

SRI VENKATESWARĀ UNIVERSITY: 'TIRUPATI
B.VOC. HONOURS PROGRAMME IN HORTICULTURE
Under CBCS W.E.F. 2024-2025
COURSE STRUCTURE

SEMESTER – IV

	Skills Gen. Edu	Courses	Title of Paper/Course and code	Credits per course	Hours/ week	Total Hours/ Course	Marks		
							Internal	External	Total
1									
2									
3									
4									
5	Domain Skill component	Major-I	Basics of Fruit Science	3	3	45	25	75	100
6		Practical	Basics of Fruit Science	1	2	30		50	50
7		Major -II	Plantation Crops, Spices, Medicinal and Aromatic Crops	3	3	45	25	75	100
8		Practical	Plantation Crops, Spices, Medicinal and Aromatic Crops	1	2	30		50	50

9	Major-III	Mushroom Culture and Technology	3	3	45	25	75	100
10	Practical	Mushroom Culture and Technology	1	2	30		50	50

SRI VENKATESWARA UNIVERSITY: TIRUPATI
B.VOC. HONOURS PROGRAMME IN HORTICULTURE
MAJOR: HORTICULTURE
SECOND YEAR – IV SEMESTER
Under CBCS W.E.F. 2024-25 AY Onwards
MAJOR PAPER-I: BASICS OF FRUIT SCIENCE

Credits -3

Hours: 45

I. Learning Objectives: By the end of this course the learner has:

1. To know about classification of fruits based on fruit type and morphological characters.
2. To obtain knowledge in cultivation of fruit crops
3. To acquire knowledge on different cultural operations in fruit orchard.

II. Learning Outcomes: On completion of this course students will be able to:

- Realize the value of fruits in terms of human nutrition and economy of nation.
- Explain the potential fruit zones in various states of our country.
- Classify the fruiting plants based on temperature requirements.
- Acquire knowledge related to various cultivation practices for different fruit crops
- Demonstrate the special intercultural operations done in fruit crops
- Comprehend the knowledge on varieties of different fruit crops.
- Examine the pests and diseases of fruit crops and develop skills to manage the same,
- Explain about Integrated Orchard Management
- Develop knowledge on various entrepreneurial skills related to fruit science.

UNIT - I: Introduction to Fruit crops

9 Hrs.

1. Importance of fruit growing in India and Andhra Pradesh.
2. Nutritive value of fruits.
3. Classification of Fruits
4. Constraints in fruit production and remedies to overcome them.

UNIT - II: Tropical Fruit Crops

9 Hrs.

Origin, history, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manures and fertilizer application, irrigation, intercropping, harvesting and yield, pests and diseases of the following tropical fruit crops:

(a) Mango (b) Banana (c) Guava (d) Papaya

UNIT - III: Sub-tropical and temperate fruit crops

9 Hrs.

Origin, history, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manures and fertilizer application, irrigation, intercropping, harvesting and yield, pests and diseases of the following tropical fruit crops:

(a) Grapes (b) Pomegranate (c) Citrus (d) Apple

UNIT - IV: Arid and minor fruit crops

9 Hrs.

Origin, history, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manures and fertilizer

application, irrigation, intercropping, harvesting and yield, pests and diseases of the following tropical fruit crops:

(a) Pine apple (b) Ber (c) Custard apple (d) Date palm

UNIT - V: Management practices for fruit crops

9 Hrs.

1. Integrated Orchard Management
2. Integrated Pest Management
3. Integrated Diseases Management
4. Grading, packing, storage and marketing of fruits.

Text Books/ Reference Books:

- Chattopadhyay, T.K.1997. Text book on Pomology (Fundamentals of fruit growing), Kalyani Publishers, Hyderabad.
- Chundawat, B.S. 1990. Arid Fruit Culture, Oxford and IBH, New Delhi.
- Gourley J H 2009. Text book of Pomology, Read Books Publ.
- Mitra, S.K., Rathore, D. S and Bose, T. K. 1992. Temperate Fruits. Horticulture and Allied Publishers, Calcutta.
- Bose, T. K and Mitra, S. K. Tropical Horticulture. Naya Prakash, Calcutta
- Chattopadhyay, T. K 1997. Text book on Pomology (Fundamentals of fruit growing). Kalyani Publishers, Hyderabad
- Chandra, K. L. (ICAR) 2002, 2001. Hand book of Horticulture. ICAR, New Delhi.

SEMESTER-IV

MAJOR PEPAR-I: BASICS OF FRUIT SCIENCE

PRACTICAL SYLLABUS

Credits -1

Laboratory/field exercises:

1. Study of varieties of Mango, Banana, Papaya and Guava.
2. Study of varieties of Grape, Pomegranate, Citrus and Apple.
3. Preparation of Jam and jelly.
4. Preparation of Sauces and ketchup.

