Pune District Education Association's

Waghire College of Arts, Commerce and Science,

Saswad, Purandar, Pune.

DEPARTMENT OF BOTANY

Course: Bachelor of Science in Botany (CBCS 2019)

Duration: 3 Years

(Currently SYBSc and TYBSc is running as FYBSc is following NEP 2020)

AIMS AND OBJECTIVES

- This course is to ensure that you can achieve an up-to-date level of understanding of plant science.
- Botany is a branch of biological science that studies plants and how they survive and interact with other living and non-living things in the environment. At the undergraduate and graduate levels, the curriculum for a botany degree typically consists of lecture-based courses, labs, and field research.
- A three-year bachelor's degree program in botany provides the foundation for prospective botanists to pursue a graduate-level education or find an entry-level career.
- To highlight the potential of these studies to become an entrepreneur.

SYLLABUS

SYBSc (CBCS 2019)

TYBSc (CBCS 2019)

Title of the Course: B. Sc Botany

1. Structure of Course:

Structure B.Sc. Botany syllabus					
Year	Semester	Course Type	Course code	Course Name	Credits
1	1	Compulsory Course	BO 111	Plant life and utilization I	2
			BO 112	Plant morphology and Anatomy	2
			BO 113	Practical based on BO 111 & BO 112	1.5
	2	Compulsory Cpurse	BO 121	Plant life and utilization II	2
			BO 122	Principles of plant science	2
			BO 123	Practical based on BO 121 & BO 122	1.5
2	3	Compulsory Course	BO 231	Taxonomy of Angiosperms and Plant Ecology	2
			BO 232	Plant Physiology	2
			BO 233	Practical based on BO 231 & BO 232	2
	4	Compulsory Course	BO 241	Plant Anatomy and Embryology	2
			BO 242	Plant Biotechnology	2
			BO 243	Practical based on BO 241 & BO 242	2
3	5	Discipline Specific Elective Course	BO 351	**Algae and Fungi**	2
			BO 352	**Archegoniate**	2
			BO 353	**Spermatophyta and Paleobotany**	2
			BO 354	**Plant Ecology**	2
			BO 355	**Cell and Molecular Biology**	2
			BO 356	**Genetics**	2
			BO 357	**Practical based on BO 351 & BO 352**	2
			BO 358	**Practical based on BO 353 & BO 354**	2
			BO 359	**Practical based on BO 355 & BO 356**	2
		Skill Enhancement course	BO 3510	**Medicinal Botany**	2
			BO 3511	**Plant Diversity and Human Health**	2
3	6	Discipline Specific Elective Course	BO 361	**Plant Physiology**	2
			BO 362	**Biochemistry**	2
			BO 363	**Plant Pathology**	2
			BO 364	**Evolution and Population genetics**	2
			BO 365	**Advanced Plant Biotechnology**	2
			BO 366	**Plant Breeding and Seed Technology**	2
			BO 367	**Practical based on BO 361 & BO 362**	2

			BO 368	**Practical based on BO 363 & BO 364**	2
			BO 369	**Practical based on BO 365 & BO 366**	2
		Skill Enhancement course	BO 3610	**Nursery and Gardening Management**	2
			BO 3611	**Biofertilizers**	2

2. **Equivalence of Previous Syllabus:**

Old Course (2015 Pattern)	**New Course (2020 CBCS Pattern)**
Semester V	**Semester V**
BO. 331 Cryptogamic Botany	BO 351 Algae and Fungi
BO. 332 Cell and Molecular Biology	BO 352 Archegoniate
BO. 333 Genetics and Evolution	BO 353 Spermatophyta and Paleobotany
BO. 334 Spermatophyta and Palaeoboatny	BO 354 Plant Ecology
BO. 335 Horticulture and Floriculture	BO 355 Cell and Molecular Biology
BO. 336 Computational Botany	BO 356 Genetics
--	BO 3510 Medicinal Botany
--	BO 3511 Plant Diversity and Human Health
Semester VI	**Semester VI**
BO.341 Plant Physiology and Biochemistry	BO 361 Plant Physiology and Metabolism
BO.342 Plant Ecology and Biodiversity	BO 362 Biochemistry
BO.34 Plant Pathology	BO 363 Plant Pathology
BO.344 Medicinal and Economic Botany	BO 364 Evolution and population genetics
BO.345 Plant Biotechnology	BO 365 Advanced Plant Biotechnology
BO.346 Plant Breeding and Seed Technology	BO 366 Plant Breeding and Seed Technology
--	BO 3610 Nursery and Gardening Management
--	BO 3611 Biofertilizers

PROGRAM OUTCOMES (PO's)

According to CBCS 2019 criteria, the Under-Graduate degree in Botany (F.Y.B.Sc. Botany) program at PDEA's Waghire College Saswad, (affiliated to Savitribai Phule Pune University, Pune), is structured to provide students with advanced field-related knowledge and essential fundamentals. Through a unique combination of required major core courses with in-depth exposure to multidisciplinary minor, elective, and vocational skill courses, among other courses, students will be trained and acquire the fundamental and advanced knowledge essential to the plant sciences industries.

With the knowledge gained in the field of plant sciences, this upgraded curriculum will develop educated, outcome-oriented candidates who are nurtured through discovery and learning, equipped with practice and skills to deal with practical problems, and competent with recent pedagogical trends in education, including E-learning, flipped class, hybrid learning, and experiential learning. These candidates will become responsible citizens, transforming the nation to lead the world in the future.

After successful completion of the Under Graduate (UG) Degree program, the students would be able to:

1. **Knowledge and understanding** of the range of plant diversity in terms of structure, function and environmental relationships. The role of plants in the functioning of the ecosystem. A selection of more specialized, optional topics. Statistics as applied to biological data.

2. **Intellectual skills** – able to think logically and organize tasks into a structured form. Assimilate knowledge and ideas based on wide reading and through the internet.

3. **Practical skills:** Students learn to carry out practical work, in the field and in the laboratory, with minimal risk. They gain introductory experience in applying each of the following skills and gain greater proficiency in a selection of them depending on their choice of optional modules. a. Interpreting plant morphology and anatomy. b. Plant identification. c. Vegetation analysis techniques. d. A range of physiochemical analyses of plant materials in the context of plant physiology and biochemistry. e. Analyze data using appropriate statistical methods and computer packages. f. Plant pathology to be added for sharing of field and lab data abstained.

4. **Scientific Knowledge**: Apply the knowledge of basic science, life sciences and fundamental process of plants to study and analyze any plant form.

5. **Problem analysis**: Identify the taxonomic position of plants, formulate the research literature, and analyze non reported plants with substantiated conclusions using first principles and methods of nomenclature and classification in Botany.

6. **Design/development of solutions**: Design solutions from medicinal plants for health problems, disorders and disease of human beings and estimate the phytochemical content of plants which meet the specified needs to appropriate consideration for the public health

7. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern instruments and equipments for Biochemical estimation, Molecular Biology, Biotechnology, Plant Tissue culture experiments, cellular and physiological activities of plants with an understanding of the application and limitations.

8. **Environment and sustainability**: Understand the impact of the plant diversity in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

9. **Ethics:** Apply ethical principles and commit to environmental ethics and responsibilities and norms of the biodiversity conservation.