॥ सा विद्या या विमुक्तये ॥

स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड

'ज्ञानतीर्थ', विष्णुपुरी, नांदेड – ४३१ ६०६ (महाराष्ट्र राज्य) भारत

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

'Dnyanteerth', Vishnupuri, Nanded - 431 606 (Maharashtra State) INDIA

Established on 17th September, 1994, Recognized By the UGC U/s 2(f) and 12(B), NAAC Re-accredited with'B++' grade

Fax : (02462) 215572 | **Academic-1 (BOS) Section** | website: srtmun.ac.in

Phone: (02462)215542 | E-mail: bos@srtmun.ac.in

विज्ञान व तंत्रज्ञान विद्याशाखे अंतर्गत राष्ट्रीय शैक्षणिक धोरण २०२० नुसार पदवी द्वितीय वर्षाचे अभ्यासक्रम (Syllabus) शैक्षणिक वर्ष २०२५–२६ पासून लागू करण्याबाबत.

प रि प त्र क

या परिपत्रकान्वये सर्व संबंधितांना कळविण्यात येते की, दिनांक २७ मे २०२५ रोजी संपन्न झालेल्या मा. विद्यापरिषद बैठकीतील विषय क्रमांक १६/६१–२०२५ च्या ठरावानुसार विज्ञान व तंत्रज्ञान विद्याशाखेतील राष्ट्रीय शैक्षणिक धोरण–२०२० नुसारचे पदवी द्वितीय वर्षाचे अभ्यासक्रम (Syllabus) शैक्षणिक वर्ष २०२५–२६ पासून लागू करण्यास मा. विद्यापरिषदेने मान्यता प्रदान केली आहे. त्यानुसार विज्ञान व तंत्रज्ञान विद्याशाखेतील बी. एस्सी द्वितीय वर्षाचे खालील विषयाचे अभ्यासक्रम (Syllabus) शैक्षणिक वर्ष २०२५–२६ पासून लागू करण्यात येत आहेत.

01	B.Sc. Agriculture Microbiology	11	B.Sc. Physics
02	B.Sc. Botany	12	B.Sc. Seed Technology
03	B.Sc. Dairy Science	13	B.Sc. Horticulture
04	B.Sc. Electronics	14	B.Sc. Statistics
05	B.Sc. Environmental Science	15	B.Sc. Biochemistry
06	B.Sc. Fishery Science	16	B.Sc. Analytical Chemistry
07	B.Sc. Food Science	17	B.Sc. Agrochemical & Fertilizers
08	B.Sc. Geology	18	B.Sc. Industrial Chemistry
09	B.Sc./B.A. Mathematics	19	B.Sc. Industrial Microbiology
10	B.Sc. Microbiology		

सदरील परिपत्रक व अभ्यासक्रम प्रस्तुत विद्यापीठाच्या **www.srtmun.ac.in** या संकेतस्थळावर उपलब्ध आहेत. तरी सदरील बाब ही सर्व संबंधितांच्या निदर्शनास आणून द्यावी, ही विनंती.

'ज्ञानतीर्थ' परिसर,
विष्णुपुरी, नांदेड – ४३१ ६०६.
जा.क्र.:शै–१/एनइपी/विवत्रंविपदवी/२०२५–२६/११६
दिनांक ०५.०६.२०२५

सहाय्यक कुलसचिव
शैक्षणिक (१–अभ्यासमंडळ) विभाग

प्रत : माहितीस्तव तथा कार्यवाहीस्तव.
१) मा. कुलगुरू महोदयांचे कार्यलय, प्रस्तुत विद्यापीठ.
२) मा. प्र. कुलगुरू महोदयांचे कार्यलय, प्रस्तुत विद्यापीठ.
३) मा. आधिष्ठाता, विज्ञान व तंत्रज्ञान विद्याशाखा, प्रस्तुत विद्यापीठ.
४) मा. संचालक, परीक्षा व मुंल्यमापन मंडळ, प्रस्तुत विद्यापीठ.
५) मा. प्राचार्य, सर्व संबधित संलग्नित महाविद्यालये, प्रस्तुत विद्यापीठ.
६) सिस्टीम एक्सपर्ट, शैक्षणिक विभाग, प्रस्तुत विद्यापीठ. याना देवून कळविण्यात येते की, परिपत्रक अभ्यासक्रम संकेतस्थळावर प्रसिध्द करण्यात यावेत.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED - 431 606 (MS)

(Credit Framework and Structure of Four Year UG Program with Multiple Entry and Exit Option as per NEP-2020)

UNDERGRADUATE PROGRAMME OF

SCIENCE & TECHNOLOGY

B.Sc. Second Year

HORTICULTURE

(For Affiliated Colleges)

Effective from the Academic year 2025 – 2026

(As per NEP-2020)

Framed by

BOARD OF STUDIES IN HORTICULTURE

S.R.T.M. University, Nanded - 431 606

From the Desk of the Dean, Faculty of Science and Technology

Swami Ramanand Teerth Marathwada University, Nanded, enduring to its vision statement "***Enlightened Student: A Source of Immense Power***", is trying hard consistently to enrich the quality of science education in its jurisdiction by implementing several quality initiatives. Revision and updating curriculum to meet the standard of the courses at national and international level, implementing innovative methods of teaching-learning, improvisation in the examination and evaluation processes are some of the important measures that enabled the University to achieve ***the 3Es, the equity, the efficiency*** and ***the excellence*** in higher education of this region. To overcome the difficulty of comparing the performances of the graduating students and also to provide mobility to them to join other institutions the University has adopted the cumulative grade point average (CGPA) system in the year 2014-2015. Further, following the suggestions by the UGC and looking at the better employability, entrepreneurship possibilities and to enhance the latent skills of the stakeholders the University has adopted the Choice Based Credit System (CBCS) in the year 2018-2019 at graduate and post-graduate level. This provided flexibility to the students to choose courses of their own interests. To encourage the students to opt the world-class courses offered on the online platforms like, NPTEL, SWAYM, and other MOOCS platforms the University has implemented the credit transfer policy approved by its Academic Council and also has made a provision of reimbursing registration fees of the successful students completing such courses.

SRTM University has been producing a good number of high calibre graduates; however, it is necessary to ensure that our aspiring students are able to pursue the right education. Like the engineering students, the youngsters pursuing science education need to be equipped and trained as per the requirements of the R&D institutes and industries. This would become possible only when the students undergo studies with an updated and evolving curriculum to match global scenario.

Higher education is a dynamic process and in the present era the stakeholders need to be educated and trained in view of the self-employment and self-sustaining skills like start-ups. Revision of the curriculum alone is not the measure for bringing reforms in the higher education, but invite several other initiatives. Establishing industry-institute linkages and initiating internship, on job training for the graduates in reputed industries are some of the important steps that the University would like to take in the coming time. As a result, revision of the curriculum was the need of the hour and such an opportunity was provided by the New Education Policy 2020. National Education Policy 2020 (NEP 2020) aims at equipping students with knowledge, skills, values, leadership qualities and initiates them for lifelong learning. As a result the students will acquire expertise in specialized areas of

interest, kindle their intellectual curiosity and scientific temper, and create imaginative individuals.

The curriculum given in this document has been developed following the guidelines of NEP-2020 and is crucial as well as challenging due to the reason that it is a transition from general science based to the discipline-specific-based curriculum. All the recommendations of the ***Sukanu Samiti*** given in the **NEP Curriculum Framework-2023** have been followed, keeping the disciplinary approach with rigor and depth, appropriate to the comprehension level of learners. All the Board of Studies (BoS) under the Faculty of Science and Technology of this university have put in their tremendous efforts in making this curriculum of international standard. They have taken care of maintaining logical sequencing of the subject matter with proper placement of concepts with their linkages for better understanding of the students. We take this opportunity to congratulate the Chairman(s) and all the members of various Boards of Studies for their immense contributions in preparing the revised curriculum for the benefits of the stakeholders in line with the guidelines of the **Government of Maharashtra regarding NEP-2020**. We also acknowledge the suggestions and contributions of the academic and industry experts of various disciplines.

We are sure that the adoption of the revised curriculum will be advantageous for the students to enhance their skills and employability. Introduction of the mandatory ***On Job Training, Internship program*** for science background students is praise worthy and certainly help the students to imbibe firsthand work experience, team work management. These initiatives will also help the students to inculcate the workmanship spirit and explore the possibilities of setting up of their own enterprises.

Dr. M. K. Patil
Dean
Faculty of Science and Technology

From Desk of Chairman, Board of Studies of the Subject Horticulture

PREAMBLE

The B.Sc. Horticulture semester pattern course is running in different affiliated colleges of the S.R.T.M.U. Nanded. The program is designed to encourage and support the growing demands and challenging trends in the academic environment. Our training focuses on holistic development of students to face the competitive world. The course content has been designed on NEP-2020 pattern. The program consists of Major (C), Minor (M), Generic Electives (GE), Vocational and Skill Enhancement Course (VSEC). The course content of each theory paper is divided into four units by giving appropriate titles and subtitles. For each unit, total number of periods required, weightage of maximum marks and credits are mentioned. A list of practical exercises for laboratory course work based on theory papers to be completed in the academic year is also given. A list of selected reading material and a common skeleton question paper for all the theory papers of semester-I &II are also provided at the end of the syllabus.

The programme also inculcates various attributes at the Honours level. These attributes encompass values related to emotional stability, social justice, creative and critical thinking, well-being and various skills required for employability, thus preparing students for continuous learning and sustainability. The new curriculum based on learning outcomes of BSc (Honours) Horticulture offers knowledge of areas including Plant Systematics, Plant Biotechnology, Botany, Horticulture, Genetics, Ecology, Conservation biology, Physiology and Bioinformatics, Medicinal plants, Plant diseases management etc. The courses define clearly the objectives and the learning outcomes, enabling students to choose the elective subjects broadening their skills in the field of Horticulture. The course also offers skills to pursue research and teaching in the field of Horticulture and thus would produce best minds to meet the demands of society This curriculum framework for the bachelor-level program in Horticulture is developed keeping in view of the student-centric learning pedagogy, which is entirely outcome-oriented and curiosity-driven. To avoid a rote-learning approach and foster imagination, the curriculum is more leaned towards self-discovery of concepts. The curriculum framework focuses on the pragmatist approach whereby practical application of theoretical concepts is taught with substantial coverage of practical and field works. The addition of Generic Electives, Vocational and Skill Enhancement Courses aims to develop skills in plant sciences and practical experience in the students.