5. Preparation of Pickles
6. Dehydration of Fruits.

Suggested activities and evaluation methods:

A. Measurable:

a. Student seminars:

1. Nutritional value of fruits growing in India and Andhra Pradesh
2. Production Technology of major Tropical fruit crops
3. Production Technology of major Subtropical and Temperate fruit crops
4. Production Technology of major Arid and Minor fruit crops
5. Special intercultural operations in Fruit crops
6. Intercropping in fruit crops
7. Methods of Irrigation of fruit crops
8. Methods of fertilizer application of fruit crops
9. Major Pests and Diseases of Fruit crops and their management
10. Maturity and Harvesting indices of fruit crops
11. Principles of Integrated Orchard Management (IOM).

b. Student Study Projects:

12. Identification and Herbarium preparation of disease symptoms of fruit crops
13. Identification and Herbarium preparation of pest symptoms of fruit crops
14. Different methods of Irrigation of fruit crops
15. Different methods of fertilizer application of fruit crops

c. Assignments: Written assignment at home / during 'O' hour at college; preparation of charts with drawings, making models etc., on topics included in syllabus.

B. General:

1. Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course.
2. Visit to Horticulture University/ Research Station/Orchard.

MAJOR PAPER-I: BASICS OF FRUIT SCIENCE

MODEL QUESTION PAPER

Time: 3 Hours

Max. Marks: 75

PART -A

Answer any FIVE questions, each question carries 5 marks.

(5x5=25)

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

PART – B

Answer **ALL** of the following Question. (5x10=50)

11. a)

OR

b)

12. a)

OR

b)

13. a)

OR

b)

14. a)

OR

b)

15. a)

OR

b)

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SECOND YEAR – IV SEMESTER

Under CBCS W.E.F. 2024-25 AY Onwards

MAJOR PAPER-II: PLANTATION CROPS, SPICES, MEDICINAL AND AROMATIC CROPS

Credits: 3

Hours: 45

I. Learning Objectives: By the end of this course the learner has:

1. To obtain complete knowledge in cultivation of plantation, spices and medicinal crops.
2. To acquire knowledge in medicinal properties and chemical compounds in various medicinal and aromatic crops.

II. Learning Outcomes: On completion of this course students will be able to:

- Realize the value of plantation crops and spices in terms of income generation.
- Acquire knowledge related to various cultivation practices for different plantation, spices, condiment and medicinal crops
- Demonstrate the special intercultural operations done in plantation crops
- Comprehend the knowledge on medicinal and aromatic crops.
- Acquire knowledge in medicinal properties of different medicinal crops.
- Examine the pests and diseases of mentioned crops and develop skills to manage the same,
- Explain about extraction of oils from aromatic crops
- Develop knowledge on various entrepreneurial skills related to horticultural science.

UNIT - I: Plantation crops

9 Hrs.

Origin, history, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manures and fertilizer application, irrigation, intercropping, harvesting and yield, pests and diseases of the following Plantation crops:

- (a) Coconut (b) Cashew nut (c) Coffee

UNIT - II: Spice crops**9 Hrs.**

Origin, history, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manures and fertilizer application, irrigation, intercropping, harvesting and yield, pests and diseases of the following spice crops:

(a) Black pepper (b) Cardamom (c) Clove

UNIT - III: Condiments**9 Hrs.**

Origin, history, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manures and fertilizer application, irrigation, intercropping, harvesting and yield, pests and diseases of the following condiments:

(a) Turmeric (b) Ginger (c) Chili

UNIT - IV: Medicinal plants**9 Hrs.**

Origin, history, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manures and fertilizer application, irrigation, intercropping, harvesting and yield, pests and diseases of the following medicinal crops:

(a) Ashwagandha (b) Rauwolfia (c) Aloe vera

UNIT - V: Aromatic crops**9 Hrs.**

Origin, history, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manures and fertilizer application, irrigation, intercropping, harvesting and yield, pests and diseases of the following medicinal crops:

(a) Lemon grass (b) Mint (c) Citronella

Text Books:

1. Shanmugavelu, K. G and Madhava Rao, V. N. 1977. Spices and Plantation Crops Popular Book Depot, Madras Delhi
2. Pruthi, J. S 1976. Spices and Condiments. National Book Trust, New Delhi
3. Shanmugavelu, K. G. Kumar, N and Nad Peter, K.V. 2005. Production Technology of Spices and Plantation Crops. Agrosis, Jodhpur
4. Kumar, N.B., Md Abdul khaddar, M., Ranga swamy, P and Iruiappan, I. 1997. Introduction To Spices, Plantation Crops and Aromatic Crops. Oxford & IBH, New Delhi
5. Atal, E. K and Kapur, B. M. 1982. Cultivation and Utilization of medicinal and aromatic plants. CSIR, New Delhi

SEMESTER -IV**MAJOR PEPAR – II: PLANTATION CROPS, SPICES, MEDICINAL AND****AROMATIC CROPS****PRACTICALS SYLLABUS****Credits: 1****I. Laboratory/field exercises:**

1. Description and identification of plantation crops varieties/ Hybrids
2. Description and identification of spices varieties/ Hybrids
3. Description and identification of Condiments varieties/ Hybrids
4. Description and identification of Medicinal crops varieties/ Hybrids
5. Description and identification of Aromatic crops varieties/ Hybrids
6. Collection of locally available medicinal and Aromatic plants, plant description and preparation of herbarium.

