ANDHRA KESARI UNIVERSITY

B. Voc. Horticulture: MINOR

w.e.f. 2023-24 AY onwards

COURSE STRUCTURE

Year	Semester	Course	Title	No. Hrs./ Week	No. of Credits
II	IV	3	**Basics of Vegetable Science – (T)**	3	3
			Basics of Vegetable Science –(P)	2	1
		4	**Basics of Fruit Science – (T)**	3	3
			Basics of Fruit Science – (P)	2	1

IV Semester /Horticulture

Basics of Vegetable Science (Olericulture)

(Total hours of teaching 60 @ 03 Hrs./Week)

Theory:

Learning Outcomes: On successful completion of this course, the students will be able to:

- Distinguish the growing of vegetables according to season and climate
- Get detailed knowledge on cultivation aspects of different vegetables
- Understand and explain the special intercultural operations done in vegetable crops
- Study of morphology and taxonomy of different vegetable crops
- Study of different varieties of vegetable crops
- Identify the diseases and pests of vegetable crops and their management

Unit – 1: Introduction to Vegetable crops **12 Hrs.**

1. Importance of vegetable cultivation in India and Andhra Pradesh.
2. Classification and Nutritive value of vegetables.
3. Area and production of vegetables in India and Andhra Pradesh.
4. Export and import potential of vegetables in India. Constraints in vegetable production and remedies to overcome them.

Unit – 2: Solanaceous and Leafy vegetables **12 Hrs.**

Importance, morphology and taxonomy, varieties, climate and soil, seeds and sowing, manuring, irrigation, intercultural operations, diseases and their control, harvesting andyield of following crops:

Cultivation of (a) Brinjal(b) Tomato(c) *Capsicum* (d) Spinach (e) Coriander and (f) *Mentha*

Unit – 3: Root and Tuber crops **16 Hrs.**

Importance, morphology and taxonomy, varieties, climate and soil, seeds and sowing, manuring, irrigation, intercultural operations, diseases and their control, harvesting andyield of following crops:

Cultivation of (a) Carrot(b) Beet root(c) Tapioca and (d)*Colocasia*

Unit – 4: Cole crops **08 Hrs.**

Importance, morphology and taxonomy, varieties, climate and soil, seeds and sowing, manuring, irrigation, intercultural operations, diseases and their control, harvesting andyield of following crops:

Cultivation of (a) Cabbage and (b) Cauliflower

Unit – 5: Leguminous vegetables **12 Hrs.**

Importance, morphology and taxonomy, varieties, climate and soil, seeds and sowing, manuring, irrigation, intercultural operations, diseases and their control, harvesting and yield of following crops:

Cultivation of (a)Cluster bean (b) Cow pea and (c) *Dolichos*

Practical syllabus of Horticulture Semester- IV
Basics of Vegetable Science (Olericulture)
(Total hours of teaching 30 @ 02 Hrs./Week)

1. Demonstration of seed germination test for a vegetable seed.
2. Demonstration of seed viability test.
3. Identification of vegetable seeds and vegetable crops at different growth stages
4. Preparing vegetable nursery beds
5. Raising vegetable seedlings in nursery bed and portrays
6. Identification of major diseases and insect pests of vegetables
7. Land preparation for sowing/ transplanting of vegetable crops
8. Sowing/ transplanting of vegetables in main field
9. Fertilizer application for vegetable growing
10. Visit to vegetable field to study methods of vegetable cultivation.

Model Question Paper for Practical Examination

IV Semester /Horticulture

Basics of Vegetable Science (Olericulture)

Max. Time: 3 Hrs. Max. Marks: 50

1. Demonstration of seed germination/ viability test (A). 10 M
2. Demonstration of preparing nursery bed/ cultivation practice for a vegetable crop (B). 10 M
3. Identification of material (C & D -Vegetable plants) and writing scientific name, family and uses. 2 x 4 = 8M
4. Identification of a disease on vegetable plant (E) 4M
5. Identification and comment on a cultivation practice (F) 4 M
6. Record + Viva Voice 10 + 4 = 14 M

Text books:

- **Bose T K et al. (2003)** Vegetable crops, Naya Udyog Publishers, Kolkata.
- **Singh D K (2007)** Modern vegetable varieties and production, IBN Publisher Technologies, International Book Distributing Co, Lucknow.
- **Premnath, Sundari Velayudhan and D P Sing (1987)** Vegetables for thetropical region, ICAR, New Delhi

