

SRI VENKATESWARA UNIVERSITY
B.Sc. DEGREE COURSE IN HORTICULTURE
V - SEMESTER

(Under CBCS W.E.F. 2022-23)

Skill Enhancement Courses (SECs) for V Semester, from 2022-23

(Syllabus/Curriculum)

Pair Options of SECs for Semester-V

(To choose one pair from the Two alternate pairs of SECs)

Uni. Code	Course NO. 6 & 7	Name of Course	Th. Hrs. / Week	IE Marks	EE Marks	Credits	Prac. Hrs. / Week	Marks	Credits
	6A	Ornamental Horticulture	3	25	75	3	3	50	2
	7A	Commercial Floriculture	3	25	75	3	3	50	2

(OR)

	6D	Dryland Horticulture	3	25	75	3	3	50	2
	7D	Plantation Crops	3	25	75	3	3	50	2

Note: For Semester-V, for the domain subject Horticulture, any one of the Two pairs of SECs shall be chosen as courses 6 and 7, i.e., 6A & 7A or 6D & 7D. The pair shall not be broken (AD allotment is random, not on any priority basis).

Note-2: One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate field skills related to the domain subject in students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training to students on the field skills embedded in the syllabus citing related real field situations.

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(Syllabus/Curriculum)

COURSE-6A ORNAMENTAL HORTICULTURE

(Total hours of teaching – 90 hours)

Theory:

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

- Educated to realize and understand the role of gardening in the life of nation.
 - Acquire the knowledge in bio-aesthetic planning by utilizing the available flora and fauna in beautification of surroundings.
 - A comprehensive knowledge related to various flowering annuals, herbaceous perennials, ornamental flowering shrubs, climbers, foliage plants, cacti and other succulents, potted plants and other ornamental plants.
 - Acquire knowledge on different styles of gardens
 - Knowledge on Landscaping of Educational institutes, public and private areas
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Unit- I : Introduction

1. Importance and scope of gardening (Landscaping) - Goals of landscaping – Categories of landscaping (Residential, public, commercial, specialty landscaping) –
2. Principles of landscaping-Initial approach – Axis – Focal Point – Mass effect – Unity – Space – Divisional Lines – Proportion and Scale – Texture – Time and Light – Tone and Colour – Mobility – Rhythm – Balance – Contract – Harmony – Vista – Style.
3. Garden types- Formal - Informal – Wild Garden. Styles of garden in the world- Mughal Garden- site and design – walls and gates – terrace- running water- baradari- trees and flowers
4. Features of English – Italian – French – Persian Gardens – Japanese Garden – Types of Japanese Garden – Hill – Flat – Tea – Passage – Sand Gardens
5. Features of Japanese Garden – Ponds – Streams – Waterfalls – Fountains – Islands – Bridges – Water Basins – Stone Lanterns – Stones –

Pagodas – Fences and Gates – Vegetation (Ever green, Deciduous and Flowering plants)

UNIT- II

1. Garden components or features - Garden walls – Retaining wall – Fences and Gates – Hedges and Edges – Flower bed – Borders – Carpet Bedding - Steps – Garden Drives (Gravel and Asphalt) and Paths (Gravel, Brick, Grass, Stone, Crazy pavings) –
2. Arches and Pergolas – Screens – Bridges – Outdoor garden rooms (Gazebos, garden pavilions, band stand, bower and thatched huts) walk-paths, bridges, other constructed features etc.
3. Garden adornments– Garden Seats – Ornamental tubs, urns and Vases – Bird baths – Sun dials – Floral Clocks – Japanese Lanterns – Ornamental Stones – Fountains – statues – Towers – Wells – Plants Containers – Plant Strands
4. Lawn making– Selection of Grass – Bermuda grass – Korean grass – Poa grass – Fescue grass – Kentucky blue grass - Grasses for shady areas – Site Selection – Soil – Preparation of soil – drainage – digging – manuring and grading – Methods of planting – Sowing of Seeds – Dibbling
5. Turfing – turf plastering – Bricking – Planting on Polythene – Maintenance of lawn – Mowing – Rolling – Sweeping – Scraping – Raking – Weeding – Irrigation – Top dressing with compost and fertilizers - Diseases and other problems – Fairy ring – Pale Yellow Laws.

UNIT - III

1. Terrace gardening – Features –Plants suitable – Planning – Maintenance
2. Vertical gardening – components
3. Rockery- Rock Garden – Types of rock Garden – Selection of site – Construction of the Rockery – Planting – Management of the Rockery – Plants for rock garden – Examples of Cacti and succulents, ferns, shrubs, herbaceous plants, bulbs, flowering annuals
4. Water garden – Informal pool – Formal Pool – Construction – Planting methods – Filling the pool (water course and falls) – Care of the water garden – Plants for water garden – Surface flowering aquatics – Oxygenators – Floaters – Marginals.
5. Gardens for special purposes- Specialized gardens – Herb garden – Bog Garden – Sunken garden – Topiary Garden – Kitchen garden – Paved garden – Moon Garden – Gardening in hanging baskets – Window garden – Miniature garden – Mini Zoo – Importance of Green house – Conservatory – Lath house – Fernery in ornamental horticulture.

