



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

B. Sc. FIRST YEAR

With Effect from June - 2013



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

CURRICULUM DESIGNING COMMITTEE

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| 1. Dr. Bodke S.S.
Yeshwant Mahavidyalaya, Nanded | Chairman |
| 2. Dr. Kadam A.S.
D.S.M. Mahavidyalaya, Jintur | Member |
| 3. Dr. Mandge S.V.
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Osmania University, Hyderabad | Member |
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SSVP's Dr. Ghogre Science College, Dhule | Member |
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Green Gold seeds Ltd., Walunj | Member |
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SRTM University, 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 BOS in Botany 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 Botany 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 weightage of maximum marks is mentioned. At the end a list of selected reading material is provided. A list of practical exercises to be completed in the academic year is also given.





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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 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 horticultural crops of that area.
5. To prepare such a dynamic curriculum by incorporating innovative concepts and a multidisciplinary approach which attract and develop interest among the students for selecting horticulture science as their career





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Class: B.Sc. I Year 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 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

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





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B. Sc. FIRST YEAR

Semester – I

Theory Paper – I: Fundamentals of Horticulture

Periods – 45

Maximum Marks – 50

UNIT-I: Introduction to Horticulture (10 periods)

Definition, branches, scope and economic importance of horticultural crops; Nutritive value of fruits and vegetables; Classification of horticultural crops based on climatic requirements, season of growth, plant parts used for consumption and botanical classification; Horticultural zones of India and Maharashtra

UNIT-II: Principles of Horticulture (13 periods)

Soil and climatic requirements of horticultural crops; Selection of site for establishment of orchard; Planning, layout and planting of orchard; Bearing habit, fruit bud differentiation and flower and fruit drop; Training and pruning; Fruitfulness and unfruitfulness; Cropping system

UNIT-III: Management Horticulture (12 periods)

Orchard management; Nutrition management; Water management; Weed management; Plant protection

UNIT-IV: Applied Horticulture (10 periods)

Study of plant growth regulators (Mechanism of action and biological effect): Auxins, Gibberellins, Cytokinins, Ethylene; **Special horticultural practices:** Fruit crops-Bahar treatment, girdling, notching, ringing and bending; Vegetable crops-Earthing up, staking and blanching; Flower crops-Pinching, disbudding and deshooting

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Semester – I

Theory Paper – II: Propagation and Nursery Management

Periods – 45

Maximum Marks – 50

UNIT-I: Propagation (13 periods)

Basic concept, types of plant propagation along with merits and demerits; Seed treatment, seed germination and seed dormancy; Polyembryony and apomixes; Stock - scion relationship; Factors affecting Budding and grafting

UNIT-II: Common origin methods of propagation (12 periods)

Cutting-Root cutting, Stem cutting and Leaf cutting; **Layering**-Simple layering, Air layering, Mound layering; **Specialized structures**-Bulbs, Tubers and Rhizomes

UNIT-III: Separate origin methods of propagation (10 periods)

Budding- Shield budding, Patch budding and Ring budding; **Grafting**-Simple grafting, Tongue grafting and Veneer grafting

UNIT-IV: Nursery Management (10 periods)

Definition, importance, scope and types of nursery management; Site selection; Components and layout of nursery; Media containers and propagation structures; After care of nursery; Nursery Act

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Semester – II

Theory Paper –III: Production Technology of Tropical and Sub-Tropical Fruit Crops

Periods – 45

Maximum Marks – 50

UNIT-I: Introduction to tropical and sub-tropical fruit crops (10 periods)

Importance of tropical and sub tropical fruit growing in India and Maharashtra; Nutritive value of tropical and sub tropical fruits; Area and production of India and Maharashtra; Exports and imports of fruits in India; Constraints in fruit production and remedies to overcome them

UNIT-II: Cultivation practices of tropical fruit 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 tropical fruit crops – Banana, Guava, Papaya and Sapota

UNIT – III: Cultivation practices of sub-tropical fruit 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 sub-tropical fruit crops -Kagzi lime, Sweet orange, Mandarin, Grapes, Mango and Pomegranate

UNIT-IV: Fruit physiology (10 periods)

Study of major physiological disorders: Mango- Alternate bearing and Spongy tissue; Citrus- Granulation and Gummosis; Grapes- Bareness; Pomegranate- Fruit cracking

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Semester – II

Theory Paper –IV: Production Technology of Arid, Minor and Plantation Crops

Periods – 45

Maximum Marks – 50

UNIT-I: Introduction to arid, minor and plantation crops (10 periods)