OBJECTIVES OF THE B. Sc. HORTICULTURE PROGRAMME:

The Objective of this program are :

1. Understand the scope and importance of discipline.
2. Instil a love and curiosity for nature through living plants.
3. To make students open-minded and curious, we try our best to nurture and develop scientific Attitude.
4. We make students fit for society by enabling them to work hard.
5. Make the students exposed to the diverse life forms.
6. Make them skilled in practical work, experiments, laboratory equipment and to interpret correctly on biological materials and data.
7. Develop interest in Biological research.
8. Encourage students to research related topics.
9. Develop a thirst for protecting natural resources and the environment.
10. Develop the ability to use the knowledge acquired in various spheres of life to make our country self-reliant
11. Appreciate and apply ethical principles to biological science research and practice.

PROGRAM SPECIFIC OUTCOMES (PSO) OF B.Sc. HORTICULTURE:

By the end of the program the students will be able to:

PO1: Skill development for the proper description using Botanical terms, identification, naming and classification of life forms especially plants,insects and microbes.

PO2: Acquisition of knowledge on structure, life cycle and life processes that exist among plant and microbial diversity through certain model organism studies.

PO3: Understanding of various interactions that exist among plants and microbes; to develop the curiosity on the dynamicity of nature.

PO4: Understanding of the major elements of production of fruits, vegetables and flowers.

PO5: Ability to apply technology in field.

PO6: Skill development for the collection, preservation and recording of information after observation and analysis- from simple illustration to molecular database development.

PO7: Making aware of the scientific and technological advancements- Information and Communication, Biotechnology and Molecular Biology for further learning and research in all branches of Horticulture.

PO8: Internalization of the concept of conservation and evolution through the channel of spirit of inquiry.

PO9: To enable the graduates to prepare for national as well as international level competitive examinations like UGC-CSIR, UPSC etc.

PO10: To enable the students for practicing the best teaching pedagogy as a biology teacher including the latest digital modules.

PO11: The graduates should be knowledgeable and competent enough to appropriately deliver on aspects of global importance like climate change, SDGs, green technologies etc at the right opportunity.

PO12: The graduate should be able to demonstrate sufficient proficiency in the hands-on experimental techniques for their area of specialization within biology during research and in the professional career.

PO13: The program enables the students to face NET, SET, MPSC, UPSC and other competitive examinations successfully.

Dr. Parshuram Vitthalrao Pawar
Chairman,
Board of Studies in Horticulture
Swami Ramanand Teerth Marathwada University,
Nanded

Details of the Board of Studies Members in the subject Horticulture under the faculty of Science & Technology of S.R.T.M. University, Nanded

Sr No	Name of the Member	Designation	Address	Contact No.
1.	Dr. Parshuram Vitthalrao Pawar	Chairman	Madhavrao Patil, ACS College, Palam Dist. Parbhani.	9049086295
2	Dr. Sonalkumar Shamsundar Nagarkar	Member	Adarsh College, Hingoli, Tq. & Dist. Hingoli.	9657572981
3	Dr. Shankar Gopinath Yadav	Member	Shivaji Mahavidyalaya, Renapur, Dist. Latur.	9421413520
4	Dr. Shyam Laxmanrao Ingle	Member	H.J.P. college, Himayat nagar, Dist. Nanded.	9881456859
5	Dr. Shivaji Piraji Rakhonde	Member	Sant Tukaram College of Arts and Science, Parbhani	9850175189
6	Dr. Sachin Arvindrao Patil	Invitee Member	Yeshwant Mahavidyalaya, Nanded	9356596159
7	Dr. Ramesh Ganpatrao Chillawar	Invitee Member	Yeshwant Mahavidyalaya, Nanded	9527537359
8	Dr. Laxman Vankat Pimpalpalle	Invitee Member	Sanjeevani Mahavidyalaya, Chapoli, Dist. Latur	7972902439

Swami Ramanand Teerth Marathwada University, Nanded

Faculty of Science and Technology

Credit Framework for B.Sc.II Year

Multidisciplinary Degree Program with Multiple Entry and Exit

Subject: HORTICULTURE (Major) /Horticulture (Minor)

Year & Level	Semester	Major *(From the same Faculty)*	Minor 1 *(From the same Faculty)*	(Minor 2) *(From the same Faculty)*	Generic Elective (GE) (select from Basket 3 of *Faculties other than Science and Technology*)	Vocational & Skill Enhancement Course	Ability Enhancement Course (AEC) (Basket 4) Value Education Courses (VEC) / Indian Knowledge System (IKS) (Basket 5) *(Common across all faculties)*	Field Work / Project/Internship/ OJT/ Apprenticeship / Case Study Or Co-curricular Courses (CCC) (Basket 6 for CCC) *(Common across all faculties)*	Credits	Total Credits
1	2	3	4	5	6	7	8	9	10	11
2 (5.0)	III	SHORCT1201 (2cr) SHORCT1202 (2cr) SHORCP1201 (2cr) SHORCP1202 (2cr) 8 Credits	SHORMT1201 (2Cr) SHORMP1201 (2Cr) 4 Credits		SHORGE1201 (2cr)	SHORSC1201 2 Credits	ACEENG1201 (2cr) ACEMIL1201 (2Cr) 4 Credits	CCCXXX1201 (2Cr) *(NCC/NSS/SPT(sports)/ CLS(Cultural Studies)/HWS(Health Wellness)/ YGE(Yoga Education) / FIT(Fitness)* 2 Credits	22	88
	IV	SHORCT1251 (2cr) SHORCT1252 (2cr) SHORCP1251 (2cr) SHORCP1252 (2cr) 8 Credits	SHORMT1251 (2Cr) SHORMP1251 (2Cr) 4Credits		SHORGE1251 (2cr)	SHORSC1251 2 Credits	ACEENG1201 (2cr) ACEMIL1201 (2Cr) VECEVS1251 (2Cr) 6 Credits		22	
	Cum. Cr.	24	16	08	08	08	22	02	44	
***Exit option*: UG Diploma in Major HORTICULTURE and Minor HORTICULTURE on completion of 88 credits and** additional **4 credits NSQF / internship in HORTICULTURE**										

B. Sc. Second Year Semester III *(Level 5)*

Teaching Scheme

	Course Code	Course Name	Credits Assigned			Teaching Scheme (Hrs/ week)	
			Theory	Practical	Total	Theory	Practical
Major	SHORCT1201	**Vegetable Crops I**	02	--	**04**	02	--
	SHORCP1201	**Practical based on SHORCT 1201**	-	02			04
	SHORCT1202	**Ornamental and Landscape Gardening**	02	--	**04**	02	--
	SHORCP1202	**Practical based on SHORCT 1202**	-	02			04
Minor	SHORMT1201	**Vegetable Crops and Spices**	02	--	**04**	02	--
	SHORMP1201	**Practical based on SHORMT 1201**	-	02			04
Generic Electives *(from other Faculty)*	SHORGE1201	**Landscape Gardening**	02	--	**02**	02	--
Skill Based Course (related to Major)	SHORSC1201	**Propagation Methods of Horticultural Crops**	--	02	**02**	--	04
Ability Enhancement Course	AECENG1201	L1 – Compulsory English	02	--	**02**	02	--
Ability Enhancement Course	**ACEMIL1201**	**(MAR/HIN/URD /KAN/PAL)**	02	--	**02**	02	--
(NCC/NSS/SPT(sports)/ CLS(Cultural Studies)/HWS(Health Wellness)/ YGE(Yoga Education) / FIT(Fitness) **2 Credits**	**CCCXXX1201**	Select from **Basket 5**	02	--	**02**	02	--
Total Credits			**14**	**08**	**22**	**14**	**16**

B. Sc. Second Year Semester III *(Level 5)*

Examination Scheme

[20% Continuous Assessment (***CA***) and 80% End Semester Assessment (***ESA***)]

(For illustration we have considered a paper of 02 credits, 50 marks, need to be modified depending on credits assigned to individual paper)

Subject (1)	Course Code (2)	Course Name (3)	Theory				Practical		Total Col (6+7) / Col (8+9) (10)
			Continuous Assessment (CA)			ESA			
			Test I (4)	Test II (5)	Average of T1 & T2 (6)	Total (7)	CA (8)	ESA (9)	
Major	SHORCT1201	**Vegetable Crops I**	10	10	10	40	--	--	50
	SHORCP1201	**Practical based on SHORCT 1201**	--	--	--	--	20	30	50
	SHORCT1202	**Ornamental and Landscape Gardening**	10	10	10	40	--	--	50
	SHORCP1202	**Practical based on SHORCT 1202**	--	--	--	--	20	30	50
Minor	SHORMT1201	**Vegetable Crops and Spices**	10	10	10	40	--	--	50
	SHORMP1201	**Practical based on SHORMT 1201**	--	--	--	--	20	30	50
Generic Electives	SHORGE1201	**Landscape Gardening**	10	10	10	40	--	--	50
Skill Based Course	SHORSC1201	**Propagation Methods of Horticultural Crops**	--	--	--	--	20	30	50
Ability Enhancement Course	AECENG1201	L1 – Compulsory English	--	--	--	--	20	30	50
Ability Enhancement Course	ACEMIL1201	**(MAR/HIN/URD /KAN/PAL)**	--	--	--	--	20	30	50
(NCC/NSS/SPT(sports)/ CLS(Cultural Studies)/HWS(Health Wellness)/ YGE(Yoga Education) / FIT(Fitness) **2 Credits**	CCCXXX1201	Select from **Basket 5**	10	10	10	40	--	--	50

