



SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED
HORTICULTURE- CURRICULUM
B.Sc. General (Semester Pattern)

B. Sc. SECOND YEAR

With Effect from June - 2014



SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

HORTICULTURE– CURRICULUM

B.Sc. General (Semester Pattern)

CURRICULUM DESIGNING COMMITTEE

Sr. No.	Name & Address	Designation
1.	Dr. S. S. Bodke Associate professor & Head Department of Botany & Horticulture, Yeshwant Mahavidyalaya, Nanded	Chairman
2.	Mrs. A. K. Gore Assistant Professor, Department of Botany & Horticulture, Yeshwant Mahavidyalaya, Nanded	Member
3.	Mr. S. A. Patil Assistant Professor, Department of Botany & Horticulture, Yeshwant Mahavidyalaya, Nanded	Member
4.	Dr. S. S. Kadam Associate Professor, Department of Botany, ACS College, Shankarnagar Tq.Biloli Dist. Nanded	Member
5.	Dr. S. M. Dalvi Assistant Professor, Department of Botany, SGBS Mahavidyalaya, Purna Dist. Parbhani	Member
6.	Dr. S. L. Shinde Assistant Professor, Department of Botany & Horticulture, Yeshwant Mahavidyalaya, Nanded	Member

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INTRODUCTION

Revising and updating of the curriculum is the continuous process to provide an updated education to the students at large. Up till now there was wide diversity in the curriculum of different Indian Universities which inhibited mobility of students in other universities or states. To ensure and have uniform curriculum at UG and PG levels, curriculum of different Indian Universities and the UGC model curriculum are referred to serve as a base in updating the same.

For developing the final draft of curriculum, the curriculum designing committee took into account total number of teaching days available in a year and the guidelines given by the faculty of science of the S.R.T.M.U Nanded. The curriculum designing committee held a couple of meetings in which there were thorough and critical discussions.

S.R.T.M. University, Nanded is having B.Sc. (General) Horticulture course. The course content has been designed on semester pattern.

The course content of each theory paper is divided into units and subunits by giving appropriate titles and subtitles. For each unit, total number of periods required and weight age of maximum marks is mentioned. The practical exercises to be completed in the academic year are also given. A list of selected reading material is provided at the end of the syllabus.





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OBJECTIVES

1. To provide an updated education to the students at large and to provide mobility to students from one university or state to other
2. To update curriculum by introducing recent advances in the subject and enable the students to face NET, SET, UPSC and other competitive examinations successfully.
3. To create awareness among the students about the botany and train them in the subject.
4. To improve the quality of laboratory and field work, for which study tours and excursions have been made compulsory so that the students can become familiar with the flora and ecosystems of that area.
5. To prepare such a dynamic curriculum by incorporating innovative concepts and a multidisciplinary approach which can attract and develop interest among the students for selecting plant science as their career.

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B. Sc. HORTICULTURE

B.Sc. Horticulture Curriculum - an outline

Class & Semester	Paper No. & Title	Period /practical	Marks		
			University Examination	Internal Exam	Total
B.Sc. I Year Semester-I	Theory Paper-I: Fundamentals of Horticulture	45	40	10	50
	Theory Paper-II: Propagation and Nursery Management	45	40	10	50
B.Sc. I Year Semester-II	Theory Paper-III: Production Technology of Tropical And Sub-Tropical Fruit Crops	45	40	10	50
	Theory Paper-IV: Production Technology of Arid, Minor and Plantation Fruit Crops	45	40	10	50
B.Sc. I Year Annual pattern	Practical Paper-V: Practical based on theory papers of semester-I&II	24	100	-	100
B.Sc. II Year Semester-III	Theory Paper-VI: Production Technology of Vegetable Crops-I	45	40	10	50
	Theory Paper-VII: Production Technology of Vegetable Crops-II	45	40	10	50
B.Sc. II Year Semester-IV	Theory Paper-VIII: Ornamental and Landscape Gardening	45	40	10	50
	Theory Paper-IX: Commercial Floriculture	45	40	10	50
B.Sc. II Year Annual pattern	Practical Paper-X: Based on Theory Paper-VI&VII of semester-III	24	50	-	50
B.Sc. II Year Annual pattern	Practical Paper-XI: Based on Theory Paper-VIII&IX of semester-IV	24	50	-	50
B.Sc. III Year Semester-V	Theory Paper-XII: Production Technology of Spice and Condiment crops	45	40	10	50
	Theory Paper-XIII: Production Technology of Medicinal and Aromatic plants	45	40	10	50
B.Sc. III Year Semester-VI	Theory Paper-XIV: Post Harvest and Handling of Horticultural crops	45	40	10	50
	Theory Paper-XV: Processing and Preservation Technology	45	40	10	50
B.Sc. III Year Annual pattern	Practical Paper-XVI: Based on Theory Paper-XII&XIII of semester-V	24	50	-	50
B.Sc. III Year Annual pattern	Practical Paper-XVII: Based on Theory Paper-XIV&XV of semester-VI	24	50	-	50

