MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA-8

A College with Potential for Excellence

NAAC Accredited & ISO 9001: 2015 Certified

PROGRAMME REGISTER

2020-2023

DEPARTMENT OF BOTANY

INDEX

UG PROGRAMMES OFFERED

S.No.	Programme	Combination offered	Programme Code
1	B.Sc.	Botany, Zoology, Chemistry (CBZ)	305
2	B.Sc.	Biotechnology, Botany, Chemistry (ByBC)	307

PROGRAMME OUTCOMES (POs)

2020-2023

At the end of the programme students will have:

PO1: Essential Knowledge:

Comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multidisciplinary or multi professional contexts.

PO2: Creative and critical thinking and problem solving abilities:

Be effective problem solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and communication skills:

Be able to convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivation and preparation in life-long learning:

Exhibit life-long skills; broad based multiple career oriented general skills; self and field based learning skills; digital skills; social responsibility and compassionate commitment; preparedness for living, learning and working in any environment

PO5: Professionalism and leadership readiness:

Be able to engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and ethical competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and emotional intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and take responsibility for their actions as empowered women.

PO8: Social responsibility:

Be sensitive to and demonstrate agency in matters of environment, gender and other social issues to promote an equitable society.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

2020-2023

At the end of the programme students will be able to:

PSO1: Summarize the concepts, principles, classifications, theories and mechanisms.

PSO2: Discuss hypothesis, procedures, results and draw conclusions.

PSO3: Apply tools and techniques in solving problems, sample analysis and production.

PSO4: Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility.

Course Outcomes (COs)

2020-2023

S.no.	Semester	Course code	Course Title	Course Outcomes (COs)
1.	I	20BTCCMN13	Fundamentals of Microbes & Nonvascular Plants	**CO1:** Explain the origin of life on the earth.
				CO2: Illustrate diversity among the viruses and prokaryotic organisms and can categorize them.
				CO3: Classify fungi, lichens, algae and bryophytes based on their structure, reproduction and life cycles
				CO4: Distinguish the use of biofertilizers and chemical fertilizers.
2	I	20BTP1MN12	Microbes & Non Vascular Plants – Practical	**CO1:**: Learn the techniques to use of lab equipment, preparing slides and identify the material and draw diagrams exactly as it appears
				CO2: Observe and identify microbes and lower groups of plants on their own.
				CO3: Learn the techniques of inoculation, preparation of media.
3	II	20BTCCVP23	Basics of Vascular Plants & Phytogeography	**CO1:** Classify and compare Pteridophytes and Gymnosperms based on their morphology, anatomy, reproduction and life cycles.
				CO2: Explain the process of fossilization and compare the characteristics of extinct and extant plants.
				CO3: Analyze the morphology of the most common Angiosperm plants of their localities and recognize their families.
				CO4: Evaluate the ecological,ethnic and economic value of different tracheophytes and summarize their goods and services for human welfare.
4	II	20BTP2VP22	Vascular Plants & Phytogeography – Practical	**CO1:** Compare and contrast the morphological, anatomical and reproductive features of vascular plants**.**

				CO2: Identify the local angiosperms of the families prescribed to their genus and species level and prepare herbarium.
				CO3: Exhibit skills of preparing slides, identifying the given twigs in the lab and drawing figures of plant twigs, flowers and floral diagrams as they are.
5	III	20BTCCAE33	Anatomy & Embryology of Angiosperms, Plant Ecology & Biodiversity	**CO1**: Explain the organization of tissues and tissue systems in plants.
				CO2: Illustrate and interpret various aspects of embryology.
				CO3: Outline the basic concepts of plant ecology and its interaction with both biotic and abiotic factors.
				CO4: Explain the qualitative and quantitative dynamism of population and community.
				CO5: Summarize the importance of biodiversity and conservation strategies
6	III	20BTP3AE32	Anatomy & Embryology of Angiosperms, Plant Ecology & Biodiversity – Practical	**CO1:** Handle the techniques of section making, staining and microscopic study of vegetative, anatomical and reproductive structure of plants
				CO2: Observe externally and under microscope, identify and draw exact diagrams of the lower plant material in the lab
				CO3: Demonstrate application of methods in plant ecology and conservation of biodiversity and qualitative & quantitative aspects related to population and communities of plants
7	IV	20BTCCPP43	Plant Physiology & Metabolism	**CO1:** Outline the importance of water and its transport mechanism in plants.
				CO2: Explain the role of minerals and enzymes in plant nutrition, metabolism and deficiency symptoms.
				CO3: Summarize the processes of photosynthesis and photorespiration.
				CO4: Explain the metabolism of nitrogen and lipids.
				CO5: Outline the effect of physiological factors on plant growth under normal and stress conditions.