B. Sc. Second Year Semester IV *(Level 5)*

Teaching Scheme

	Course Code	Course Name	Credits Assigned			Teaching Scheme (Hrs/ week)	
			Theory	Practical	Total	Theory	Practical
Major	SHORCT1251	**Vegetable Crops II**	02	--	**04**	02	--
	SHORCP1251	**Practical based on SHORCT 1251**	-	02			04
	SHORCT1252	**Commercial Floriculture**	02	--	**04**	02	--
	SHORCP1252	**Practical based on SHORCT 1252**	-	02			04
Minor	SHORMT1251	**Ornamental Horticulture**	02	--	**04**	02	--
	SHORMP1251	**Practical based on SHORMT 1251**	-	02			04
Generic Electives *(from other Faculty)*	SHORGE1251	**Cultivation of Vegetable Crops**	02	--	**02**	02	--
Skill Based Course (related to Major)	SHORSC1251	Nursery Management	--	02	**02**	--	04
Ability Enhancement Course	AECENG1251	L1 – Compulsory English	02	--	**02**	02	--
Ability Enhancement Course	**ACEMIL1251**	**(MAR/HIN/URD /KAN/PAL)**	02	--	**02**	02	--
(NCC/NSS/SPT(sports)/ CLS(Cultural Studies)/HWS(Health Wellness)/ YGE(Yoga Education) / FIT(Fitness) **2 Credits**	**CCCXXX1251**	Select from **Basket 5**	02	--	**02**	02	--
Total Credits			**14**	**08**	**22**	**14**	**16**

B. Sc. First Year Semester IV *(Level 5)*

Examination Scheme

[20% Continuous Assessment (***CA***) and 80% End Semester Assessment (***ESA***)]

(For illustration we have considered a paper of 02 credits, 50 marks, need to be modified depending on credits assigned to individual paper)

Subject (1)	Course Code (2)	Course Name (3)	Theory				Practical		Total Col (6+7) / Col (8+9) (10)
			Continuous Assessment (CA)			ESA			
			Test I (4)	Test II (5)	Average of T1 & T2 (6)	Total (7)	CA (8)	ESA (9)	
Major	SHORCT1251	**Vegetable Crops II**	10	10	10	40	--	--	50
	SHORCP1251	**Practical based on SHORCT 1251**	--	--	--	--	20	30	50
	SHORCT1252	**Commercial Floriculture**	10	10	10	40	--	--	50
	SHORCP1252	**Practical based on SHORCT 1252**	--	--	--	--	20	30	50
Minor	SHORMT1251	**Ornamental Horticulture**	10	10	10	40	--	--	50
	SHORMP1251	**Practical based on SHORMT 1251**	--	--	--	--	20	30	50
Generic Electives	SHORGE1251	**Cultivation of Vegetable Crops**	10	10	10	40	--	--	50
Skill Based Course (related to Major)	SHORSC1251	Nursery Management	--	--	--	--	20	30	50
Ability Enhancement Course	AECENG1201	L1 – Compulsory English	--	--	--	--	20	30	50
Ability Enhancement Course	**ACEMIL1201**	**(MAR/HIN/URD /KAN/PAL)**	--	--	--	--	20	30	50
(NCC/NSS/SPT(sports)/ CLS(Cultural Studies)/HWS(Health Wellness)/ YGE(Yoga Education) / FIT(Fitness) **2 Credits**	**CCCXXX1201**	Select from **Basket 5**	10	10	10	40	--	--	50

Syllabus for B. Sc. HORTICULTURE, Second Year

Semester – III

As Per National Education Policy- 2020

To be Implemented from

Academic Year 2025-2026

National Education Policy 2020

B.Sc. HORTICULTURE, II Year (Semester - III)

Major Core Theory Course

Course Code – SHORCT1201

Title of the Course: Vegetable Crops I

[No. of Credits: 2 Credit] **[Total:30 Hours]**

Course pre-requisite:

1. The course is offered for a student registered for undergraduate second year Programme in the Faculty of Science and Technology who had primary training in the field of plant sciences at undergraduate second year level, for entry level core courses in HORTICULTURE as Major subject.
2. The students should have basic knowledge of plant science.

Course objectives:

1. To study and impart knowledge about the occurrence, distribution and morphology of flowering plants.
2. To study the planting, propagation, training and pruning of vegetable crops
3. To study the fertilizer, irrigation and climatic requirements of vegetable crops.
4. To study the disease and pest management practices.

Course outcomes:

1. The students understand the morphology, classification, and growth of vegetable crops.
2. The students would know the growth and management of vegetable cultivation.
3. The students learn the importance, necessity and measures to overcome malnutrition.

CURRICULUMDETAILS: SHORCT 1201: Vegetable Crops I

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**General Account of Vegetable Crops**	**07**
	1.1	Introduction, Importance and scope of Olericulture	
	1.2	Nutritive value of vegetables	
	1.3	Classification of vegetables	
	1.4	Types of vegetable gardening	
2.0		**SOLANACEOUS VEGETABLE CROPS**	**08**
	Origin, history, distribution, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation, intercropping, harvesting and yield disease and pests of fruit vegetable crops mentioned below		
	2.1	Tomato	
	2.2	Brinjal	
	2.3	Chilli	
3.0	**CUCURBITACEOUS VEGETABLE CROPS**		**08**

	Origin, history, distribution, area and production, uses and composition, varities, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation, intercropping, harvesting and yield disease and pests of vegetable crops mentioned below		
	3.1	Bitter gourd	
	3.2	Ridge gourd	
	3.3	Cucumber	
4.0	**LEGUMINOUS VEGETABLE CROPS**		
	Origin, history, distribution, area and production, uses and composition, varities, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation, intercropping, harvesting and yield disease and pests of vegetable crops mentioned below		**07**
	4.1	Cluster bean	
	4.2	Garden pea	
	4.3	Methi (Fenugreek)	
		Total	**30**

Text Books and Reference Books:

1. Shanmugavelu, K. G. (1989) Production Technology of Vegetable Crops Oxford and IBH, New Delhi.
2. Chauhan, D.V.S. (1989) Vegetable Production in India Ram Prasad and Sons, Agra.
3. Bose, T. K. and Som (1986) Vegetable Production in India Naya Prokash, Calcutta 6
4. Singh, D. P. (1989) Production Technology of Vegetable Crops ARCC Sardar, Kanal ARCC Sardar, Kanal
5. Thompson, H. C. and W. C. Kelley (1957) Vegetable Crops McGraw Hill, New York.

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B.Sc. HORTICULTURE, II Year (Semester - III)

Major Core Theory Course

Course Code – SHORCT1202

Title of the Course: Ornamental and Landscape Gardening

[No. of Credits: 2 Credit] **[Total:30Hours]**

Course pre-requisite:

1. The course is offered for a student registered for second year undergraduate programme in the Faculty of Science and Technology who had primary training in the field of plant sciences at undergraduate second year for entry level core courses in HORTICULTURE as Major subject.
2. The students should have basic knowledge of plant science.

Course objectives:

1. To know about the aesthetic value of plants in our surroundings
2. To study in detail the planning and layout of Gardens.
3. To acquire knowledge of landscape architechture.

Course outcomes:

1. Students understand the principles of Landscape gardening.
2. The students understand uses and utilization of plants and land.
3. Students acquire knowledge of plantations at different locations viz, instititutions, roads, canals, highways etc.

URRICULUMDETAILS: SHORCT 1202: Ornamental and Landscape Gardening

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**PRINCIPLES OF LANDSCAPE GARDENING**	**07**
	1.1	Introduction, Importance and scope of landscape gardening	
	1.2	History of landscape gardening	
	1.3	Art principles	
	1.4	Some important terms of landscape gardening, Garden adornments	
2.0		**GARDEN FEATURES –I**	**08**
	2.1	Walls, Fencing and Steps	
	2.2	Garden, Hedges, Garden drives and paths	
	2.3	Edges, Arches and Pergola	
	2.4	Lawn	
3.0		**GARDEN FEATURES –II**	**08**
	3.1	Carpet bedding and Flower beds	

	3.2	Shrubbery and Borders	
	3.3	Rockery and Water gardens	
	3.4	Bonsai and Topiary	
4.0		**GARDENS TYPES AND STYLES**	
	4.1	Formal gardens	**07**
	4.2	Informal gardens	
	4.3	Freestyle gardens	
		Total	**30**

Text Books and Reference Books:

1. Gopalswamy Iyenger, K. S. (1970) Complete Gardening in India G. Kasturi Rangan, Banglore 18
2. Bose, T. K. and L. P. Yadav (1986) Commercial flowers Naya Prokash, Calcutta 6
3. Desai, B. L. (1969) Planning and Planting Designs of Home Gardens ICAR, New Delhi.
4. Mukhopadhya, A. (1987) Floriculture in India Lyal Book Depot, Ludhiana
5. Vishnuswarup (1972) Garden Flowers National book trust India
6. Desai, L. (1969) Seasonal Flowers ICAR, New Delhi
7. Bose, T. K. and Mukherjee (1976) Garden Plants Naya Prokash, Calcutta 6
8. Pal, B. P. (1972) Rose in India ICAR, New Delhi.
9. Simoou, John, Crmbee (1961) Landscape Architecture McGraw Hill, New York

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B.Sc. HORTICULTURE, II Year (Semester - III)

Major Practical Course

Course Code – SHORCP 1201

Title of the Course: Practical based on SHORCT 1201

[No. of Credits: 2 Credit] **[Total:60 Hours]**

Course pre-requisite:

1. The course is offered for a student registered for undergraduate second year Programme in the Faculty of Science and Technology who had primary training in the field of plant sciences at undergraduate second year level, for entry level core courses in HORTICULTURE as Major subject.
2. The students should have basic knowledge of plant science.

Course objectives:

1. To study and impart knowledge about the occurrence, distribution and morphology of flowering plants.
2. To study the planting, propagation, training and pruning of vegetable crops
3. To study the fertilizer, irrigation and climatic requirements of vegetable crops.
4. To study the disease and pest management practices.

Course outcomes:

1. The students understand the morphology, classification, and growth of vegetable crops.
2. The students would know the growth and management of vegetable cultivation.
3. The students learn the importance, necessity and measures to overcome malnutrition.

