McGraw Hill, India. 6th edition.
13. Pelczar, M.J. (2001) Microbiology, 5th edition, Tata McGraw-Hill Co, New Delhi.