

HORTICULTURE: MINOR

**Model syllabus for Horticulture (Minor) in consonance with Curriculum frame work
w.e.f 2025-26 AY onwards**

COURSE STRUCTURE

Year	Semester	Course	Title	No. Hours / Week	No. of Credits
II	III	1	Fundamentals of Horticulture	3	3
			Fundamentals of Horticulture – Practical	2	1
	IV	2	Basics of Vegetable Science	3	3
			Basics of Vegetable Science -Practical	2	1
III	V	3	Basics of Fruit Science	3	3
			Basics of Fruit Science – Practical	2	1
		4	Plantation crops, Spices and Medicinal crops	3	3
			Plantation crops, Spices and Medicinal crops – Practical	2	1
	VI	5	Ornamental Horticulture	3	3
			Ornamental Horticulture – Practical	2	1
		6	Commercial Floriculture	3	3
			Commercial Floriculture – Practical	2	1

SEMESTER-III

COURSE 1: Fundamentals of Horticulture

Theory

Credits -3

3 hrs/week

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

1. To realize the divisions and zones of Horticulture in India.
2. To capable of planning new fruit orchard and able to produce new plantlets through various propagation methods.
3. To learn basic knowledge related to horticulture.

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

1. Understand the scope and potential of Horticulture products in India and Andhra Pradesh.
2. Illustrate different systems of planting in orchard and predict the number of plants in a given land.
3. Demonstrate the methods and types of training and pruning.
4. Explain sexual and asexual propagation methods of plants.
5. Demonstrate skills on vegetative propagation of plants.

III. Syllabus of Theory:

Unit-1: Introduction to Horticulture

8 Hours

1. Horticulture: Definition, importance and scope of horticulture.
2. Divisions of Horticulture with suitable examples and their importance.
3. Area and production of Horticultural crops in A.P. and India.
4. Horticulture zones of India and Andhra Pradesh.

Unit 2 : Characteristics of Orchards

8 Hours

1. Orchard: Definition, different systems of planting orchards – square, rectangular, Quincunx, hexagonal and contour.
2. Calculation of planting densities in different systems of planting.
3. Training: Definition, principles and objectives; merits and demerits of different methods of Training.
4. Pruning: Definition, principles and objectives: Different methods of pruning.

Unit-3: Plant propagation

8 Hours

1. Sexual propagation – advantages and disadvantages.
2. Seed germination, process of seed germination; factors affecting seed germination.
3. Asexual propagation – advantages and disadvantages.
4. Vegetative propagation by Bulbs, Corms, Tubers, Rhizomes, Stolons, Runners and Offsets.

Unit- 4 : Vegetative propagation techniques

8 Hours

1. Cuttings : Definition, methods of Cuttings.
2. Layering : Definition, methods of Layering.
3. Grafting : Definition; methods of Grafting.
4. Budding :Definition; methods of Budding.

Unit- 5 : Important Horticultural operations

8 Hours

1. Definition of Irrigation-Different methods of irrigation followed in horticultural crops.
2. Definition of manures and fertilizers-different methods of application of manures and fertilizers to horticultural crops.
3. Definition of mulch-objectives of mulching-different types of mulches-organic and inorganic mulches with suitable examples.
4. Cropping systems-inter cropping and multi-tier cropping, their merits and demerits with suitable examples.

IV. Text Books/ Reference Books:

- **Prasad and Kumar ,2014.:** Principles of Horticulture 2nd Edition Agribios India.
- **Kumar, N., 1990** Introduction to Horticulture. Rajyalakshmi Publications, Nagarkoil, Tamilnadu.
- **Jithendra Singh, 2002.** Basic Horticulture. Kalyani Publishers, Hyderabad.
- **KausalkumarMisra and Rajesh Kumar, 2014** Fundamentals of Horticulture Biotech books.
- **Sadhu . M .K 1996.** Plant propagation, New Age International Publishers, New Delhi.
- **Sarma. R. R 2002** Propagation of Horticultural crops : Principles and practices Kalyani Publishers, New Delhi.
- **Hartman. HT and Kester . D.E 1976** Plant propagation. Principles and Practices, Prentice Hall of India Pvt. Limited, Mumbai.

III Semester

Course 1: Fundamentals of Horticulture [Practical]

Practical

Credits -1

2 hrs/week

- **Laboratory/field exercises:**

1. Identification of various Horticulture crops.
2. Identification of various tools and implements in Horticulture.
3. Preparation of nursery beds for sowing of vegetable seeds.
4. Methods of breaking dormancy in seeds.
5. Growing Media for propagation of plants.
6. Brief account of plant propagation structures.