CURRICULUMDETAILS: SHORCP 1201: Practical based on SHORCT 1201

Sr. No	Practical Exercises	Hrs. Required to cover the contents
1.	Identification of vegetable crops	4
2.	Classification of vegetable crops	4
3.	Preparation of nursery beds for raising the seedlings of vegetable	4
4.	Transplantation of vegetable crops	4
5.	Pre sowing seed treatments in vegetable crops (cold water/ hot water/acid/ chilling)	4
6.	Intercultural operations in vegetable crops (mulching, harrowing and weed control)	4
7.	Study of manures and fertilizers application in vegetable crops	4
8.	Study of sprinkler irrigation method in vegetable crops	4
9.	Study of drip irrigation method in vegetable crops	4
10.	Study of furrow irrigation method in vegetable crops	4
11.	Preparation of vegetables for marketing (cleaning, trimming, washing, sorting, grading , stocking and bundling)	4

12.	Preparation of leafy vegetables for marketing (cleaning, trimming, washing, sorting, grading , stocking and bundling)	4
13.	Preparation of seed herbaria of vegetable crops	4
14.	Visit of local vegetable market	4
15.	visit to commercial vegetable garden	4
	Total	**60**

Text Books and Reference Books:

1. Shanmugavelu, K. G. (1989) Production Technology of Vegetable Crops Oxford and IBH, New Delhi.
2. Chauhan, D.V.S. (1989) Vegetable Production in India Ram Prasad and Sons, Agra.
3. Bose, T. K. and Som (1986) Vegetable Production in India Naya Prokash, Calcutta 6
4. Singh, D. P. (1989) Production Technology of Vegetable Crops ARCC Sardar, Kanal ARCC Sardar, Kanal
5. Thompson, H. C. and W. C. Kelley (1957) Vegetable Crops McGraw Hill, New York.

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B.Sc. HORTICULTURE, II Year (Semester - III)

Major Practical Course

Course Code – SHORCP1202

Title of the Course: Practical based on SHORCT 1202

[No. of Credits: 2 Credit] **[Total:60 Hours]**

Course pre-requisite:

1. The course is offered for a student registered for second year undergraduate programme in the Faculty of Science and Technology who had primary training in the field of plant sciences at undergraduate second year for entry level core courses in HORTICULTURE as Major subject.
2. The students should have basic knowledge of plant science.

Course objectives:

1. To know about the aesthetic value of plants in our surroundings
2. To study in detail the planning and layout of Gardens.
3. To acquire knowledge of landscape architechture.

Course outcomes:

1. Students understand the principles of Landscape gardening.
2. The students understand uses and utilization of plants and land.
3. Students acquire knowledge of plantations at different locations viz, instititutions, roads, canals, highways etc.

CURRICULUMDETAILS: SHORCP 1202: Practical based on SHORCT 1202

Sr. No	Practical Exercises	Hrs. Required to cover the contents
1.	Identification of ornamental plants	4
2.	Preparation of nursery beds for raising the seedlings of ornamental plants	4
3.	Transplantation of ornamental crops	4
4.	Study of methods of planting lawn	4
5.	Study of maintenance of lawn	4
6.	Study of Planting of hedges and edges	4
7.	Study of pruning and training of ornamental crops	4
8.	Study of special horticultural practices (pinching/stopping, disbudding, deshooting)	4
9.	Landscaping for highways	4
10.	Layout of formal gardens	4
11.	Layout of informal gardens	4
12.	Study of flower arrangements	4
13.	Preparation of media for extending vase life of flowers	4

14.	Study of preparation of herbaria of ornamental crops	4
15.	Visit to flower market and green house	4
	Total	**60**

Text Books and Reference Books:

1. Gopalswamy Iyenger, K. S. (1970) Complete Gardening in India G. Kasturi Rangan, Banglore 18
2. Bose, T. K. and L. P. Yadav (1986) Commercial flowers Naya Prokash, Calcutta 6
3. Desai, B. L. (1969) Planning and Planting Designs of Home Gardens ICAR, New Delhi.
4. Mukhopadhya, A. (1987) Floriculture in India Lyal Book Depot, Ludhiana
5. Vishnuswarup (1972) Garden Flowers National book trust India
6. Desai, L. (1969) Seasonal Flowers ICAR, New Delhi
7. Bose, T. K. and Mukherjee (1976) Garden Plants Naya Prokash, Calcutta 6
8. Pal, B. P. (1972) Rose in India ICAR, New Delhi.
9. Simoou, John, Crmbee (1961) Landscape Architecture McGraw Hill, New York

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B.Sc. HORTICULTURE, II Year (Semester - III)

Minor Theory Course

Course Code – SHORMT1201

Title of the Course: Vegetable Crops and Spices

[No. of Credits: 2 Credit] **[Total:30Hours]**

Course pre-requisite:

1. The course is offered for a student registered for undergraduate second year Programme in the Faculty of Science and Technology who had primary training in the field of plant sciences at undergraduate second year level, for entry level core courses in HORTICULTURE as Minor subject.
2. The students should have basic knowledge of plant science.

Course objectives:

1. To study and impart knowledge about the occurrence, distribution and morphology of flowering plants.
2. To study the planting, propagation, training and pruning of vegetable crops
3. To study the fertilizer, irrigation and climatic requirements of vegetable crops.
4. To study the disease and pest management practices.

Course outcomes:

1. The students understand the morphology, classification, and growth of vegetable crops.
2. The students would know the growth and management of vegetable cultivation.
3. The students learn the importance, necessity and measures to overcome malnutrition.

CURRICULUMDETAILS: SHORMT1201: Vegetable Crops and Spices

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**General Account of Vegetable Crops**	**07**
	1.1	Importance and scope of Olericulture	
	1.2	Nutritive value of vegetables	
	1.3	Classification of vegetables	
	1.4	Types of vegetable gardening	
2.0		**SOLANACEOUS VEGETABLE CROPS**	**08**
	Origin, history, distribution, area and production, uses and composition, varities, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation, intercropping, harvesting and yield disease and pests of fruit vegetable crops mentioned below		
	2.1	Potato	
	2.2	Brinjal	
	2.3	Tomato	
3.0	**CUCURBITACEOUS VEGETABLE CROPS**		**08**

	Origin, history, distribution, area and production, uses and composition, varities, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation, intercropping, harvesting and yield disease and pests of vegetable crops mentioned below		
	3.1	Watermelon	
	3.2	Pumpkin	
	3.3	Musk Melon	
4.0	**LEGUMINOUS VEGETABLE CROPS**		
	Origin, history, distribution, area and production, uses and composition, varities, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation, intercropping, harvesting and yield disease and pests of vegetable crops mentioned below		**07**
	4.1	Rajma bean	
	4.2	Garden pea	
	4.3	Methi (Fenugreek)	
		Total	**30**

TextBooks and References Books:

1. Shanmugavelu, K. G. (1989) Production Technology of Vegetable Crops Oxford and IBH, New Delhi.
2. Chauhan, D.V.S. (1989) Vegetable Production in India Ram Prasad and Sons, Agra.
3. Bose, T. K. and Som (1986) Vegetable Production in India Naya Prokash, Calcutta 6
4. Singh, D. P. (1989) Production Technology of Vegetable Crops ARCC Sardar, Kanal ARCC Sardar, Kanal
5. Thompson, H. C. and W. C. Kelley (1957) Vegetable Crops McGraw Hill, New York.

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B.Sc. HORTICULTURE, II Year (Semester - III)

Minor Practical Course

Course Code – SHORMP1201

Title of the Course: Practical based on SHORMT 1201

[No. of Credits: 2 Credit] **[Total:60 Hours]**

Course pre-requisite:

1. The course is offered for a student registered for undergraduate second year Programme in the Faculty of Science and Technology who had primary training in the field of plant sciences at undergraduate second year level, for entry level core courses in HORTICULTURE as Minor subject.
2. The students should have basic knowledge of plant science.

Course objectives:

1. To study and impart knowledge about the occurrence, distribution and morphology of flowering plants.
2. To study the planting, propagation, training and pruning of vegetable crops
3. To study the fertilizer, irrigation and climatic requirements of vegetable crops.
4. To study the disease and pest management practices.

Course outcomes:

1. The students understand the morphology, classification, and growth of vegetable crops.
2. The students would know the growth and management of vegetable cultivation.
3. The students learn the importance, necessity and measures to overcome malnutrition.

CURRICULUMDETAILS: SHORMP 1201: Practical based on SHORMT 1201

Sr. No	Practical Exercises	Hrs. Required to cover the contents
1.	Identification of vegetable crops	4
2.	Classification of vegetable crops	4
3.	Preparation of nursery beds for raising the seedlings of vegetable	4
4.	Transplantation of vegetable crops	4
5.	Pre sowing seed treatments in vegetable crops (cold water/ hot water/acid/ chilling)	4
6.	Intercultural operations in vegetable crops	4
7.	Study of manures and fertilizers application in vegetable crops	4
8.	Study of sprinkler irrigation method in vegetable crops	4
9.	Study of drip irrigation method in vegetable crops	4
10.	Study of furrow irrigation method in vegetable crops	4
11.	Preparation of vegetables for marketing (cleaning, trimming, washing, sorting, grading , stocking and bundling)	4
12.	Preparation of leafy vegetables for marketing (cleaning, trimming, washing, sorting, grading , stocking and bundling)	4

13.	Preparation of seed herbaria of vegetable crops	4
14.	Visit of local vegetable market	4
15.	visit to commercial vegetable garden	4
	Total	**60**

Text Books and Reference Books:

1. Gopalswamy Iyenger, K. S. (1970) Complete Gardening in India G. Kasturi Rangan, Banglore 18
2. Bose, T. K. and L. P. Yadav (1986) Commercial flowers Naya Prokash, Calcutta 6
3. Desai, B. L. (1969) Planning and Planting Designs of Home Gardens ICAR, New Delhi.
4. Mukhopadhya, A. (1987) Floriculture in India Lyal Book Depot, Ludhiana
5. Vishnuswarup (1972) Garden Flowers National book trust India
6. Desai, L. (1969) Seasonal Flowers ICAR, New Delhi
7. Bose, T. K. and Mukherjee (1976) Garden Plants Naya Prokash, Calcutta 6
8. Pal, B. P. (1972) Rose in India ICAR, New Delhi.
9. Simoou, John, Crmbee (1961) Landscape Architecture McGraw Hill, New York

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B.Sc. HORTICULTURE, II Year (Semester - III)

Generic Elective Course

Course Code – SHORGE 1201

Title of the Course: Landscape Gardening

[No. of Credits: 2 Credit] **[Total:30 Hours]**

Course pre-requisite:

The course is offered for a student registered for second year undergraduate programme in the Faculty of Science and Technology who had primary training in the field of plant sciences at undergraduate second year for entry level core courses in Horticulture as Generic Elective Course subject.