8	IV	20BTP4PP42	Plant Physiology & Metabolism-Practical	**CO1:** Conduct lab and field experiments pertaining to Plant Physiology, that is, biophysical and biochemical processes using related glassware, equipment, chemicals and plant material.
				CO2: Estimate the quantities and qualitative expressions using experimental results and calculations
				CO3: Demonstrate the factors responsible for growth and development in plants.
9	IV	20BTCCCG43	Cell Biology, Genetics & Plant Breeding	**CO1:** Explain the organization of an eukaryotic chromosome and the structure of genetic material.
				CO2: Demonstrate techniques to observe the cell and its components under a microscope.
				CO3: Discuss the basics of Mendelian genetics, its variations and interpret inheritance of traits in living beings.
				CO4: Elucidate the role of extrachromosomal genetic material for inheritance of characters
				CO5: Evaluate the structure, function and regulation of genetic material.
10	IV	20BTP5CG42	Cell Biology, Genetics & Plant Breeding - Practical	**CO1:** Handle microscopes, identify and demonstrate the stages of Mitosis and Meiosis in elaboratory.
				CO2: Explain the cellular parts of a cell through models or pictures
				CO3: Solve the problems related to crosses and gene interactions.
				CO4: Demonstrate Plant breeding techniques such as emasculation and bagging.
11	V/VI Pair 1	20BTSEC11PP3	Plant Propagation	**CO1:** Explain various plant propagation structures and their utilization.
				CO2: Understand advantages and disadvantages of vegetative, asexual and sexual plant propagation methods.
				CO3: Assess the benefits of asexual propagation of certain economically valuable plants using apomictic and adventive polyembryony.
				CO4: Demonstrate skills related to vegetative plant propagation techniques

				such as cuttings, layering, grafting and budding.
				CO5: Apply a specific macro-propagation technique for a given plant species.
12	V/VI Pair 1	20BTP611PP2	Plant Propagation – Practical	**CO1:** Make use of different plant propagation structures for plant multiplication.
				CO2: Explore the specialized organs or asexual propagules in some plants for their proliferation
				CO3: Demonstrate skills on micropropagation of plants through vegetative propagation techniques
				CO4: Evaluate and use a suitable propagation technique for a given plant species.
13	V/VI Pair 1	20BTSEC12ST3	Seed Technology	**CO1:** Explain the causes for seed dormancy and methods to break dormancy.
				CO2: Understand critical concepts of seed processing and seed storage procedures.
				CO3: Acquire skills related to various seed testing methods.
				CO4: Identify seed borne pathogens and prescribe methods to control them.
				CO5:.Understand the legislations on seed production and procedure of seed certification.
14	V/VI Pair 1	20BTP712ST2	Seed Technology –Practical	**CO1:** Demonstrate skills on various methods to break the seed dormancy.
				CO2: Determine seed moisture, seed germination percentage, seed viability and vigour.
				CO3: Identify the seed borne pathogens and prescribe methods to prevent or control them.
				CO4: Evaluate various methods to produce healthy seeds.
15	V/VI Pair 2	20BTSEC21VC3	Vegetable Crops-Cultivation Practices	**CO1:** Identify different vegetable plants and realize their value in human nutrition.
				CO2: Analyze the types of soils to cultivate vegetable crops.
				CO3: Demonstrate skills on agronomic practices for cultivation of vegetable crops.