Workload: 1. Theory: Per paper per week three periods

2. Practical: Per batch per week one practical of three periods





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Semester – III & IV

B.Sc. II Year Horticulture Curriculum - an outline

Class & Semester	Paper No. & Title	Period /practical	Marks		
			University Examination	Internal Exam	Total
B.Sc. II Year Semester-III	Theory Paper-VI: Production Technology of Vegetable Crops-I	45	40	10	50
	Theory Paper-VII: Production Technology of Vegetable Crops-II	45	40	10	50
B.Sc. II Year Semester-IV	Theory Paper-VIII: Ornamental and Landscape Gardening	45	40	10	50
	Theory Paper-IX: Commercial Floriculture	45	40	10	50
B.Sc. II Year Annual pattern	Practical Paper-X: Based on Theory Paper-VI&VII of semester-III	24	50	-	50
B.Sc. II Year Annual pattern	Practical Paper-XI: Based on Theory Paper-VIII&IX of semester-IV	24	50	-	50

- Workload:**
- 1. Theory:** Per paper per week three periods
 - 2. Practical:** Per batch per week one practical of three periods

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HORTICULTURE

Semester – III

THEORY PAPER-VI: PRODUCTION TECHNOLOGY OF VEGETABLE CROPS-I

Periods – 45

Maximum Marks – 50

UNIT – I: VEGETABLE CROPS (10 PERIODS)

1. Importance and scope of Olericulture
2. Nutritive value of vegetables
3. Classification of vegetables
4. Types of vegetable gardening

UNIT – II: SOLANACEOUS VEGETABLE CROPS (12 PERIODS)

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

1. Tomato
2. Brinjal
3. Potato

UNIT–III: CUCURBITACEOUS VEGETABLE CROPS (13 PERIODS)

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. Bitter gourd
2. Ridge gourd
3. Cucumber

UNIT – IV: LEGUMINOUS VEGETABLE CROPS (10 PERIODS)

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. Cluster bean
2. Garden pea
3. Methi (Fenugreek)

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Semester – III

THEORY PAPER-VII: PRODUCTION TECHNOLOGY VEGETABLE CROPS-II

Periods – 45

Maximum Marks – 50

UNIT – I: CRUCIFEROUS VEGETABLE CROPS (12 PERIODS)

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. Cabbage
2. Cauliflower
3. Radish

UNIT–II: MALVACEOUS AND CHENOPODIACEOUS VEGETABLE CROPS (10 PERIODS)

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. Okra (Bhendi)
2. Indian spinach
3. Beet root

UNIT–III: APIACEOUS AND MORINGACEOUS VEGETABLE CROPS (13 PERIODS)

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 underground vegetable crops mentioned below

1. Carrot
2. Anethum (Shepu)
3. Drumstick

UNIT – IV: AMARYLLIDACEOUS, AMERANTACEOUS AND CONVULVACEOUS VEGETABLE CROPS (10 PERIODS)

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 cruciferous vegetable crops mentioned below

1. Onion
2. Tandulja
3. Sweet potato

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Semester – IV

THEORY PAPER-VIII: ORNAMENTAL AND LANDSCAPE GARDENING

Periods – 45

Maximum Marks – 50

UNIT – I: PRINCIPLES OF LANDSCAPE GARDENING (12 PERIODS)