1. The students should have basic knowledge of plant science.

Course objectives:

1. To know about the aesthetic value of plants in our surroundings
2. To study in detail the planning and layout of Gardens.
3. To acquire knowledge of landscape architecture.

Course outcomes:

1. Students understand the principles of Landscape gardening.
2. The students understand uses and utilization of plants and land.
3. Students acquire knowledge of plantations at different locations viz, instititutions, roads, canals, highways etc.

CURRICULUMDETAILS: SHORGE 1201: Landscape Gardening

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**BASIC OF LANDSCAPE GARDENING**	**07**
	1.1	Importance and scope of landscape gardening	
	1.2	Development and History of landscape gardening	
	1.3	Landscape Art principles	
	1.4	Garden adornments	
2.0		**LANDSCAPE FEATURES –I**	**08**
	2.1	Walls, Fencing and Steps	
	2.2	Hedges, Garden drives and paths	
	2.3	Arches and Pergola	
	2.4	Lawn	
3.0		**LANDSCAPE FEATURES –II**	**08**
	3.1	Carpet bedding and Flower beds	

	3.2	Landscape for highways	
	3.3	Landscape for institutions	
	3.4	Bonsai and Topiary	
4.0		**GARDENS TYPES AND STYLES**	
	4.1	Formal gardens	**07**
	4.2	Informal gardens	
		Total	**30**

Text Books and Reference Books:

1. Gopalswamy Iyenger, K. S. (1970) Complete Gardening in India G. Kasturi Rangan, Banglore 18
2. Bose, T. K. and L. P. Yadav (1986) Commercial flowers Naya Prokash, Calcutta 6
3. Desai, B. L. (1969) Planning and Planting Designs of Home Gardens ICAR, New Delhi.
4. Mukhopadhya, A. (1987) Floriculture in India Lyal Book Depot, Ludhiana
5. Vishnuswarup (1972) Garden Flowers National book trust India
6. Desai, L. (1969) Seasonal Flowers ICAR, New Delhi
7. Bose, T. K. and Mukherjee (1976) Garden Plants Naya Prokash, Calcutta 6
8. Pal, B. P. (1972) Rose in India ICAR, New Delhi.
9. Simoou, John, Crmbee (1961) Landscape Architecture McGraw Hill, New York

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B.Sc. HORTICULTURE, II Year (Semester - III)

Skill Enhancement Course

Course Code – SHORSC1201

Title of the Course: Propagation Methods of Horticultural Crops

[No. of Credits: 2 Credit] **[Total:60 Hours]**

Course pre-requisite:

1. The course is offered for a student registered for undergraduate second year programme in the Faculty of Science and Technology who had primary training in the field of plant sciences at undergraduate second year level for entry level core courses in HORTICULTURE as Skill Enhancement Course.
2. The students should have basic knowledge of plant growth and multiplication.

Course objectives:

1. To inculcate concepts of Propagation.
2. To understand techniques in vegetative propagation.
3. To increase employability of the students.
4. To improve the mortality rate in nursery plant propagtion.

Course outcomes:

1. Understanding the role of true to type seedlings.
2. Understanding the potential of propagation techniques for establishment of commercial farm,plots and orchards
3. Role of propagation in maintaing diversity and uniformity at field.

CURRICULUMDETAILS: SHORSC 1201: Propagation Methods of Horticultural Crops

Sr. No	Practical Exercises	Hrs. Required to cover the contents
1.	Introduction of propagation of plants	4
2.	Study of seed treatments by Hot and Cold Water	4
3.	Study of seed treatments by application of fungicides and insecticides	
4.	Study of Preparation of low nursery beds	4
5.	Study of raising of seedlings	4
6.	Study of Propagation media in Horticultural Crops	4
7.	Study of grafting : veneer grafting and side grafting	4
8.	Study of Budding : Patch budding	4
9.	Study of Budding: Shield budding	4
10.	Study of cuttings : Softwood cutting and Hardwood cutting	4
11.	Study of air layering	4
12.	Study of ground and mound layering	4
13.	Study of application of plant growth regulators in horticultural crops	4

14.	Study of After care in Nursery	4
15.	Visit to commercial nursery.	4
	Total	**60**

Text Books and Reference Books:

1. Arun kumar, Abhinav kumar (2023) Plant Propagation and Nursery Management, S. K. Kataria and Sons, New Delhi.
2. Sharma R. R. (2022) Propagation of Horticultural Crops, Kalyani Publications, New Delhi.
3. Jitendra Singh (2018). Fundamentals of Horticulture, Kalyani Publications, New Delhi
4. N. Kumar (2021). Introduction to Horticulture, MedTech Science Press, New Delhi.
5. Prashant Bakshi, Kiran Kaur, Amit Jasrotia (2024) Fundamentals of Horticulture – Principles and Practices, Narendra Publication House, Delhi
6. S. N. Gupta (2023). Instatnt Horticulture, Jain brothers Publication, Bhopal, (MP)
7. Singh, Yumanm Somi (2017) A textbook of Horticulture, Biotech Publishers, Delhi.

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B.Sc. HORTICULTURE, II Year (Semester - IV)

Major Core Theory Course

Course Code – SHORCT1251

Title of the Course: Vegetables Crops II

[No. of Credits: 2 Credit] **[Total:30Hours]**

Course pre-requisite:

1. The course is offered for a student registered for undergraduate second year Programme in the Faculty of Science and Technology who had primary training in the field of plant sciences at undergraduate second year level, for entry level core courses in HORTICULTURE as Major subject.
2. The students should have basic knowledge of plant science.

Course objectives:

1. To study and impart knowledge about the occurrence, distribution and morphology of flowering plants.
2. To study the planting, propagation, training and pruning of vegetable crops
3. To study the fertilizer, irrigation and climatic requirements of vegetable crops.
4. To study the disease and pest management practices.

Course outcomes:

1. The students understand the morphology, classification, and growth of vegetable crops.
2. The students would know the growth and management of vegetable cultivation.

The students learn the importance, necessity and measures to overcome malnutrition

CURRICULUMDETAILS: SHORCT 1251: Vegetables Crops II

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**CRUCIFEROUS VEGETABLE CROPS**	**07**
		Origin, history, distribution, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation, intercropping, harvesting and yield disease and pests of vegetable crops mentioned below	
	1.1	Cabbage	
	1.2	Cauliflower	
	1.3	Radish	
2.0		**MALVACEOUS AND CHENOPODIACEOUS VEGETABLE CROPS**	**08**
		Origin, history, distribution, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation, intercropping, harvesting and yield disease and pests of vegetable crops mentioned	

		below	
	2.1	Okra (Bhendi)	
	2.2	Indian spinach	
	2.3	Beet root	
3.0		**APIACEOUS AND MORINGACEOUS VEGETABLE CROPS**	
		Origin, history, distribution, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation, intercropping, harvesting and yield disease and pests of vegetable crops mentioned below	**07**
	3.1	Carrot	
	3.2	Anethum (Shepu)	
	3.3	Drumstick	
4.0		**AMARYLLIDACEOUS, AMERANTACEOUS AND CONVOLVULACEOUS VEGETABLE CROPS**	
		Origin, history, distribution, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation, intercropping, harvesting and yield disease and pests of vegetable crops mentioned below	**08**
	4.1	Onion	
	4.2	Tandulja	
	4.3	Sweet potato	
		Total	**30**

TextBooks and References Books:

1. Shanmugavelu, K. G. (1989) Production Technology of Vegetable Crops Oxford and IBH, New Delhi.
2. Chauhan, D.V.S. (1989) Vegetable Production in India Ram Prasad and Sons, Agra.
3. Bose, T. K. and Som (1986) Vegetable Production in India Naya Prokash, Calcutta 6
4. Singh, D. P. (1989) Production Technology of Vegetable Crops ARCC Sardar, Kanal ARCC Sardar, Kanal
5. Thompson, H. C. and W. C. Kelley (1957) Vegetable Crops McGraw Hill, New York.

B.Sc. HORTICULTURE, II Year (Semester - IV)

Major Core Theory Course

Course Code – SHORCT1252

Title of the Course: Commercial Floriculture

[No. of Credits: 2 Credit] **[Total:30Hours]**

Course pre-requisite:

The course is offered for a student registered for second year undergraduate programme in the Faculty of Science and Technology who had primary training in the field of plant sciences at undergraduate second year for entry level core courses in Horticulture as Major Course subject.

1. The students should have basic knowledge of plant science.

Course objectives:

1. To know about the aesthetic value of plants in our surroundings
2. To study in detail the flower production.
3. To acquire knowledge of commercial flower production.

Course outcomes:

1. Students understand the principles of demand of flowers in society.
2. The students understand Economics of flower industry.
3. Students acquire knowledge of shelf life, marketing and technical production of flowers.