Importance of arid, minor and plantation fruit crops growing in India and Maharashtra; Nutritive value of arid, minor and plantation fruit crops; Area and production of India and Maharashtra; Exports and imports of arid, minor and plantation fruits in India; Constraints in arid, minor and plantation production and remedies to overcome them

UNIT – II: Cultivation practices of arid fruit 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 arid fruit crops- Aonla, Ber, Custard Apple, Fig and Tamarind

UNIT – III: Cultivation practices of minor fruit 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 minor fruit crops- Jamun, Bael, Wood apple,

UNIT – IV: Cultivation practices of plantation 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 and processing of plantation crops-Coconut, Cashewnut, Tea and Coffee

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B. Sc. FIRST YEAR

Annual Pattern

Practical Paper – V: Practical Based on Theory Papers of Semester-I&II

Practical- 24

Maximum Marks – 100

Practical Exercises:

Practical 1: Introduction to fruit crops

Practical 2: Study of garden tools and implements

Practical 3: Study of different media, containers and potting and repotting

Practical 4: Preparation of nursery beds and raising of nursery seedlings

Practical 5: Layout of square system of planting

Practical 6: Layout of diagonal system of planting

Practical 7: Layout of rectangular system of planting

Practical 8: Layout of hexagonal system of planting

Practical 9: Layout of triangular system of planting

Practical 10: Study of different methods of cutting

Practical 11: Study of different methods of layering

Practical 12: Study of different methods of budding

Practical 13: Study of different methods of grafting

Practical 14: Study of different methods of training

Practical 15: Study of different methods of pruning

Practical 16: Study of application of plant growth regulators in horticultural crops

Practical 17: Study of manures and fertilizer application methods followed in horticultural crops

Practical 18: Study of irrigation methods followed in horticultural crops

Practical 19: Study of special horticultural practices followed in fruit crops

Practical 20: Identification and collection of important pests and diseases in fruit crops

Practical 21: Visit to a nursery unit

Practical 22-23: Visit to commercial orchards

Practical 24: Visit to a fruit market

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Skeleton Question Paper
B. Sc. FIRST YEAR
Annual Pattern

PRACTICAL PAPER – V: PRACTICAL BASED ON THEORY PAPERS OF SEMESTER-I&II

Time: Three hours

Maximum Marks: 100

Note: - (i) Attempt all questions
(ii) Show your preparation to the examiner
(iii) Draw neat and well labeled diagrams wherever necessary

- Q1.** Identify and describe the given **specimen- A and B.** 20
(Tropical fruit crops / Sub-Tropical fruit crops).
- Q2.** Identify, and describe the given **specimen C and D** 20
(Arid fruit crops / Minor fruit crops / Plantation crops)
- Q3.** Demonstrate the method of vegetative propagation of given **specimen E.** 10
(Cutting/ layering/ grafting/ budding)
- Q4.** Draw a layout plan for planting in an orchard of given **specimen F.** 10
- Q5.** Describe the method of irrigation in an orchard of given **specimen G.** 10
- Q6.** Describe the method of application of Manures / Fertilizers in an orchard of given **specimen H** 10
- Q7.** i. Record book 10
ii. Submission 10
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SELECTED READINGS

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 2. Kumar N. Introductory Horticulture Rajalaxmi Publications, veepamodu, T.N. 629 002.
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 6. Kunte, Y. H. and K. S.Yawalkar. (1970).Complete Gardening in India. G. Kasturi Rangan, Banglore 18.
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 3. Cheema, G. S., S. S. Bhatt and K. C. Naik (1954) Commercial fruits of india McMillan and Co., Calcutta.
 4. Singh Sham, S. Krishmnamurthy and S. L. Katyal (1963) Fruit culture in India ICAR, New Delhi.
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 2. Hayes, W. B. (1970) Fruit growing in India Kitabistan, Allahabad.
 3. Chundawat, B. S. (1989) Arid fruit culture. Oxford and IBH, New Delhi
 4. Bose, T. K. (1995) Fruits of India tropical and sub-tropical.Naya Prokash, Calcutta 6.
 5. Patil, A. V. and D. P. Bhore,(1986) Koradwahoo Phalzaadachi Laagwad.Continental Prakashan, vijaya nagar, Pune 30.
 6. Shnmughavelu, K. G. and V. N. Madhaorao. Spices and plantation crops Madras popular Depot, Sterling Road, Nungambakkam.
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 8. Handbook of agriculture (1980) ICAR, New Delhi.
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