V. Suggested activities and evaluation methods:

A. Measurable:

a. Student seminars:

1. Importance, scope and statistics of horticulture in India and Andhra Pradesh.
2. Branches or divisions of horticulture with suitable examples.
3. Climatic zones of horticulture in India and Andhra Pradesh.
4. Systems of planting in an orchard.
5. Types and methods of pruning in horticultural crops.
6. Training methods in horticultural crops.
7. Types of propagation methods (Asexual and sexual).
8. Cuttings – Types of cuttings.
9. Layering – Types of Layering.
10. Grafting – Types of grafting.
11. Budding – Types of Budding.

b. Student Study Projects:

1. Demonstrate different methods of planting systems.
2. Collection of different soil samples of local area.
3. Method of demonstration on mixing of fertilizer.
4. Study of different tools and implements in horticulture.
5. Demonstrate on different methods of Cuttings.
6. Demonstrate on different methods of Layering.
7. Demonstrate on different methods of Grafting.
8. Demonstrate on different methods of Budding.

c. Assignments: Written assignment at home / during '0' 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.

SEMESTER-IV

COURSE 2 : BASICS OF VEGETABLE SCIENCE

Theory

Credits -3

3 hrs/week

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

1. To recognize the morphology of the various vegetable crops.
2. To acquire knowledge in cultivation of vegetable crops.
3. To acquire knowledge in identification of various pests and diseases of vegetable crops.

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

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

III. Syllabus of Theory:

Unit-1: Introduction to Vegetable crops

8 Hours.

1. Importance of vegetable cultivation in India and Andhra Pradesh.
2. Classification of vegetables.
3. Constraints in vegetable production and remedies to overcome them.
4. Vegetable Gardens.

Unit-2: Sub-tropical vegetables

10Hours.

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

Cultivation of (a) Brinjal (b) Tomato (c) Chilli (d) Okra (e) Cucurbits

Unit-3: Temperate Vegetables

6 Hours.

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

Cultivation of (a) Cauliflower (b) Cabbage (c) Onion

Unit-4: Tuber and Root crops**8 Hours.**

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

Cultivation of (a) Potato (b) Carrot (c) Beetroot (d) Tapioca

Unit-5: Beans and leafy vegetables**8Hours.**

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

(a) Cluster bean (b) Cow pea (c) Amaranthus (d) Coriander

IV. Text Books:

1. Thompson, H. C and Kelly, W. C. 1959. Vegetable Crops. Tata Mc Graw Hill Publishing Co. Ltd., Bombay.
2. Premnath Velyudhan, S and Singh, D. P. 1987. Vegetables for the Tropical Region ICAR, New Delhi.
3. Shanmugavelu, K. G. 1989. Production Technology of Vegetable Crops. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
4. Chaudhary, B. 1992. Vegetables. National Book Trust, New Delhi.
5. Bose, T. K and Mitra, S. K. Tropical Horticulture. Naya Prakash, Calcutta.
6. Bose, T. K et al. 2003. Vegetables Crops. Naya Udyog Publishers, Kolkata.
7. Choudhury, B. (ICAR). 1990. Vegetables. 8th Edition, National Book Trust, New Delhi.

SEMESTER-IV

COURSE 2 : BASICS OF VEGETABLE SCIENCE [practical]

Practical

Credits -1

2 hrs/week

- **Laboratory/field exercises:**

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. Different Seed Sowing methods.
5. Canning and Dehydration of vegetables.
6. Cost of cultivation studies of locally grown vegetables.

V. Suggested activities:

A. Measurable :

a. Student seminars :

1. Production Technology of Solanaceous crops.
2. Production Technology of Cucurbit Vegetables.
3. Production Technology of Root and Tuber crops.
4. Production Technology of Temperate 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 '0' 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 vegetable nursery and vegetable crop field.

SEMESTER-V
COURSE 3: BASICS OF FRUIT SCIENCE

Theory

Credits -3

3 hrs/week

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.

III. Syllabus of Theory:

Unit – 1 : Introduction to Fruit crops

8 Hours.

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 – 2 : Tropical Fruit Crops

10 Hours.

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 – 3 : Sub-tropical and temperate fruit crops

8 Hours.

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 fruit crops:

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

Unit – 4 : Arid and minor fruit crops

8 Hours.

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 fruit crops:

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

Unit – 5 : Management practices for fruit crops

8 Hours.

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

IV. 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-V

Course 3: BASICS OF FRUIT SCIENCE [Practical]

Practical

Credits -1

2 hrs/week

- **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.

V. 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:

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 '0' 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.