CURRICULUMDETAILS: SHORCT 1252: Commercial Floriculture

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**CULTIVATION PRACTICES – I**	
		Origin, history, area, production, economic importance, soil and climate, varieties, propagation, nursery raising, transplanting, manuring, irrigation, after care, plant protection, use of growth regulators, special horticultural practices, harvesting, post harvest handling, grading, packing, storage, transportation and marketing of following flowering plants	**07**
	1.1	Rose	
	1.2	Jasmine	
	1.3	Tuberose	
2.0		**CULTIVATION PRACTICES – II**	
		Origin, history, area, production, economic importance, soil and climate, varieties, propagation, nursery raising, transplanting, manuring, irrigation, after care, plant protection, use of growth regulators, special horticultural practices, harvesting, post harvest handling, grading, packing, storage, transportation and marketing of following flowering plants	**08**
	2.1	Gladiolus	

	2.2	Carnation	
	2.3	Orchids	
3.0		**CULTIVATION PRACTICES – III**	
		Origin, history, area, production, economic importance, soil and climate, varieties, propagation, nursery raising, transplanting, manuring, irrigation, after care, plant protection, use of growth regulators, special horticultural practices, harvesting, post harvest handling, grading, packing, storage, transportation and marketing of following flowering plants	**07**
	3.1	Chrysanthemum	
	3.2	Aster	
	3.3	Marigold	
4.0		**CULTIVATION PRACTICES – IV**	
		Origin, history, area, production, economic importance, soil and climate, varieties, propagation, nursery raising, transplanting, manuring, irrigation, after care, plant protection, use of growth regulators, special horticultural practices, harvesting, post harvest handling, grading, packing, storage, transportation and marketing of following flowering plants	**08**
	4.1	. Gaillardia	
	4.2	Gerbera	
	4.3	Dahlia	
		Total	**30**

Reference and Text Books:

1. Gopalswamy Iyenger, K. S. (1970) Complete Gardening in India G. Kasturi Rangan, Banglore 18
2. Bose, T. K. and L. P. Yadav (1986) Commercial flowers Naya Prokash, Calcutta 6
3. Desai, B. L. (1969) Planning and Planting Designs of Home Gardens ICAR, New Delhi.
4. Mukhopadhya, A. (1987) Floriculture in India Lyal Book Depot, Ludhiana
5. Vishnuswarup (1972) Garden Flowers National book trust India
6. Desai, L. (1969) Seasonal Flowers ICAR, New Delhi
7. Bose, T. K. and Mukherjee (1976) Garden Plants Naya Prokash, Calcutta 6
8. Pal, B. P. (1972) Rose in India ICAR, New Delhi.
9. Simoou, John, Crmbee (1961) Landscape Architecture McGraw Hill, New York

National Education Policy 2020

B.Sc. HORTICULTURE, II Year (Semester - IV)

Major Practical Course

Course Code – SHORCP1251

Title of the Course: Practical based on SHORCT 1251

[No. of Credits: 2 Credit] **[Total:60 Hours]**

Course pre-requisite:

1. The course is offered for a student registered for undergraduate second year Programme in the Faculty of Science and Technology who had primary training in the field of plant sciences at undergraduate second year level, for entry level core courses in HORTICULTURE as Major subject.
2. The students should have basic knowledge of plant science.

Course objectives:

1. To study and impart knowledge about the occurrence, distribution and morphology of flowering plants.
2. To study the planting, propagation, training and pruning of vegetable crops
3. To study the fertilizer, irrigation and climatic requirements of vegetable crops.
4. To study the disease and pest management practices.

Course outcomes:

1. The students understand the morphology, classification, and growth of vegetable crops.
2. The students would know the growth and management of vegetable cultivation.
   The students learn the importance, necessity and measures to overcome malnutrition

CURRICULUMDETAILS: SHORCP 1251: Practical based on SHORCT 1251

Sr. No	Practical Exercises	Hrs. Required to cover the contents
1.	Identification of vegetable crops	4
2.	Classification of vegetable crops	4
3.	Preparation of nursery beds for raising the seedlings of vegetable crops	4
4.	Transplantation of vegetable crops	4
5.	Pre sowing seed treatments in vegetable crops (cold water and hot water)	4
6.	Pre sowing seed treatments in vegetable crops (acid and chilling)	4
7.	Intercultural operations in vegetable crops	4
8.	Study of manures and fertilizers application in vegetable crops	4
9.	Study of drip irrigation method in vegetable crops	4
10.	Study of furrow and sprinkler irrigation methods in vegetable crops	4
11.	Preparation of vegetables for marketing (cleaning, trimming, washing, sorting,	4

	grading , stocking and bundling)	
12.	Preparation of herbaria of vegetable crops	4
13.	Preparation of seed herbaria of vegetable crops	4
14.	Visit of local vegetable market	4
15.	Visit to commercial vegetable garden	4
	Total	**60**

Text Books and Reference Books:

1. Shanmugavelu, K. G. (1989) Production Technology of Vegetable Crops Oxford and IBH, New Delhi.
2. Chauhan, D.V.S. (1989) Vegetable Production in India Ram Prasad and Sons, Agra.
3. Bose, T. K. and Som (1986) Vegetable Production in India Naya Prokash, Calcutta 6
4. Singh, D. P. (1989) Production Technology of Vegetable Crops ARCC Sardar, Kanal ARCC Sardar, Kanal
5. Thompson, H. C. and W. C. Kelley (1957) Vegetable Crops McGraw Hill, New York.

National Education Policy 2020

B.Sc. HORTICULTURE, II Year (Semester - IV)

Major Practical Course

Course Code – SHORCP1252

Title of the Course: Practical based on SHORCT 1252

[No. of Credits: 2 Credit] **[Total:60 Hours]**

Course pre-requisite:

The course is offered for a student registered for second year undergraduate programme in the Faculty of Science and Technology who had primary training in the field of plant sciences at undergraduate second year for entry level core courses in Horticulture as Major Course subject.

1. The students should have basic knowledge of plant science.

Course objectives:

1. To know about the aesthetic value of plants in our surroundings
2. To study in detail the flower production.
3. To acquire knowledge of commercial flower production.

Course outcomes:

1. Students understand the principles of demand of flowers in society.
2. The students understand Economics of flower industry.
3. Students acquire knowledge of shelf life, marketing and technical production of flowers.

CURRICULUMDETAILS: SHORCP 1252: Practical based on SHORCT 1252

Sr. No	Practical Exercises	Hrs. Required to cover the contents
1.	Identification of flower crop plants.	4
2.	Preparation of nursery beds for raising the seedlings of flower crop plants	4
3.	**T**ransplantation of flower crops	4
4.	Study of special horticultural practices : (pinching and stopping,)	4
5.	Study of special horticultural practices : (disbudding and deshooting)	4
6.	Preparation of media for extending vase life of flowers	4
7.	Study of drip irrigation in flower crop plants	4
8.	Study of furrow and sprinkler irrigation in flower crop plants	4
9.	Study of use of plant growth regulators in flower crop plants	4
10.	Study of application of manures and fertilizers in flower crop plants	4
11.	Study of preparation of herbaria of flower crops	4
12.	Study of preparation of seed samples of flower crops	4
13.	Visit to flower market	4
14.	Visit to green house	4
15.	Visit to a commercial flower nursery unit	4
	Total	**60**

Text Books and Reference Books:

1. Gopalswamy Iyenger, K. S. (1970) Complete Gardening in India G. Kasturi Rangan, Banglore 18
2. Bose, T. K. and L. P. Yadav (1986) Commercial flowers Naya Prokash, Calcutta 6
3. Desai, B. L. (1969) Planning and Planting Designs of Home Gardens ICAR, New Delhi.
4. Mukhopadhya, A. (1987) Floriculture in India Lyal Book Depot, Ludhiana
5. Vishnuswarup (1972) Garden Flowers National book trust India
6. Desai, L. (1969) Seasonal Flowers ICAR, New Delhi
7. Bose, T. K. and Mukherjee (1976) Garden Plants Naya Prokash, Calcutta 6
8. Pal, B. P. (1972) Rose in India ICAR, New Delhi.
9. Simoou, John, Crmbee (1961) Landscape Architecture McGraw Hill, New York

National Education Policy 2020

B.Sc. HORTICULTURE, II Year (Semester - IV)

Minor Theory Course

Course Code – SHORMT1251

Title of the Course: Ornamental Horticulture

[No. of Credits: 2 Credit] **[Total:30Hours]**

Course pre-requisite:

The course is offered for a student registered for second year undergraduate programme in the Faculty of Science and Technology who had primary training in the field of plant sciences at undergraduate second year for entry level core courses in Horticulture as Minor theory course subject.

1. The students should have basic knowledge of plant science.

Course objectives:

1. To know about the aesthetic value of plants in our surroundings
2. To study in detail the planning and layout of Gardens.
3. To acquire knowledge of ornamental plants.

Course outcomes:

1. Students understand the diversity of flowers.
2. The students understand uses and utilization of flowering and ornamental plants.
3. Students acquire knowledge of plantations at different locations viz, instititutions, roads, canals, highways etc.

CURRICULUMDETAILS: SHORMT 1251: Ornamental Horticulture

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**BASIC OF ORNAMENTAL GARDENING**	**07**
	1.1	Importance and scope of Ornamental Horticulture	
	1.2	Development and History of Ornamental gardening	
	1.3	Gardening Art principles	
	1.4	Garden adornments	
2.0		**ORNAMENTAL GARDEN FEATURES –I**	**08**
	2.1	Walls, Fencing and Steps	
	2.2	Hedges, Garden drives and paths	
	2.3	Arches and Pergola	
	2.4	Lawn	

3.0		**ORNAMENTAL GARDEN FEATURES -II**	
	3.1	Carpet bedding and Flower beds	**08**
	3.2	Ornamental plants for highways	
	3.3	Ornamental plants for institutions	
	3.4	Bonsai and Topiary	
4.0		**GARDEN STYLES**	
	4.1	Formal gardens	**07**
	4.2	Informal gardens	
		Total	**30**

TextBooks and References Books:

1. Gopalswamy Iyenger, K. S. (1970) Complete Gardening in India G. Kasturi Rangan, Banglore 18
2. Bose, T. K. and L. P. Yadav (1986) Commercial flowers Naya Prokash, Calcutta 6
3. Desai, B. L. (1969) Planning and Planting Designs of Home Gardens ICAR, New Delhi.
4. Mukhopadhya, A. (1987) Floriculture in India Lyal Book Depot, Ludhiana
5. Vishnuswarup (1972) Garden Flowers National book trust India
6. Desai, L. (1969) Seasonal Flowers ICAR, New Delhi
7. Bose, T. K. and Mukherjee (1976) Garden Plants Naya Prokash, Calcutta 6
8. Pal, B. P. (1972) Rose in India ICAR, New Delhi.
9. Simoou, John, Crmbee (1961) Landscape Architecture McGraw Hill, New York

National Education Policy 2020

B.Sc. HORTICULTURE, II Year (Semester - IV)

Minor Practical Course

Course Code – SHORMP1251

Title of the Course: Practical based on SHORMT 1251

[No. of Credits: 2 Credit] **[Total:60 Hours]**

Course pre-requisite:

The course is offered for a student registered for second year undergraduate programme in the Faculty of Science and Technology who had primary training in the field of plant sciences at undergraduate second year for entry level core courses in Horticulture as Minor theory course subject.