III. Suggested activities:

A. Measurable:

a. Student seminars:

1. Production Technology of Plantation crops
2. Production Technology of Spice crops.
3. Production Technology of Condiments.
4. Production Technology of medicinal crops
5. Production Technology of aromatic crops
6. Special intercultural operations in plantation crops
8. Medicinal properties and uses of medicinal crops
9. Extraction of oils from aromatic crops

b. Student Study Projects:

5. Identification and Herbarium preparation of different Medicinal plants
6. Identification and Herbarium preparation of disease symptoms of plantation crops
7. Different methods of oil extraction from aromatic crops

c. Assignments: Written assignment at home / during 'O' hour at college; preparation of charts with drawings, making models etc., on topics included in syllabus.

B. General:

1. Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course.
2. Visit to Horticulture University/ Research Station.
3. Visit to a plantation crops / spice field.

MAJOR PAPER-II: PLANTATION CROPS, SPICES, MEDICINAL AND

AROMATIC CROPS

MODEL QUESTION PAPER

Time: 3 Hours

Max. Marks: 75

PART -A

Answer any FIVE questions, each question carries 5 marks.

(5x5=25)

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

PART – B

Answer **ALL** of the following Question.

(5x10=50)

11. a)

OR

b)

12. a)

OR

b)

13. a)

OR

b)

14. a)

OR

b)

15. a)

OR

b)

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MAJOR PAPER-III: MUSHROOM CULTURE AND TECHNOLOGY

Credits: 3

Hours: 45

UNIT - I: Introduction, History:

9 Hrs.

- ❖ Introduction - history - scope of edible mushroom cultivation
- ❖ Types of edible mushrooms available
In India–Volvariellavolvacea, *Pleurotuscitrinopileatus*, *Agaricusbisporus*.
- ❖ Nutritional and medicinal value of edible - mushrooms; Poisonous mushrooms.

UNIT - II: Pure Culture -Spawn Preparation:

9 Hrs.

- ❖ Pure culture - preparation of medium (PDA and Oatmeal agar medium)
- ❖ sterilization - preparation of test tube
- ❖ culturing of *Pleurotus* mycelium on Petri plates
- ❖ preparation of mother spawn
- ❖ polypropylene bag and their multiplication.

UNIT - III: Cultivation Technology:

9 Hrs.

- ❖ Infrastructure: Polythene bags, vessels, Inoculation hook, inoculation loop, culture rack,
- ❖ Mushroom unit (Thatched house) water sprayer, tray, small polythene bag.
- ❖ Mushroom bed preparation - paddy straw, sugarcane trash, maize straw, banana leaves.
- ❖ Factors affecting the mushroom bed preparation
- ❖ composting technology in mushroom production.

UNIT - IV: Storage and Nutrition:

9 Hrs.

- ❖ Short-term storage (Refrigeration - up to 24 hours,)
- ❖ Long term Storage (canning, pickles, papas)

- ❖ Drying, storage in salt solutions.
- ❖ Nutrition - Proteins - amino acids, mineral elements nutrition, Carbohydrates, Crude fiber content – Vitamins.

UNIT - V: Food Preparation:

9 Hrs.

- ❖ Types of foods prepared from mushrooms; soup, cutlet, omelet, samosa, pickles and curry.
- ❖ Research Centers - National level and regional level.
- ❖ Cost benefit ratio
- ❖ Marketing in India and abroad
- ❖ Mushroom Export Value.

SEMESTER-IV

MAJOR PAPER-III: MUSHROOM CULTURE AND TECHNOLOGY

PRACTICAL SYLLABUS

Credits: 1

1. Identification of different edible and poisonous mushrooms.
2. Microscopic and anatomical observations of different mushroom species.
3. Types of Compost preparation and sterilization.
4. Mushroom bed preparation - paddy straw, sugarcane trash, maize straw, banana Leaves/waste.
5. Inoculation and spawning of compost.
6. Incubation and harvesting of mushrooms (collection, drying and preservation).
7. Diseases of mushrooms (photographs).
8. Post-harvest technology steps (photographs).
9. Study tour to mushroom cultivation farms
10. Project work – cultivation of paddy straw/ oyster/white button mushrooms.

MAJOR PAPER-III: MUSHROOM CULTURE AND TECHNOLOGY

MODEL QUESTION PAPER

Time: 3 Hours

Max. Marks: 75

PART -A

Answer any FIVE questions, each question carries 5 marks. (5X5=25)

- 1.
- 2.
- 3.
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- 5.
- 6.
- 7.
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- 9.
- 10.

PART – B

Answer **ALL** of the following Question. (5x10=50)

11. a)

OR

b)

12. a)

OR

b)

13. a)

OR

b)

14. a)

OR

b)

15. a)

OR

b)