

**SWAMI RAMANAND TEERTH
MARATHWADA UNIVERSITY, NANDED**

SEMESTER PATTERN

SYLLABUS

Of

**B. Sc. SECOND YEAR
HORTICULTURE**

With Effect from June - 2010

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED
CURRICULUM, B. Sc. SECOND YEAR, HORTICULTURE

INTRODUCTION

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

For developing the final draft of curriculum, the BOS in Horticulture 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 BOS in Horticulture held a couple of meetings in which there were thorough and critical discussions.

S.R.T.M.U. 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 weightage of maximum marks is mentioned. At the end the list of selected reading material is provided. A list of practical exercises to be completed in the academic year is also given. Skeleton question paper for practical examination is provided as a guideline to teachers, students and paper setters.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED
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OBJECTIVES

1. To evolve uniform curricula in all the universities of the country and to provide mobility to students from one university or state to other
2. To update curricula by introducing recent advances in the subject and enable the students to face NET, MPSC, UPSC and other competitive examinations successfully.
3. To create awareness among the students about the Horticulture 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 curricula by incorporating innovative concepts and a multidisciplinary approach which can attract and develop interest among the students for selecting plant science as their career.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED
CURRICULUM, B. Sc. SECOND YEAR, HORTICULTURE- AN OUTLINE

Class	Paper No.	Title of Paper	Periods/ Practicals	Time Duration of Examination	Maximum Marks
B.Sc.II Semester-III	Paper-VI (Theory)	Production Technology of Vegetable Crops-I	45	3 Hrs.	50
B.Sc.II Semester-III	Paper-VII (Theory)	Production Technology of Vegetable Crops-II	45	3 Hrs.	50
B.Sc.II Semester-IV	Paper-VIII (Theory)	Ornamental and Landscape Gardening.	45	3 Hrs.	50
B.Sc.II Semester-IV	Paper-IX (Theory)	Commercial Floriculture.	45	3 Hrs.	50
B.Sc.II	Paper-X (Practical) Annual pattern	Practical based on theory papers VI and VII of semester-III	20+4	4 Hrs.	50
B.Sc.II	Paper-XI (Practical) Annual pattern	Practical based on theory papers VIII and IX of semester-IV	20+4	4 Hrs.	50

Workload:

- 1. Theory:** Per paper per week three periods
- 2. Practical:** Per batch per week one practical (Three periods)

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SEMESTER - III
Theory Paper – VI
(Production technology of vegetable crops-I)

Periods – 45

Maximum Marks – 50

UNIT – I: VEGETABLE CROPS (10 PERIODS)

- General account
 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 (11 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 (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. Okra (Bhendi)
 2. Indian spinach
 3. Beet root

UNIT–III: APIACEOUS AND MORINGACEOUS 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 underground vegetable crops mentioned below
 1. Carrot
 2. Anethum (Shepu)
 3. Drumstick

UNIT – IV: AMARYLLIDACEOUS, AMERANTACEOUS AND CONVOLVULACEOUS 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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CURRICULUM, B. Sc. SECOND YEAR, HORTICULTURE

ANNUAL PATTERN

Practical Paper – X

(Based on theory papers – VI & VII of semester-III)

Periods – 24 (20+04)

Maximum Marks – 50

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

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Practical Paper – XI

(Based on theory papers – VIII & IX of semester-IV)

Periods – 24 (20+04)

Maximum Marks – 50

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

SELECTED READINGS:

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

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| 20. | Gopalswamy Iyenger,
K. S. (1970) | Complete Gardening in
India | G. Kasturi Rangan, Bangalore
18 |
| 21. | Bose, T. K. and L. P.
Yadav (1986) | Commercial flowers | Naya Prokash, Calcutta 6 |
| 22. | Mukhopadhyaya, A.
(1987) | Floriculture in India | Lyal Book Depot, Ludhiana |
| 23. | Vishnuswarup (1972) | Garden Flowers | National book trust India |
| 24. | Desai, L. (1969) | Seasonal Flowers | ICAR, New Delhi |
| 25. | Bose, T. K. and
Mukherjee (1976) | Garden Plants | Naya Prokash, Calcutta 6 |
| 26. | Pal, B. P. (1972) | Rose in India | ICAR, New Delhi. |

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SKELETON OF QUESTION PAPER

B. Sc. SECOND YEAR, HORTICULTURE

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Practical Paper – X

(Based on theory papers – VI & VII of semester-III)

Date: _____ *Batch No.* _____
Time: Four hours *Maximum Marks: 50*

Note: -

- (i) *Attempt all questions*
- (ii) *All questions carry equal marks*
- (iii) *Draw neat and well labeled diagrams wherever necessary*

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	04
	ii. Submission	03
	iii. Viva-voce	03

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SKELETON OF QUESTION PAPER

B. Sc. SECOND YEAR, HORTICULTURE

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Practical Paper – XI

(Based on theory papers – VIII & IX of semester-IV)

Date: _____ *Batch No.* _____
Time: Four hours _____ *Maximum Marks: 50*

Note: -

- (i) *Attempt all questions*
- (ii) *All questions carry equal marks*
- (iii) *Draw neat and well labeled diagrams wherever necessary*

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	04
	ii. Submission	03
	iii. Viva-voce	03