2. The students should have basic knowledge of plant science.

Course objectives:

4. To know about the aesthetic value of plants in our surroundings
5. To study in detail the planning and layout of Gardens.
6. To acquire knowledge of ornamental plants.

Course outcomes:

4. Students understand the diversity of flowers.
5. The students understand uses and utilization of flowering and ornamental plants.
6. Students acquire knowledge of plantations at different locations viz, instititutions, roads, canals, highways etc.

CURRICULUMDETAILS: SHORMP 1251: Practical based on SHORMT 1251

Sr. No	Practical Exercises	Hrs. Required to cover the contents
1.	Identification of ornamental plants	4
2.	Preparation of nursery beds for raising the seedlings of ornamental plants	4
3.	Transplantation of ornamental crops	4
4.	Study of methods of planting lawn	4
5.	Study of maintenance of lawn	4
6.	Study of Planting of hedges and edges	4
7.	Study of pruning and training of ornamental crops	4
8.	Study of special horticultural practices (pinching/stopping, disbudding, deshooting)	4
9.	Landscaping for highways	4
10.	Layout of formal gardens	4
11.	Layout of informal gardens	4

12.	Study of flower arrangements	4
13.	Preparation of media for extending vase life of flowers	4
14.	Study of preparation of herbaria of ornamental crops	4
15.	Visit to flower market and green house	4
	Total	**60**

Text Books and Reference Books:

1. Gopalswamy Iyenger, K. S. (1970) Complete Gardening in India G. Kasturi Rangan, Banglore 18
2. Bose, T. K. and L. P. Yadav (1986) Commercial flowers Naya Prokash, Calcutta 6
3. Desai, B. L. (1969) Planning and Planting Designs of Home Gardens ICAR, New Delhi.
4. Mukhopadhya, A. (1987) Floriculture in India Lyal Book Depot, Ludhiana
5. Vishnuswarup (1972) Garden Flowers National book trust India
6. Desai, L. (1969) Seasonal Flowers ICAR, New Delhi
7. Bose, T. K. and Mukherjee (1976) Garden Plants Naya Prokash, Calcutta 6
8. Pal, B. P. (1972) Rose in India ICAR, New Delhi.
9. Simoou, John, Crmbee (1961) Landscape Architecture McGraw Hill, New York

National Education Policy 2020

B.Sc. HORTICULTURE, II Year (Semester - IV)

Generic Elective Course

Course Code – SHORGE 1251

Title of the Course: Cultivation of Vegetable Crops

[No. of Credits: 2 Credit] **[Total:30 Hours]**

Course pre-requisite:

1. The course is offered for a student registered for undergraduate second year Programme in the Faculty of Science and Technology who had primary training in the field of plant sciences at undergraduate second year level, for entry level core courses in HORTICULTURE as Generic Elective Course subject.
2. The students should have basic knowledge of plant science.

Course objectives:

1. To study and impart knowledge about the occurrence, distribution and morphology of flowering plants.
2. To study the planting, propagation, training and pruning cultivation of vegetable crops
3. To study the fertilizer, irrigation and climatic requirements for cultivation of vegetable crops.
4. To study the disease and pest management practices for cultivation of vegetable crops.

Course outcomes:

1. The students understand the morphology, classification, and growth for cultivation of vegetable crops.
2. The students would know the growth and management of vegetable cultivation.
   The students learn the importance, necessity and measures to overcome malnutrition

CURRICULUMDETAILS: SHORGE 1251: Cultivation of Vegetable Crops

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**General Account of Vegetable Crops**	**07**
		Importance and scope of Olericulture	
	1.1	Nutritive value of vegetables	
	1.2	Classification of vegetables	
	1.3	Types of vegetable gardening	
2.0		**SOLANACEOUS VEGETABLE CROPS**	**08**
		Origin, history, distribution, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation, intercropping, harvesting and yield disease and pests of vegetable crops mentioned below	
	2.1	Potato	
	2.2	Brinjal	
	2.3	Tomato	

3.0		**CRUCIFEROUS VEGETABLE CROPS**	
		Origin, history, distribution, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation, intercropping, harvesting and yield disease and pests of vegetable crops mentioned below	**07**
	3.1	Cabbage	
	3.2	Cauliflower	
	3.3	Radish	
4.0		**CRUCIFEROUS VEGETABLE CROPS**	
		Origin, history, distribution, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation, intercropping, harvesting and yield disease and pests of vegetable crops mentioned below	**08**
	4.1	Watermelon	
	4.2	Pumpkin	
	4.3	Cucumber	
		Total	**30**

Text Books and Reference Books:

1. Shanmugavelu, K. G. (1989) Production Technology of Vegetable Crops Oxford and IBH, New Delhi.
2. Chauhan, D.V.S. (1989) Vegetable Production in India Ram Prasad and Sons, Agra.
3. Bose, T. K. and Som (1986) Vegetable Production in India Naya Prokash, Calcutta 6
4. Singh, D. P. (1989) Production Technology of Vegetable Crops ARCC Sardar, Kanal ARCC Sardar, Kanal
5. Thompson, H. C. and W. C. Kelley (1957) Vegetable Crops McGraw Hill, New York.

National Education Policy 2020

B.Sc. HORTICULTURE, II Year (Semester - IV)

Skill Enhancement Course

Course Code – SHORSC1251

Title of the Course: Nursery Management

[No. of Credits: 2 Credit] **[Total:60 Hours]**

Course pre-requisite:

3. The course is offered for a student registered for undergraduate second year programme in the Faculty of Science and Technology who had primary training in the field of plant sciences at undergraduate second year level for entry level core courses in HORTICULTURE as Skill Enhancement Course.
4. The students should have basic knowledge of plant growth and multiplication.

Course objectives:

5. To inculcate concepts of Propagation.
6. To understand Management of Nursery.
7. To increase employability of the students.
8. To improve the mortality rate in nursery plants.

Course outcomes:

4. Understanding the role of true to type seedlings .
5. Understanding the potential of propagation techniques for establishment of commercial Nursery.
6. Role of Nursery for socio economic development.

CURRICULUMDETAILS: SHORSC 1251: Nursery Management

Sr. No	Practical Exercises	Hrs. Required to cover the contents
1.	Introduction of propagation of plants	4
2.	Study of seed treatments by Hot and Cold Water	4
3.	Study of seed treatments by application of fungicides and insecticides	
4.	Study of Preparation of low nursery beds	4
5.	Study of raising of seedlings	4
6.	Study of Propagation media in Horticultural Crops	4
7.	Study of grafting : veneer grafting and side grafting	4
8.	Study of Budding : Patch budding	4
9.	Study of Budding: Shield budding	4
10.	Study of cuttings : Softwood cutting and Hardwood cutting	4
11.	Study of air layering	4
12.	Study of ground and mound layering	4

13.	Study of application of plant growth regulators in horticultural crops	4
14.	Study of After care in Nursery	4
15.	Visit to commercial nursery.	4
	Total	**60**

Text Books and Reference Books:

1. Arun kumar, Abhinav kumar (2023) Plant Propagation and Nursery Management, S. K. Kataria and Sons, New Delhi.
2. Sharma R. R. (2022) Propagation of Horticultural Crops, Kalyani Publications, New Delhi.
3. Jitendra Singh (2018). Fundamentals of Horticulture, Kalyani Publications, New Delhi
4. N. Kumar (2021). Introduction to Horticulture, MedTech Science Press, New Delhi.
5. Prashant Bakshi, Kiran Kaur, Amit Jasrotia (2024) Fundamentals of Horticulture – Principles and Practices, Narendra Publication House, Delhi
6. S. N. Gupta (2023). Instatnt Horticulture, Jain brothers Publication, Bhopal, (MP)
7. Singh, Yumanm Somi (2017) A textbook of Horticulture, Biotech Publishers, Delhi.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY

NANDED-431606, MAHARASHTRA.

Faculty of Science and Technology

UG-Question Paper Pattern-**Theory, Credits: 2 (NEP 2020)**

Exam: Winter 20___ / Summer 20___

Subject: **S.Y. B.Sc. Horticulture**

Time: 2 Hours Marks: 40

Notes:

1. Question No 1 is compulsory
2. Of the remaining, attempt any Three Questions
3. Draw neat and Labelled Diagram wherever required

Q.1. Write brief notes on the following: (Covering All Modules/Units) 10 Marks

a)
b)
c)
d)

Q.2. 10 Marks

Q.3. 10 Marks

Q.4. 10 Marks

Q.5. 10 Marks

Q.6. Write brief notes on the following: (Covering All Modules/Units) 10 Marks

a)
b)
c)
d)

(There must be equal weightage for all four Modules)

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SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Faculty of Science and Technology

NEP-2020

w. e. f. Academic Year 2025-2026

Horticulture- CURRICULUM

SKELETON OF **PRACTICAL** QUESTION PAPER

SEMESTER PATTERN

B. Sc. Second Year, Semester – III

Paper code: SHORCP1201

(Based on theory Paper: **SHORCT1201)**

Time: 04 Hours Credits: 02 Maximum Marks: 30

Note:

(i) Attempt all questions.

(ii) Show your preparations to the examiner.

(iii) Draw neat and well labelled diagrams wherever necessary.

Q1. Identify and describe the given vegetable crop specimens A & B, including their classification and morphological characteristics.

(The specimens A and B may be given alternately to the students)

14 Marks

Q2. Demonstrate the preparation of a nursery bed or transplantation technique for the given vegetable crop C.

06 Marks

Q3. Perform pre-sowing seed treatment for the given vegetable crop D and describe the procedure.

06 Marks

Q4. Spotting (Identify and describe the spots E, F, G, and H as per the given instructions)

(2 spots on irrigation methods; 2 spots on intercultural operations)

04 Marks

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SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Faculty of Science and Technology

NEP-2020

w. e. f. Academic Year 2025-2026

HORTICULTURE- CURRICULUM

SKELETON OF **PRACTICAL** QUESTION PAPER

SEMESTER PATTERN

B. Sc. Second Year, Semester – III

Paper code: SHORCP1202

(Based on theory Paper: **SHORCT1202)**

Time: 04 Hours Credits: 02 Maximum Marks: 30

Note:- (i) Attempt all questions.

