

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: M.Sc. BOTANY

Program Code: RJSPGBOT

(CBCS 2020-2021)

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THE PREAMBLE

A Post graduate degree in the subject of Botany provides an opportunity for a student to explore the large wealth of the Plant Kingdom and explore the plethora of opportunities available in various fields. Plants have the unique capacity to trap the solar energy and provide food for the entire world. They provide with oxygen to every living organism and sequester carbon dioxide which is becoming a global threat in climate change. Plants can only provide solutions for mitigating natural and man made disasters. The sustainable goals can be achieved by protecting our forest and agricultural resources. Plants provide food, shelter, clothing to mankind and it's our responsibility to take care of them. A post graduate student of Botany would be able to understand the metabolomics in plants which makes them unique chemical factories to provide primary and secondary metabolites without causing any type of pollution

M.Sc Botany at Ramniranjan Jhunjhunwala College (RJC)

Our Institutions provides students to choose from two specializations viz.

1. M.Sc Plant Physiology and Biochemistry (RJSPGBOTPPB)
2. M.Sc Molecular Biology, Cytogenetics and Biotechnology (RJSPGBOTMCB)

Semester I and II offer the subjects which are prerequisites for taking up research, progression to a doctoral program and or teaching at various levels.

In Semester III students have two common papers which provide the in-depth knowledge and skills for various application while the specializations are offered in the remaining two papers.

Semester IV has been designed to provide opportunity for students to bridge the gap in industry –academic so they need to do a major project and internship.

At RJC we believe in holistic development of the student and provide them with unique campus experience.

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PROGRAM OUTCOMES OF GENERAL UNDERGRADUATE DEGREE PROGRAMS

Students of all Post graduate degree program on completion of the program will be able to

Ability to convey the concept clearly

Students would have clarity and complete domain knowledge. Shall be able to analyse solve and innovate and convey the concept clearly by utilizing effective communication skills

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. Students would perform functions that demand higher competence in national/international organizations with positive spirit and cooperate with peer. Provide leadership and be mentors.

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. Student should be aware of ethical issues and regulatory considerations while addressing society needs for growth with honesty.

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Environmental and Sustainability

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

Life Long learning and Global thinking

Enjoy learning in every situation and should have skills for adapting in any part of the world and contribute to nation building globally.

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Programme Specific Outcome M.Sc Program with Botany

Plant sciences is now an amalgamation of basic and applied science. Plants besides being the 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 being supplemented with molecular techniques like DNA Barcoding. The courses have been designed to benefit all Botany students to study various aspects of plant science including its practical applications. Keeping in mind that these students can take up teaching at different levels, research work in research institutes and or industry, doctoral work, environment impact assessment, biodiversity studies, entrepreneurship, scientific writing relevant topics have been included in the curriculum.

Students would be benefited with knowledge of core subjects like plant diversity, physiology and biochemistry, molecular cytogenetics and application of statistics etc. which are offered in these subjects Modules on analytical techniques, plant tissue culture and phytochemistry would make them obtain skills in doing research. All the courses in the programme are carefully designed to equip the students for competitive exams like CSIR NET, SET etc. and to write research proposals for grants.

Maintain a high level of scientific excellence in botanical research with specific emphasis on the role of plants. Create, select and apply appropriate techniques, resources and modern technology in multidisciplinary way. Practice of subject with

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knowledge to design experiments, analyze and interpret data to reach to an effective conclusion.

PSO1:	Understanding the classification of plants from cryptogams to Spermatophyte. Identification of the flora in field. Study of biodiversity in relation to habitat correlate with climate change, land and forest degradation. Application of Botany in agriculture through study of plant pathology. Paleobotany to trace the evolution of plants.
PSO2:	Understand the ultrastructure and function of cell membranes, cell communications, signaling, genetics, anatomy, taxonomy, ecology and plant Physiology and biochemistry. To understand the multi functionality of plant cells in production of fine chemicals. There wide spread industrial applications.
PSO3:	Molecular and Physiological adaptations in plants in response to biotic and abiotic stress. Genes responsible for stress tolerance genetic engineering of plants.

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Botany UG Core Course Programme Outcome

	PROGRAMME OUTCOMES	CORE COMPETENCY	CRITICAL THINKING	ANALYTICAL	RESEARCH SKILLS	PROBLEM SOLVING	TEAMWORK
M.Sc Semester I	RJSPGBOT101	√	√	√	√	√	√
	RJSPGBOT102	√	√	√	√	√	√
	RJSPGBOT103	√	√	√	√	√	√
	RJSPGBOT104	√	√	√	√	√	√
	RJSPGBOTP101	√	√	√	√	√	√
	RJSPGBOTP102	√	√	√	√	√	√
	RJSPGBOTP103	√	√	√	√	√	√
	RJSPGBOTP104	√	√	√	√	√	√
M.Sc Semester II	RJSPGBOT201	√	√	√	√	√	√
	RJSPGBOT202	√	√	√	√	√	√
	RJSPGBOT203	√	√	√	√	√	√
	RJSPGBOT204	√	√	√	√	√	√
	RJSPGBOTP201	√	√	√	√	√	√
	RJSPGBOTP202	√	√	√	√	√	√
	RJSPGBOTP203	√	√	√	√	√	√

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	RJSPGBOTP204	√	√	√	√	√	√
M.Sc Semester III	RJSPGBOT301	√	√	√	√	√	√
	RJSPGBOT302	√	√	√	√	√	√
	RJSPGBOT303	√	√	√	√	√	√
	RJSPGBOT304	√	√	√	√	√	√
	RJSPGBOTP301	√	√	√	√	√	√
	RJSPGBOTP302	√	√	√	√	√	√
	RJSPGBOTP303	√	√	√	√	√	√
	RJSPGBOTP304	√	√	√	√	√	√
	M.Sc Semester IV	RJSPGBOT401	√	√	√	√	√
RJSPGBOT402		√	√	√	√	√	√
RJSPGBOT403		√	√	√	√	√	√
RJSPGBOT404		√	√	√	√	√	√
RJSPGBOTP401		√	√	√	√	√	√
RJSPGBOTP402		√	√	√	√	√	√
RJSPGBOTP403		√	√	√	√	√	√
RJSPGBOTP404		√	√	√	√	√	√

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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 help students to learn the subject in greater details, analyze and apply as and when required. The course offers the requisite skills for a professions and jobs in Botany. All courses have practicals and field trips as an integral part which promotes the learner to acquire the requisite skills for employment by experiential learning. Teaching also involves guest lectures by experts drawn from research institutes of repute, industries, entrepreneurs.

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
- Major Project
- Technology enabled self-learning
- Internships of longer duration 3-6 months

The effective teaching strategies would address the requirements of learner to learn at their own pace. Self-learning is encouraged at postgraduate level emphasis is on acquiring higher order skills. 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.