

Syllabus Framework as per LOCF



Hindi Vidya Prachar Samiti's
Ramniranjan Jhunjhunwala College
Of Arts, Science & Commerce
(Autonomous College)

Affiliated to
UNIVERSITY OF MUMBAI

Syllabus Framework as per LOCF

Program: B.Sc. BOTANY

Program Code: RJSUBOT

(CBCS 2020-2021)

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THE PREAMBLE

Why Botany?

In the global ecosystem, plants are the primary producers and they occupy the base of the ecological pyramids. They supply O₂ and take away the CO₂ from the air. Three basic necessities of humans, i.e., Food, Clothing and Shelter are all fulfilled by plants. While they help bring rains, they also help in preventing floods. They give wood for fire and at the same time, they extinguish fire in the belly by giving grains and fruits. On one hand they give shade in sun; on the other hand, they harvest sun energy converting it into food for animal and human consumption. Plants are the indispensable component of the environment and have remained as a part of human food, health, culture and civilization from the time immemorial.

Botany encompasses the study of these plant forms in terms of their habit, growth pattern, ecology, physiology, anatomy, genetics and pharmacological peculiarities as well as uses. Botany as a branch of biological sciences also focuses on how plants survive and interact with other living and nonliving components in the environment. The numerous applications of the subject in varied fields like medicines, cosmetics, herbal science, forensic science, allergies, biotechnology, nutrition, floriculture industry, herbal research, food science and agriculture-based commerce and trade makes botany as the most versatile subject choice.

Why Botany at R J College?

The department of Botany of R J College is the department as old as the college itself. It started in 1963, the inception year of the college and since then has remained as the centre of academic activities for the subject. With a legacy of more than six decades, today the department offers both UG and PG programs in the subject of Botany with more than one specialization at post graduate level and is affiliated to recognize by the University of Mumbai. Like all other undergraduate courses offered at undergraduate program in science, even the subject of Botany offers vertical mobility to students for M.Sc. and PhD in Botany, PG diploma

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courses like Horticulture & Landscape designing, Dietetics & Nutrition and other PGDCs offered by the college. There are value added courses across disciplines for horizontal mobility of students. As applied component in the third year, botany students learn environmental science and pollution which sensitizes them towards the conservation and care they need to take of the environment as one of the member of the living component of the ecosystem. Field trips, mini projects, hands on training sessions, lectures, laboratory experimentation, lecture-based learning, industry visits etc. motivate students to explore more in terms of applications of the subject. Under autonomy, the department has made curriculum more robust by incorporating skill-based learning and value added course that imparts practical knowledge of the subject to the students. Department of Botany is one of the few departments who runs more than one value added course in a year and is able to attract students from other disciplines of science enrolling for these courses. Department of Biotechnology (DBT), New Delhi has identified Botany Department of R J College as DBT Star Status Department which has further strengthened our hands in being able to provide hands on training to the students to satisfy their curiosity and inculcate research aptitude.

Our Curriculum, Your Strength

The syllabus for botany for the total six semesters is meticulously designed so as to make students understand the diversity of plant life. The complexity of structure and functions that changed with every new plant life that emerges in the course of evolution is exactly how the syllabus evolves from semester I to semester VI. From learning the basics of plant diversity and varied functions, students move on to applied aspects of the subject in terms of horticulture, Pharmacognosy, and plant biotechnology. Specialized training in plant tissue culture, molecular biology techniques, nanotechnology, IPR etc. is a part of learning process till PG program. One entire semester in PG program is dedicated to internship. This gives students an exposure to work away from the campus in the industrial set up, production set up or pharmaceutical or health care organization. Field trips and industrial visits generate love for nature and understanding plant forms and their diversity. Over the years, department has been able to develop linkages with premier research institutes in the city like BARC, ICT,

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ACTREC, Metropolis Healthcare and industries like Hindustan Unilever and MARICO to name a few. Our illustrious alumni are given a platform to remain in constant touch with our every new batch of students in providing them guidance in their studies and assisting in the internship and placement.