Suggested co-curricular activities for Horticulture in Semester- IV:

A. Measurable:

a. Student seminars:

1. Production Technology of Solanaceous crops
2. Production Technology of Leafy Vegetables
3. Production Technology of Root and Tuber crops
4. Production Technology of Cole crops
5. Production Technology of Leguminous crops
6. Special intercultural operations in vegetable crops
7. Major Pests and Diseases of vegetable crops and their management
8. Morphological characters of vegetable crops
9. Maturity and Harvesting indices of vegetable crops
10. Nutritional aspects of vegetable crops

b. Student Study Projects:

1. Identification and Herbarium preparation of different vegetable seeds
2. Identification and Herbarium preparation of disease symptoms of vegetable crops
3. Identification and Herbarium preparation of pest symptoms of vegetable crops
4. Raising of vegetables in Nursery and portrays

c. Assignments: Written assignment at home / during ë0í 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 modulesin syllabus of the course.

2. Visit to Horticulture University/ Research Station.

3. Visit to a vegetablenursery and vegetable crop field.

IV Semester /Horticulture

Basics of Fruit Science (Pomology)

(Total hours of teaching 60 @ 03 Hrs./Week)

Theory:

Learning Outcomes: On successful completion of this course, the 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 – 1: Introduction to Fruit crops **12 Hrs.**

1. Importance of fruit growing in India and Andhra Pradesh.
2. Nutritive value of fruits.
3. Area and production of India and Andhra Pradesh.
4. Export and import potential of fruits in India. Constraints in fruit production andremedies to overcome them.

Unit – 2: Tropical Fruit Crops **12 Hrs.**

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, diseases and pests of the following tropical fruit crops:

(a) Mango (b) Guava and (c) Papaya

Unit – 3: Sub-tropical and temperate fruit crops **12 Hrs.**

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,

diseases and pests of the following sub-tropical and temperate fruit crops:

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

Unit – 4 : Arid and minor fruit crops **12 Hrs.**

Origin, history, distribution, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation, inter cropping, harvesting and yield, diseases and pests of the following arid fruit crops:

(a) Amla (b) Dates and (c) Wood apple

Unit – 5 : Management practices for fruit crops **12 Hrs.**

1. Sustainable Production Practices for Local Fruit Production.
2. Integrated Orchard Management/Principles of IPM.
3. Harvesting and Labor Concerns
4. Grading, packing, storage and marketing of fruits.

Practical syllabus of Horticulture Semester IV

Basics of Fruit Science (Pomology)

(Total hours of teaching 30 @ 02 Hrs./Week)

1. Study of varieties of Mango, Papaya and Guava.
2. Study of varieties of Grape, Pomegranate, Citrus and Apple.
3. Study of varieties of Amla, Dates and Wood apple.
4. Manure and fertilizer application including biofertilizers in different fruit crops
5. Methods of application, calculation of the required quantity of manure and fertilizers based on the nutrient content.
6. Use of growth regulators in fruit crops.
7. Identification and collection of important pests in fruit crops.
8. Identification and collection of important diseases in fruit crops and Herbarium preparation.
9. Visit to a fruit market / commercial orchid.

Model Question Paper for Practical Examination

IV Semester /Horticulture

Basics of Fruit Science (Pomology)

Max. Time: 3 Hrs. Max. Marks: 50

1. Describing cultivation practice for a fruit crop. 10 M
2. Identification with remarks on Mango/ Guava/Papaya variety. 5 M
3. Identification with remarks Grape/Pomegranate/Citrus/Apple variety. 5 M
4. Identification with remarks Amla, Dates and Wood apple. 5 M
5. Identify the disease and pest symptoms and write its causal organism. 2 x 5 = 10 M
6. Record + Viva Voice 10 + 5=15 M

Text 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.

Suggested co-curricular activities for Horticulture Core Course - 4 inSemester- IV :

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 Temperatefruit crops
4. Production Technology ofmajor 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:

1. Identification and Herbarium preparation of disease symptoms of fruit crops
2. Identification and Herbarium preparation of pest symptoms of fruit crops
3. Different methods of Irrigation of fruit crops
4. Different methods of fertilizer application of fruit crops

c. Assignments: Written assignment at home / during ë0í 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 modulesin syllabus of the course.
2. Visit toHorticulture University/ Research Station/Orchard.