SEMESTER-V

Course 4: PLANTATION CROPS, SPICES AND MEDICINAL CROPS

Theory

Credits -3

3 hrs/week

VI. 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.

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

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

I. Syllabus of Theory:

Unit-1: Plantation crops

10 Hours

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 (d) Oil palm

Unit-2: Spice crops

10Hours

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 (d) Cinnamon

Unit-3: Condiments**6 Hours**

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

Unit-4: Medicinal plants**8 Hours**

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) Aswagandha (b) Rauvolfia (c) Aloe vera (d) Cinchona

Unit-5: Aromatic crops**6 Hours**

1. 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

II. 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-V

Course 4: Plantation crops, Spices and Medicinal crops [Practical]

Practical

Credits -1

2 hrs/week

- **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 '0' 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.

SEMESTER-VI

Course 5: ORNAMENTAL HORTICULTURE

Theory

Credits -3

3 hrs/week

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

1. To obtain knowledge in various types of Gardens and their role in recreating human psyche.
2. To acquire knowledge in identification and propagation of Ornamental plants.
3. To understand the designing of Gardens in public areas.

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

1. Acquire a critical knowledge in Ornamental Horticulture and its significance.
2. Identify and explain Living and non-living components in an Ornamental Garden.
3. Acquire skills on propagation and planting of Ornamental plants.
4. Perform managerial skills related to Ornamental Gardening.
5. Demonstrate skills of Designing and Developing Ornamental Gardens in Public Areas.

III. Syllabus of Theory:

Unit-1: Introduction to Ornamental Horticulture

8 Hours

1. Definition, History and Scope of Gardening.
2. Types of Gardens- Formal and Informal Gardens with examples.
3. Basic principles of Gardening.
4. Garden components and Adornments.

Unit-2: Plants in Ornamental Gardening

8 Hours

Importance, Design values, Propagation, Planting of following Ornamental plants:

(a) Trees (b) shrubs (c) Herbaceous perennials (d) Flowering Annuals

Unit-3: Special Plants in Ornamental Gardening

8 Hours

Importance, Design values, Propagation, Planting of following Ornamental plants:

(a) Climbers (b) Creepers (c) Palms (d) Ferns (e) Cacti and Succulents

Unit-4: Landscape management and Lawn management

8 Hours

1. Landscape design for educational institutes.
2. Landscape design for Industrial areas.
3. Lawn – Selection of Grasses, Establishment and Maintenance of lawn.
4. Interior scaping.

Unit-5: Special type of Gardens and Bonsai

8 Hours

1. Terrarium, Vertical Garden, Roof Garden.
2. Rock Garden, Water Garden.
3. Bonsai – Types, Culture and maintenance of Bonsai.

IV. Text Books/ Reference Books:

1. Randhawa, G S. Ornamental Horticulture in India.
2. Bose, T. K and Mukherjee, D. 2004. Gardening in India. Oxford & IBH Publishers.
3. Chandra, K. L and Choudhary, B. 1986. Ornamental Horticulture in India. Publication and Information division ICAR, New Delhi.
4. Randhawa, G. S. Amitabha Mukhopadhyay. 2004. Floriculture in India. Allied Publishers Pvt. Ltd., New Delhi.
5. Aora, J.S. 2006. Introductory Ornamental Horticulture. Kalyani Publishers, Ludhiana.
6. Iyengar, G. S. 1990. Complete Gardening In India. IBH, Bangalore.
7. Walker, D. T. 1983. Planting Designs. PDA, Publishers Corporation, USA
8. Eckbo, G. 1956. The Art of Home Landscaping.
9. Bose, T. K., Malti, R.G., Dhua, R. S and Das, P. 2004. Floriculture and Landscaping. Nayaprakash, Calcutta.
10. Randhwa, M. S. 1983. Flowering Trees.
11. Neol Kings bury, 1997. The ultimate planting guide.
12. Randhwa, M. S. 1950. Beautiful Gardens.

SEMESTER-VI

Course 5: ORNAMENTAL HORTICULTURE[Practical]

Practical

Credits -1

2 hrs/week

- **Laboratory/field exercises:**

1. Identification and description of various plants grown in ornamental gardens.
2. Tools, Implements and Containers used in ornamental gardens.
3. Planning, designing and establishment of gardens viz. Lawn, Hedge, Edge, Rockery etc.
4. Demonstration of Types and styles of gardens using photos or videos.
5. Planning, designing and establishment of water garden, Carpet edding, Shade Garden and Roof Garden.
6. Preparation of land for Lawn and Planting.
7. Demonstration of Bonsai making.
8. Study and creation of Terrarium and Vertical Garden.