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PROGRAM OUTCOMES OF GENERAL UNDERGRADUATE DEGREE PROGRAMS

Students of all undergraduate degree programme at the time of graduation will be benefited will be able to

Critical Thinking

Comprehend the matter they come across and be capable to take a sound viewpoint about things which will highlight their intellectual acumen as well as enable them to look at the world through multiple lenses

Effective communication

Listen, speak, read and write. They should communicate properly by conveying their thoughts. They will use technology for communication. Will be able to network with people with all available channels. They will be developing communication skills in English, Hindi and a local language would be an added advantage.

Social Interaction

Respect each other and should be able to resolve conflicts and help in reaching amicable solution. They should be able to work in diverse teams. They should be able to distinguish when and what is socially acceptable.

Responsible citizen

Contribute to Nation development through social service. Being empathetic and sympathetic to fellow beings.

Honesty and Integrity, Ethics

Recognize different values and systems and respect them. In decision making moral values should be given prime importance.

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Environmental and Sustainability

Environmental issues would be considered and problem solving with sustainable development would be chosen.

Life Long learning

Enjoy learning in every situation.

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Programme Specific Outcome B.Sc Program with Botany

Botany or plant sciences play a pivotal role in our life. From climate change to meeting the daily needs of our life is all plants. The unique capability of plants to trap solar energy and provide food to all cannot be replicated by any system. Conventional studies like plant identification is now having a new application in terms of bioprospecting. The courses have been designed to benefit all Botany students to study various aspects of plant science including its practical applications. Keeping in mind the need for employability and entrepreneurship topics have been included in the curriculum.

PSO1:	Understand the basic concept of plant diversity from simple to complex from aquatic to land inhabitants. Understand the representative forms in algae, fungi, bryophytes, Pteridophytes and Gymnosperms. Application of Botany in agriculture through study of plant pathology. Paleobotany to trace the evolution of plants.
PSO2:	Understand the concepts of cell biology, genetics, anatomy, taxonomy, ecology and plant Physiology and biochemistry.
PSO3:	Current trends in Plant Sciences will enable the learner to understand the applications of Botany in various industries like medicinal botany, natural products, forestry, economic botany, genetic engineering, biotechnology, horticulture, post-harvest technologies, aesthetic botany, economic botany to hone the Entrepreneurial skills.

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Botany UG Core Course Programme Outcome

PROGRAMME OUTCOME	First Year Sem-I		First Year Sem-II		Second Year Sem-III			Second Year Sem-IV			Third Year Sem-V				Third Year Sem-VI			
	RJSUBOT101	RJSUBOT102	RJSUBOT201	RJSUBOT202	RJSUBOT301	RJSUBOT302	RJSUBOT303	RJSUBOT401	RJSUBOT402	RJSUBOT403	RJSUBOT501	RJSUBOT502	RJSUBOT503	RJSUBOT504	RJSUBOT601	RJSUBOT602	RJSUBOT603	RJSUBOT604
Core Competency	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Critical Thinking	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Analytical Reasoning	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Research Skills	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Problem Solving	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Team Work	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

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Teaching Learning Process

The teaching learning process in the learning outcomes based curriculum framework in the subject of Botany is designed to develop the cognitive skills of every learner. The course offers the requisite skills for a professions and jobs in Botany. All courses have practical's as an integral part which promotes the learner to acquire the requisite skills for employment by experiential learning.

An interesting combination of teaching learning processes is adopted in which the teacher and learners are actively involved.

Some of the salient teaching learning processes are

- Class lectures
- Presentations
- Group Discussion, workshops
- Peer teaching and learning
- Flipped classroom, project based learning, quiz, seminars, exhibitions, posters.
- Practical's experimental design planning, analysis, interpretation, application of knowledge gained, field projects, mini projects
- Technology enabled self-learning
- Internships

The effective teaching strategies would address the requirements of learner to learn at their own pace. The teaching pedagogy adopted to ensure inculcate higher order skills in the learner. The entire program is also designed to foster human values, environmental consciousness for an equable society. The teaching learning processes adopted would aim at participatory pedagogy.