(ii) Show your preparations to the examiner.

(iii) Draw neat and well labelled diagrams wherever necessary.

Q1. Identify and describe the given ornamental plant specimens A & B, including their morphological characteristics and landscape use.
(The specimens A and B may be given alternately to the students)

14 Marks

Q2. Demonstrate the preparation of a nursery bed or transplantation technique for the given ornamental plant C.

06 Marks

Q3. Perform a special horticultural practice (e.g., pinching, disbudding, or pruning) on the given ornamental plant D and describe the procedure.

06 Marks

Q4. Spotting (Identify and describe the spots E, F, G, and H as per the given instructions)
(2 spots on garden features; 2 spots on special horticultural practices)

04 Marks

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SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Faculty of Science and Technology

NEP-2020

w. e. f. Academic Year 2025-2026

HORTICULTURE- CURRICULUM

SKELETON OF **PRACTICAL** QUESTION PAPER

SEMESTER PATTERN

B. Sc. Second Year, Semester – III

Paper code: SHORMP1201

(Based on theory Paper: **SHORMT1201)**

Time: 04 Hours Credits: 02 Maximum Marks: 30

Note: (i) Attempt all questions.

(ii) Show your preparations to the examiner.

(iii) Draw neat and well labelled diagrams wherever necessary.

Q1. Describe, classify, and identify the given vegetable crop specimen – A (Solanaceous crop) on the basis of external and internal characters.

(Specimen A may be Potato, Brinjal, or Tomato)

12 Marks

Q2. Describe, classify, and identify the given vegetable crop specimen – B (Cucurbitaceous or Leguminous crop) on the basis of external and internal characters.

(Specimen B may be Watermelon, Pumpkin, Musk Melon, Rajma bean, Garden pea, or Methi)

12 Marks

Q3. Spotting (Identify and describe the spots E, F, & G as per the given instructions)

(1 spot on irrigation method, 1 spot on intercultural operation, 1 spot on vegetable preparation for marketing)

06 Marks

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SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Faculty of Science and Technology

NEP-2020

w. e. f. Academic Year 2025-2026

HORTICULTURE- CURRICULUM

SKELETON OF **PRACTICAL** QUESTION PAPER

SEMESTER PATTERN

B. Sc. Second Year, Semester – III

Paper code: SHORSC1201

(Title: **Propagation Method of Horticulture Crops)**

Time: 04 Hours Credits: 02 Maximum Marks: 30

---------- Q1. Describe the procedure for preparing a low nursery bed and its significance in horticultural crop propagation.

08 Marks

Q2. Write a detailed procedure for performing veneer grafting or patch budding on a given horticultural crop.

16 Marks

Q3. Comment on the role of plant growth regulators in enhancing propagation success in horticultural crops.

06 Marks

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SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Faculty of Science and Technology

NEP-2020

w. e. f. Academic Year 2025-2026

HORTICULTURE- CURRICULUM

SKELETON OF **PRACTICAL** QUESTION PAPER

SEMESTER PATTERN

B. Sc. Second Year, Semester – IV

Paper code: SHORCP1251

(Based on theory Paper: **SHORCT1251)**

Time: 04 Hours Credits: 02 Maximum Marks: 30

Note: (i) Attempt all questions.

(ii) Show your preparations to the examiner.

(iii) Draw neat and well labelled diagrams wherever necessary.

Q1. Identify, classify, and describe the given vegetable crop specimen – A (Cruciferous crop) on the basis of external and internal characters.

(The specimen A may be Cabbage, Cauliflower, or Radish)

12 Marks

Q2. Identify, classify, and describe the given vegetable crop specimen – B (Malvaceous, Chenopodiaceous, Apiaceous, Moringaceous, Amaryllidaceous, Amerantaceous, or Convolvulaceous crop) on the basis of external and internal characters.

(The specimen B may be Okra, Indian spinach, Beet root, Carrot, Anethum, Drumstick, Onion, Tandulja, or Sweet potato)

12 Marks

Q3. Spotting (Identify and describe the spots C, D, E, and F as per the given instructions)

(2 spots on irrigation methods, 2 spots on intercultural operations or vegetable preparation for marketing)

06 Marks

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SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Faculty of Science and Technology

NEP-2020

w. e. f. Academic Year 2025-2026

HORTICULTURE- CURRICULUM

SKELETON OF **PRACTICAL** QUESTION PAPER

SEMESTER PATTERN

B. Sc. Second Year, Semester – IV

Paper code: SHORCP1252

(Based on theory Paper: **SHORCT1252)**

Time: 04 Hours Credits: 02 Maximum Marks: 30

Note: (i) Attempt all questions.

(ii) Show your preparations to the examiner.

(iii) Draw neat and well labelled diagrams wherever necessary.

Q1. Perform and describe any two special horticultural practices (e.g., pinching, stopping, disbudding, or deshooting) on the given flower crop.

10 Marks

Q2. Prepare and describe the application of any two methods for extending the vase life of the given flower crop (e.g., use of specific media or preservatives).

10 Marks

Q3. Discuss the economic importance and market demand of the given flower crop.

06 Marks

Q4. Perform the process of nursery bed preparation for the given flower crop.

04 Marks

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SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Faculty of Science and Technology

NEP-2020

w. e. f. Academic Year 2025-2026

HORTICULTURE- CURRICULUM

SKELETON OF **PRACTICAL** QUESTION PAPER

SEMESTER PATTERN

B. Sc. Second Year, Semester – IV

Paper code: SHORMP1251

(Based on theory Paper: **SHORMT1251)**

Time: 04 Hours Credits: 02 Maximum Marks: 30

Note: (i) Attempt all questions.

(ii) Show your preparations to the examiner.

(iii) Draw neat and well labelled diagrams wherever necessary.

Q1. Describe, classify, and identify the given ornamental plant specimen – A (suitable for garden features like hedges, lawns, or flower beds) on the basis of external and internal characters.

(The specimen A may be given alternately to the students)

12 Marks

Q2. Describe, classify, and identify the given ornamental plant specimen – B (suitable for special features like bonsai, topiary, or highway/institutional planting) on the basis of external and internal characters.

(The specimen B may be given alternately to the students)

12 Marks

Q3. Spotting (Identify and describe the spots C, D, E, and F as per the given instructions)

(2 spots on garden features like hedges, lawns, or flower beds; 2 spots on special ornamental practices like bonsai or topiary)

06 Marks

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SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Faculty of Science and Technology

NEP-2020

w. e. f. Academic Year 2025-2026

HORTICULTURE - CURRICULUM

SKELETON OF **PRACTICAL** QUESTION PAPER

SEMESTER PATTERN

B. Sc. Second Year, Semester – IV

Paper code: SHORSC1251

(Title**: -Nursery Management)**

Time: 04 Hours Credits: 02 Maximum Marks: 30

Q1. Describe, classify, and identify the given ornamental plant specimen – A (suitable for garden features like hedges, lawns, or flower beds) on the basis of external and internal characters.
(The specimen A may be given alternately to the students)

12 Marks

Q2. Describe, classify, and identify the given ornamental plant specimen – B (suitable for special features like bonsai, topiary, or highway/institutional planting) on the basis of external and internal characters.
(The specimen B may be given alternately to the students)

12 Marks

Q3. Spotting (Identify and describe the spots C, D, E, and F as per the given instructions)
(2 spots on garden features like hedges, lawns, or flower beds; 2 spots on special ornamental practices like bonsai or topiary)

06 Marks

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Continuous Assessment (CA)
Subject: HORTICULTURE **Semester III Theory**

	Course Code	Course Name	Continuous Assessment (CA)		
			Test I (T1)	Test II (T2)	Total (Average of T1 & T2)
HORTICULTURE Major Theory	SHORCT1201	Vegetable Crops I	10	10	10
HORTICULTURE Major Theory	SHORCT1202	Ornamental and Landscape Gardening	10	10	10
HORTICULTURE Minor Theory	SHORMT1201	Vegetable Crops and Spices	10	10	10
Generic Elective	SHORGE1201	Landscape Gardening	10	10	10

Continuous Assessment (CA)
Subject: HORTICULTURE **Semester III Practical**

	Course Code (2)	Course Name (3)	Continuous Assessment (CA)		
			Record Book	Excursion Report/ Submission/Viva	Total
HORTICULTURE Major Practical	SHORCP1201	Practical Based on SHORCT 1201	10	10	20
HORTICULTURE Major Practical	SHORCP1202	Practical Based on SHORCT 1202	10	10	20
HORTICULTURE Minor Practical	SHORMT1201	Practical Based on SHORMT1201	10	10	20
Skill Based Course	SHORSC1201	Biofertilizers Technology	10	10	20

Continuous Assessment (CA)
Subject: HORTICULTURE **Semester IV Theory**

	Course Code	Course Name	Continuous Assessment (CA)		
			Test I (T1)	Test II (T2)	Total (Average of T1 & T2)
HORTICULTURE Major Theory	SHORCT1251	Vegetable Crops II	10	10	10
HORTICULTURE Major Theory	SHORCT1252	Commercial Floriculture	10	10	10
HORTICULTURE Minor Theory	SHORMT1251	Ornamental Horticulture	10	10	10
Generic Elective	SHORGE1251	Cultivation of Vegetable Crops	10	10	10

Continuous Assessment (CA)
Subject: HORTICULTURE **Semester IV Practical**

	Course Code (2)	Course Name (3)	Continuous Assessment (CA)		
			Record Book	Excursion Report/ Submission/Viva	Total
HORTICULTURE Major Practical	SHORCP1251	Practical Based on SHORCT 1251	10	10	20
HORTICULTURE Major Practical	SHORCP1252	Practical Based on SHORCT 1252	10	10	20
HORTICULTURE Minor Practical	SHORMT1251	Practical Based on SHORMT1251	10	10	20
Skill Based Course	SHORSC1251	Nursery Management	10	10	20