				CO4: Acquire knowledge on water, weed and disease management in vegetable farming.
				CO5: Comprehend aspects related to harvesting and storage of produce.
16	V/VI Pair 2	20BTP621VC2	Vegetable Crops – Cultivation Practices – Practical	**CO1:** List out, identify and handle different garden implements.
				CO2: Identify the important vegetable crops grown in their locality.
				CO3: Demonstrate various skills in cultivation of vegetable crops
				CO4: Identify pests,diseases and their remedies that are specific to vegetable crops.
17	V/VI Pair 2	20BTSEC22VP3	Vegetable Crops- Post Harvesting Practices	**CO1:** Understand various practices for vegetable produce from harvesting to marketing.
				CO2: Demonstrate skills on storage, processing and preservation of vegetables.
				CO3: Summarize causes for spoilage of vegetables before and during storage and methods to prevent and control them.
				CO4: Make use of preservation methods to reduce the loss of vegetable produce.
				CO5: Explain about value added products ,packaging and marketing of vegetables.
18	V/VI Pair 2	20BTP722VP2	Vegetable Crops – Post Harvest Practices – Practical	**CO1:**Identify stages of maturity in vegetable crops.
				CO2: Handle material for storage of vegetables.
				CO3: Identify physical and biological causes for spoilage of vegetables.
				CO4: Make some value-added products of vegetables.
19	V/ VI pair 3	20BTSEC31PT3	Plant tissue culture	**CO1:** Comprehend the basic knowledge and applications of plant tissue culture.
				CO2: Identify various facilities required to set up a plant tissue culture laboratory.
				CO3: Acquire a critical knowledge on sterilization techniques related to plant tissue culture.
				CO4: Demonstrate skills of callus culture through hands-on experience.

				CO5: Understand the biotransformation technique for production of secondary metabolites.
20	V/ VI pair 3	20BTP631PT2	Plant Tissue Culture –Practical	**CO1:** List out, identify and handle various equipment in plant tissue culture lab.
				CO2: Learn the procedures of preparation of media.
				CO3: Demonstrate skills on inoculation, establishing callus culture and Micro propagation.
				CO4: Acquire skills in observing and measuring callus growth.
				CO5: Perform some techniques related to plant transformation for secondary metabolite production.
21	V/ VI Pair 3	20BTSEC32MC3	Mushroom Cultivation	**CO1:** Understand the structure and life of a mushroom and discriminate between edible and poisonous mushrooms.
				CO2: Identify the basic infrastructure to establish a mushroom culture unit.
				CO3: Demonstrate skills in preparation of compost and spawn.
				CO4: Acquire critical knowledge on cultivation of some edible mushrooms.
				CO5: Explain the methods of storage, preparation of value-added products and marketing.
22	V/ VI Pair 3	20BTP732MC2	Mushroom Cultivation-Practical	**CO1:**. Identify and discriminate different mushrooms based on morphology.
				CO2: Understand facilities required for mushroom cultivation
				CO3: Demonstrate skills on preparation of spawn, compost and casing material.
				CO4: Exhibit skills on various cultivation practices for an edible mushroom.
23	V/ VI Pair 4	20BTSEC41GL3	Gardening & Landscaping	**CO1:** Acquire critical knowledge about the aesthetic value, types and styles of gardens.
				CO2: Perform file operations in a garden by understanding the role of a gardener.
				CO3: Identify various ornamental plants and explain the growth habits.
				CO4: Propagate garden plants through various propagation techniques.

				CO5: Demonstrate skills of designing and developing a garden.
24	V/ VI Pair 4	20BTP641GL2	Gardening & Landscaping- Practical	**CO1:** Perform various skills related to gardening.
				CO2: Identify the living and nonliving components required for garden development
				CO3: Identify the pests and diseases of garden plants and control the same
				CO4: Demonstrate skills of making bonsai and developing lawn.
				CO5: Make landscape design using CAD.
25	V/ VI Pair 4	20BTSEC42AF3	Agroforestry	**CO1:** Understand the concepts and economic value of agroforestry.
				CO2: Acquire critical knowledge on systems and design of agroforestry.
				CO3: Explain silviculture practices in relation to agroforestry.
				CO4: Understand the role of agroforestry to reclaim the waste lands.
				CO5: Perform skills in relation to tree measurement techniques.
26	V/ VI Pair 4	20BTP742AF2	Agroforestry – Practical	**CO1:** Identify suitable tree species for agroforestry and their products.
				CO2 Demonstrate skills on raising tree species from seeds and by vegetative propagation.
				CO3: Perform skills on measurements related to wood-based products
				CO4: Estimate biomass in an energy plantation.
27	I	20SDCNG2	Plant Nursery & Gardening	**CO1:** Promote skill development at individual level.
				CO2: Understand the importance of a plant nursery and basic infrastructure to establish it.
				CO3: Explain the basic material, tools and techniques required for nursery.
28	II	20SDCFV2	Preservation of Fruits & Vegetables	**CO1**: Identify various types of fruits and vegetables and explain their nutritive values.
				CO2: Understand the fragile nature of fruits and vegetables and causes for their damage.