1. Importance and scope of landscape gardening
2. History of landscape gardening
3. Art principles
4. Some important terms of landscape gardening
5. Garden adornments

UNIT – II: GARDEN FEATURES –I (10 PERIODS)

1. Walls
2. Fencing
3. Steps
4. Garden
5. Garden drives and paths
6. Hedges
7. Edges
8. Arches
9. Pergola
10. Lawn

UNIT – III: GARDEN FEATURES -II (10 PERIODS)

1. Carpet bedding
2. Flower beds
3. Shrubbery
4. Borders
5. Rockery
6. Water gardens
7. Bonsai
8. Topiary

UNIT – IV: GARDENS TYPES AND STYLES (13 PERIODS)

Garden types

1. Indoor garden
2. Outdoor garden

Garden styles

1. Formal gardens
2. Informal gardens
3. Freestyle gardens

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Semester – IV

THEORY PAPER-IX: COMMERCIAL FLORICULTURE

Periods – 45

Maximum Marks – 50

UNIT – I: CULTIVATION PRACTICES – I (10 PERIODS)

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

1. Rose
2. Jasmine
3. Tuberose

UNIT – II: CULTIVATION PRACTICES – II (10 PERIODS)

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

1. Gladiolus
2. Carnation
3. Orchids

UNIT – III: CULTIVATION PRACTICES – III (13 PERIODS)

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

1. Chrysanthemum
2. Aster
3. Marigold

UNIT – I: CULTIVATION PRACTICES – IV (12 PERIODS)

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

1. Gaillardia
2. Gerbera
3. Dahlia

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PRACTICAL PAPER-X: BASED ON THEORY PAPERS-VI & VII OF SEMESTER-III

Practical-24

Maximum Marks – 50

Practical Exercises:

1. **Practical 1-8:** Identification description of vegetable crops
2. **Practical 9:** Preparation of nursery beds for raising the seedlings of vegetable crops
3. **Practical 10:** Transplantation of vegetable crops
4. **Practical 11-12:** Pre sowing seed treatments in vegetable crops (cold water/ hot water/acid/ chilling)
5. **Practical 13-14:** Intercultural operations in vegetable crops
6. **Practical 15-16:** Study of manures and fertilizers application in vegetable crops
7. **Practical 17-18:** Study of irrigation methods in vegetable crops (furrow/sprinkler/drip irrigation)
8. **Practical 19-20:** Preparation of vegetables for marketing (cleaning, trimming, washing, sorting, grading , stocking and bundling)
9. **Practical 21:** Preparation of herbaria of vegetable crops
10. **Practical 22:** Preparation of seed herbaria of vegetable crops
11. **Practical 23:** Visit of local vegetable market
12. **Practical 24:** visit to commercial vegetable garden

Note: Students should submit excursion report in detail in the practical examination for evaluation. The report shall carry marks

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PRACTICAL PAPER-XI: BASED ON THEORY PAPERS – VIII & IX OF SEMESTER-IV

Practical-24

Maximum Marks – 50

Practical Exercises:

1. **Practical 1-2:** Identification of ornamental plants
2. **Practical 3-4:** Preparation of nursery beds for raising the seedlings of ornamental plants
3. **Practical 5:** Transplantation of ornamental crops
4. **Practical 6:** Planting of hedges
5. **Practical 7:** Planting of edges
6. **Practical 8:** Planting and maintenance of lawn
7. **Practical 9:** Study of pruning and training of ornamental crops
8. **Practical 10-11:** Study of special horticultural practices (pinching/stopping, disbudding, disshooting)
9. **Practical 12:** Landscaping for highways
10. **Practical 13:** Layout of home gardens
11. **Practical 14:** Layout of formal gardens
12. **Practical 15:** Layout of informal gardens
13. **Practical 16:** Study of topiary in gardens
14. **Practical 17:** Study of flower arrangements
15. **Practical 18-19:** Preparation of media for extending vase life of flowers
16. **Practical 20:** Study of preparation of herbaria of ornamental crops
17. **Practical 21:** Study of preparation of seed samples of ornamental crops
18. **Practical 22:** Visit to flower market
19. **Practical 23:** Visit to green house
20. **Practical 24:** Visit to a commercial flower nursery unit