IV. Suggested activities:

A. Measurable :

a. Student seminars :

1. History and Scope of Gardening.
- 2 Interior scaping.
3. Cultural operations in Gardening.
4. Tools and implements used in gardening.
5. Cultural practices in Bonsai.
6. Propagation of Ornamental plants.
8. Suitable Indoor plants for Balcony.
9. Designing of Garden.

b. Student Study Projects:

8. Identification and preparation of a list of Ornamental plants.
9. Demonstrate various propagation methods used in propagation of ornamental plants.
10. Identification of various garden components in nearby gardens.

c. Assignments: Written assignment at home / during '0' 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 Local gardens.

SEMESTER-VI

Course 6: COMMERCIAL FLORICULTURE

Theory

Credits -3

3 hrs/week

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

1. To understand the importance of cut and loose flowers in day-to-day life.
2. To study the cultivation practices of different flower crops.
3. To understand the post-harvest techniques of flowering crops to increase self-life.

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

1. Understand the significance of flowers in human life.
2. Acquire skills related to production techniques in floriculture.
3. Demonstrate skills of protected cultivation in floriculture.
4. Perform skills in relation to post-harvest operations in floriculture.

III. Syllabus of Theory:

Unit – 1: Basic concepts of floriculture **8 Hours.**

1. Commercial Floriculture- Definition, Aesthetic, Cultural and Industrial importance of flowers.
2. Area, production and exports of flowers in India.
3. Scope of Commercial Floriculture in India.
4. Constraints in flower production in India and remedies to overcome them.

Unit – 2: Production Technology **8 Hours.**

1. Production techniques of following flowering plants for Domestic and Export market:

(a) Rose (b) Chrysanthemum (c) Gerbera

Unit – 3: Production Technology-2 **8 Hours.**

2. Production techniques of following flowering plants for Domestic and Export market:

(a) Marigold (b) Dahlia (c) Crossandra (d) Jasmine

Unit – 4: Production Technology-3**8 Hours.**

1. Production techniques of following flowering plants for Domestic and Export market:

(a) Orchid (b) Tuberose (c) Gladiolus

Unit – 5: Post-Harvest practices in Floriculture**8 Hours.**

1. Post-Harvest technology of cut and loose flowers.
2. Dry flower technology in cut flowers.
3. Flower arrangement – Eastern and Western flower arrangement.
4. Bouquets – materials and methods.

IV. Text Books/ Reference Books:

1. Randhawa, G. S and Mukhopadhyaya, A. 2004. Floriculture in India.
2. Bose, T. K and Yadav, L. P. 1989. Commercial Flowers. Nayaprakash, Calcutta.
3. Prof. Bhattacharjee, S. K. Advanced Commercial Floriculture. Aavishkar Publishers Distributor, Jaipur – 320003.
4. Aora, J. S. 2006. Introductory Ornamental Horticulture. Kalyani Publishres, Ludhiana – 141 008.
5. Alex Laurie Kiplinger, D. C and Kennard Nelson, S. 1976. Commercial Flower Forcing. McGraw Hill Company, New York.
6. Lersen, R. A. 1981. Introduction to Floriculture. Academic press, New York.
7. Pal, B.P. 1991. The Rose in India. Publications and Information Division ICAR, New Delhi.

SEMESTER- VI

Course 6: COMMERCIAL FLORICULTURE[Practical]

Practical

Credits -1

2 hrs/week

I. Laboratory/field exercises:

1. Identification of important flower crops.
2. Preparation of nursery bed for flower seeds sowing.
3. Training and Pruning of Roses in open and Polyhouses.
4. Propagation of rose by cutting and budding.
5. Propagation methods in Chrysanthemum.
6. Layering methods for Jasmine propagation.
7. Visit to Green house to study protected cultivation of Gerbera.
8. Field visit to commercial flower growing area.

I. Suggested activities:

A. Measurable :

a. Student seminars :

1. Importance and Scope of cultivation of flowers.
2. Production technology of flower crops.
3. Post harvest techniques in floriculture.
4. Dehydration of cut flowers.
5. Dry flower technology.
6. Protected cultivation in flower crops.
8. Training and pruning in various flower crops.
9. Methods of flower arrangement.
10. Classification of flowers.

b. Student Study Projects:

11. Identification and preparation of a list of flowering plants.
12. Demonstrate various propagation methods used in propagation of flowering crops.
13. Demonstrate various drying techniques of flowers to increase vase life.

c. Assignments: Written assignment at home / during '0' 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 Local Floriculture fields.