				CO3: Evaluate various methods of preservation for fresh fruits and vegetables.
29	III	20SDCEA2	Environmental Audit	**CO1**: Outline the basic concepts of environmental health
				CO2: Explain the regulatory aspects of environmental laws and policies
				CO3: Summarize the scope and requisites of environmental audit.

Mapping of COs with PSOs and POs

S.No	Semester	Course Code	Course Title	COs	PSOs	POs
1	I	20BTCCMN13	Fundamentals of Microbes & Nonvascular Plants	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3
2	I	20BTP1MN12	Microbes & Non Vascular Plants – Practical	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3
3	II	20BTCCVP23	Basics of Vascular Plants & Phytogeography	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO4	PSO1,PSO2, PSO3	PO1, PO2, PO3
4	II	20BTP2VP22	Vascular Plants & Phytogeography – Practical	CO1	PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3
5	III	20BTCCAE33	Anatomy & Embryology of Angiosperms, Plant Ecology & Biodiversity	CO1	PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO5	PSO1, PSO2, PSO3	PO1, PO2, PO3
6	III	20BTP3AE32	Anatomy & Embryology of	CO1	PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3

			Angiosperms, Plant Ecology & Biodiversity – Practical	CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3
7	IV	20BTCCPP43	Plant Physiology & Metabolism	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO5	PSO1, PSO2, PSO3	PO1, PO2, PO3
8	IV	20BTP4PP42	Plant Physiology & Metabolism-Practical	CO1	PSO1,PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3
9	IV	20BTCCCG43	Cell Biology, Genetics & Plant Breeding	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
10	IV	20BTP5CG42	Cell Biology, Genetics & Plant Breeding-Practical	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3,	PO1, PO2, PO3,
				CO4	PSO1,PSO2,PSO3	PO1,PO2,PO3
11	V/ VI Pair 1	20BTSEC11PP3	Plant Propagation	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
12	V/ VI Pair 1	20BTP611PP2	Plant Propagation - Practical	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
				CO4	PSO1,PSO2,PSO3	PO1,PO2,PO3
13	V/VI Pair 1	20BTSEC12ST3	Seed Technology	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
14	V/VI Pair 1	20BTP712ST2	Seed Technology - Practical	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO4	PSO1,PSO2,PSO3,PSO4	PO1,PO2,PO3,PO4
15	V/VI Pair 2	20BTSEC21VC3	Vegetable Crops-Cultivation Practices	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
16	V/VI Pair 2	20BTP621VC2	Vegetable Crops-Cultivation Practices (VC) Practical	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1,PSO2,PSO3,PSO4	PO1,PO2,PO3,PO4
17	V/VI Pair 2	20BTSEC22VP3	Vegetable Crops-Post Harvesting Practices	CO1	PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO2, PSO3, PSO4	PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO5	PSO1, PSO2, PSO3	PO1, PO2, PO3,PO4
18	V/VI Pair 2	20BTP722VP2	Vegetable Crops-Post Harvesting Practices - Practical	CO1	PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO2, PSO3, PSO4	PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO2,PSO3,PSO4	PO1,PO2,PO3,PO4
19	V/ VI pair 3	20BTSEC31PT3	Plant Tissue Culture	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
20	V/ VI pair 3	20BTP631PT2	Plant Tissue Culture - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1,PSO2,PSO3	PO1,PO2,PO3,PO4
				CO5	PSO1,PSO2,PSO3	PO1,PO2,PO3
21	V/ VI Pair 3	20BTSEC32MC3	Mushroom Cultivation	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
22	V/ VI Pair 3	20BTP732MC2	Mushroom Cultivation -Practical	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1,PSO2,PSO3,PSO4	PO1,PO2,PO3,PO4
23	V/ VI Pair 4	20BTSEC41GL3	Gardening & Landscaping	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3

				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
24	V/ VI Pair 4	20BTP641GL2	Gardening & Landscaping - Practical	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO2,PSO3,PSO4	PO2,PO3,PO4
				CO5	PSO1,PSO2,PSO3	PO1,PO2,PO3
25.	V/ VI Pair 4	20BTSEC42AF3	Agroforestry	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
26	V/ VI Pair 4	20BTP742AF2	Agroforestry - Practical	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1,PSO2,PSO3	PO1,PO2,PO3
27.	I	20SDCNG2	Plant Nursery & Gardening	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3

				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
28.	II	20SDCFV2	Preservation of Fruits & Vegetables	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
29.	III	20SDCEA2	Environmental Audit	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