Note: Students should submit excursion report in detail in the practical examination for evaluation. The report shall carry marks

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Skeleton Question Paper
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PRACTICAL PAPER-X: BASED ON THEORY PAPERS-VI & VII OF SEMESTER-III

Time: Four hours

Maximum Marks – 50

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- Note:**
- (i) Attempt all questions
 - (ii) Show your preparation to the examiner
 - (iii) Draw neat and well labeled diagrams wherever necessary
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|-----|---|----|
| Q1. | Identify and describe the given vegetable specimen- A and B . | 08 |
| Q2. | Observe and interpret the effect of pre sowing seed treatments on germination of given vegetable specimen- C . | 08 |
| Q3. | Prepare a paper sketch and describe Drip / furrow / sprinkler irrigation system in a vegetable garden | 08 |
| Q4. | Prepare the given vegetable specimen- D for marketing | 08 |
| Q5. | Identify and describe given spots E, F, G and H
(Root/stem/leaf/flower/fruit vegetable) | 08 |
| Q6. | i. Record book | 05 |
| | ii. Submission | 03 |
| | iii. Viva-voce | 02 |

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Skeleton Question Paper
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PRACTICAL PAPER-XI: BASED ON THEORY PAPERS-VIII & IX OF SEMESTER-IV

Time: Four hours

Maximum Marks – 50

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- Note:**
- (i) Attempt all questions
 - (ii) Show your preparation to the examiner
 - (iii) Draw neat and well labeled diagrams wherever necessary
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|-----|---|----|
| Q1. | Identify and describe the given ornamental plant specimen A and B . | 10 |
| Q2. | Prepare a layout plan of formal / informal garden | 12 |
| Q3. | Prepare garland / bouquet / flowerpots | 10 |
| Q4. | Prepare a medium for extending vase life of cut flowers | 08 |
| Q5. | i. Record book | 05 |
| | ii. Submission | 03 |
| | iii. Viva-voce | 02 |

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SELECTED READINGS:

Sr.No.	Author/s	Title	Publication
•	Shanmugavelu, K. G. (1989)	Production Technology of Vegetable Crops	Oxford and IBH, New Delhi.
•	Chauhan, D.V.S. (1989)	Vegetable Production in India	Ram Prasad and Sons, Agra.
•	Bose, T. K. and Som (1986)	Vegetable Production in India	Naya Prokash, Calcutta 6
•	Singh, D. P. (1989)	Production Technology of Vegetable Crops ARCC Sardar, Kanal	ARCC Sardar, Kanal
•	Thompson, H. C. and W. C. Kelley (1957)	Vegetable Crops	McGraw Hill, New York.
	Shanmugavelu, K. G. (1989)	Production Technology of Vegetable Crops	Oxford and IBH, New Delhi.
	Chauhan, D.V.S. (1989)	Vegetable Production in India	Ram Prasad and Sons, Agra.
	Bose, T. K. and Som (1986)	Vegetable Production in India	Naya Prokash, Calcutta 6
	Singh, D. P. (1989)	Production Technology of Vegetable Crops	ARCC Sardar, Kanal
	Thompson, H. C. and W. C. Kelley (1957)	Vegetable Crops	McGraw Hill, New York.
	Gopalswamy Iyenger, K. S. (1970)	Complete Gardening in India	G. Kasturi Rangan, Bangalore 18
	Bose, T. K. and L. P. Yadav (1986)	Commercial flowers	Naya Prokash, Calcutta 6
	Desai, B. L. (1969)	Planning and Planting Designs of Home Gardens	ICAR, New Delhi.
	Mukhopadhyaya, A. (1987)	Floriculture in India	Lyal Book Depot, Ludhiana
	Vishnuswarup (1972)	Garden Flowers	National book trust India
	Desai, L. (1969)	Seasonal Flowers	ICAR, New Delhi
	Bose, T. K. and Mukherjee (1976)	Garden Plants	Naya Prokash, Calcutta 6
	Pal, B. P. (1972)	Rose in India	ICAR, New Delhi.
	Simooou, John, Crmbee (1961)	Landscape Architecture	McGraw Hill, New York
	Simooou, John, Crmbee (1961)	Landscape Architecture	McGraw Hill, New York