Mapping of Courses with PSOs

Course Title	Course Code	PSO1	PSO2	PSO3	PSO4
Fundamentals of Microbes & Nonvascular Plants	20BTCCMN13	✔	✔	✔	
Fundamentals of Microbes & Nonvascular Plants - Practical	20BTP1MN12	✔	✔	✔	
Basics of Vascular Plants & Phytogeography	20BTCCVP23	✔	✔	✔	
Basics of Vascular Plants & Phytogeography - Practical	20BTP2VP22	✔	✔	✔	
Anatomy & Embryology of Angiosperms, Plant Ecology & Biodiversity	20BTCCAE33	✔	✔	✔	
Anatomy & Embryology of Angiosperms, Plant Ecology & Biodiversity - Practical	20BTP3AE32	✔	✔	✔	
Plant Physiology & Metabolism .	20BTCCPP43	✔	✔	✔	✔
Plant Physiology & Metabolism - Practical	20BTP4PP42	✔	✔	✔	
Cell Biology, Genetics & Plant Breeding	20BTCCCG43	✔	✔	✔	✔
Cell Biology, Genetics & Plant Breeding - Practical	20BTP5CG42	✔	✔	✔	
Plant Propagation	20BTSEC11PP3	✔	✔	✔	✔
Plant Propagation - Practical	20BTP611PP2	✔	✔	✔	✔
Seed Technology	20BTSEC12ST3	✔	✔	✔	✔
Seed Technology -Practical	20BTP712ST2	✔	✔	✔	✔

Vegetable Crops- Cultivation Practices	20BTSEC21VC3	✔	✔	✔	✔
Vegetable Crops- Cultivation Practices - Practical	20BTP621VC2	✔	✔	✔	✔
Vegetable Crops- Post Harvesting Practices	20BTSEC22VP3	✔	✔	✔	✔
Vegetable Crops- Post Harvesting Practices - Practical	20BTP722VP2	✔	✔	✔	✔
Plant Tissue Culture	20BTSEC31PT3	✔	✔	✔	✔
Plant Tissue Culture - Practical	20BTP631PT2	✔	✔	✔	✔
Mushroom Cultivation	20BTSEC32MC3	✔	✔	✔	✔
Mushroom Cultivation - Practical	20BTP732MC2	✔	✔	✔	✔
Gardening & Landscaping	20BTSEC41GL3	✔	✔	✔	✔
Gardening & Landscaping - Practical	20BTP641GL2	✔	✔	✔	✔
Agroforestry	20BTSEC42AF3	✔	✔	✔	✔
Agroforestry - Practical	20BTP742AF2	✔	✔	✔	✔
Plant Nursery & Gardening	20SDCNG2	✔	✔	✔	✔
Preservation of Fruits & Vegetables	20SDCFV2	✔	✔	✔	✔
Environmental Audit	20SDCEA2	✔	✔	✔	✔

Mapping of Courses with POs

Course	PO1 Essential Knowledge	PO2 Creative and critical thinking and problem solving abilities	PO3 Teamwork and communication skills	PO4 Digital Capabilities	PO5 Professionalism and leadership readiness	PO6 Intercultural and ethical competency	PO7 Self awareness and emotional intelligence	PO8 Social Responsibility
MN	✔	✔	✔					
MN- P1	✔	✔	✔					
VP	✔	✔	✔					
VP- P2	✔	✔	✔					
AE	✔	✔	✔					
AE - P3	✔	✔	✔					
PP	✔	✔	✔					
PP - P4	✔	✔	✔					
CG	✔	✔	✔	✔				
CG - P5	✔	✔	✔					
PP	✔	✔	✔	✔				
PP- P6	✔	✔	✔	✔				
ST	✔	✔	✔	✔				

ST - P7	✔	✔	✔	✔				
VC	✔	✔	✔	✔				
VC- P6	✔	✔	✔	✔				
VP	✔	✔	✔	✔				
VP- P7	✔	✔	✔	✔				
PT	✔	✔	✔	✔				
PT- P6	✔	✔	✔	✔				
MC	✔	✔	✔	✔				
MC - P7	✔	✔	✔	✔				
GL	✔	✔	✔	✔				
GL - P6	✔	✔	✔	✔				
AF	✔	✔	✔	✔				
AF - P7	✔	✔	✔	✔				
NG	✔	✔	✔	✔				
FV	✔	✔	✔	✔				
EA	✔	✔	✔	✔				