UNIT- IV

1. Trees: Selection, propagation, planting schemes, canopy management- Ornamental and shady Trees – Definition – Classification based on purpose with suitable examples – Specimen trees – Shady trees – Flowering trees –

Avenue or road side trees – Screening trees – Fragrant flowering trees – Pollution controlling trees – Selection of trees based on – Climatic – Soil – availability and Cost factors- Methods of planting – Time of planting – Manuring – Care and Maintenance – Planting Schemes for avenue planting – One kind of flowering tree on both sides – two kinds of lowering trees blooming at one time on both sides of road – Two kinds of flowering trees blooming at different times on both sides of road – shady trees only on both sides of road.

2. Shrubs - Definition – Utility (aesthetic values) – Classification with suitable examples – based on purpose of growing – Flowering – Foliage – Flowering and foliage – Fragrant shrubs – based on sunlight requirement – shrubs requiring full sunlight – semi shade – intermediate group (semi shade and sun- Planting of Shrubs in garden – Specimen shrub – Standard shrub – Shrubbery border – Arrangement of shrubs – According to height and colour – Growing of shrubs – Soil – Climate – Preparation of soil – Planting – Propagation – seeds – Cuttings - layering – After care – Irrigation – weeding – Pruning.
3. Herbaceous perennials – Definition – Introduction – Classification with suitable examples – Herbaceous perennials for plains and for hills – Planting – Manuring Propagation.
4. Climber and creepers: Utility (aesthetic values) – Classification with suitable examples – Sunny situation – Partial shade – shade loving climbers – Showy flowering climbers – Climbers with scented flowers – Climbers with attractive foliage – Climbers for pots – Annual climbers – Climbers for hedge making – Classification based on vegetative growth – Heavy climbers – Light climbers – Soil – Digging of pits – Planting of climbers – After care – Manuring - Maintenance. Annuals: classification- summer annuals- winter annuals- flowering annuals- foliage annuals- propagation - colour scheme- grouping – aftercare – maintenance
5. Palms- – Definition – Introduction – Utility (aesthetic values) – Classification with examples – Feather leaved Palm – Fan leaved Palm – Propagation – Pot culture –Potting – Re-potting - Potting media – Manuring – Aftercare.
6. Ferns- – Introduction – Utility (aesthetic values) – Propagation – Spore – Division of Clumps –Suckers – bulbils – Site of growing – Soil media – Pot culture – repotting– Irrigation - Indoor culture – Important Examples. Selaginellas – Introduction – Propagation – Cultural hints – Important Examples
7. Cacti – Introduction – Characteristics of Cactaceae – Site of growing – Natural habitat –Domestication (Housing of cacti) – Propagation – Seeds – Offsets – Grafting – Soil – Climate – Containers – Time and method of planting – Potting – Re-potting – Irrigation – Staking.
8. Succulents – Characteristics – Difference between cacti and succulents – Utility (aesthetic values) – Climate – Soil – Housing – Propagation – Seeds – Cuttings – Watering – Re-potting – Summer protection
9. Pot plants: introduction – pots – potting – potting- compost – repotting - arrangement, management.

UNIT- V

1. Landscaping of urban and rural areas, Peri-urban landscaping- Road side - Planting trees in colonies- Landscaping City parks – Large – medium – small parks – pleasure grounds – Examples of ornamental shade and flowering trees for town roads.
2. Landscaping of schools, public places like bus station, railway station, townships, river banks, hospitals, play grounds, airports, industries, institutions. Importance – Need – Planting materials for different areas of institutions
3. Famous Gardens of India –Lal bagh (Bangalore) – Brindavan Garden (Mysore) –Government Botanic Gardens (Ootacamud) Mughal garden (Pinjore) – Chandigarh Rose garden.
4. Visit to Visit to important gardens/ parks/ institutes and identification of different ornamental plants.

Reference books:

1. Randhawa, G.S. and Mukhopadhyaya, A. 1998. *Floriculture in India*. Allied Publishers Pvt. Ltd., New Delhi
2. Bose, T.K. 1999. *Floriculture and Landscaping*. Naya Prakash, Kolkatta.
3. Chadha K.L and Choudhary, B. *Ornamental Horticulture in India*. ICAR, New Delhi.

SRI VENKATESWARA UNIVERSITY

B.Sc. DEGREE COURSE IN HORTICULTURE

V SEMESTER - W.E.F. 2022-23

COURSE-6A ORNAMENTAL HORTICULTURE

MODEL QUESTION PAPER

Time: 3 hours

Marks: 75 marks

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer any five of the following questions in Part A. Part B consists of 5 Units. Answer one full question (A or B) from each unit (i.e., Q.No 9 from Unit – I, Q.No 10 from Unit – II, Q.No 11 from Unit – III, Q.No 12 from Unit – IV, Q.No 13 from Unit – V). Each question carries 10 marks.

PART – A

Answer any *Five* of the following question.

(5X5=25M)

1.	
2.	
3.	
4.	
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6.	
7.	
8.	

(P.T.O)

PART - B

Answer All The Questions. Each question carries 10 marks (5X10= 50M)

9.	(A) OR (B)
10.	(A) OR (B)
11.	(A) OR (B)
12.	(A) OR (B)
13.	(A) OR (B)

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Skill Enhancement Courses (SECs) for V Semester, from 2022-23
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COURSE 7A-COMMERCIAL FLORICULTURE

(Total hours of teaching – 90 hours)

Theory:

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

- Educated importance of commercial floriculture in national economy.
 - Acquire the knowledge on cultivation of commercial flower crops.
 - A comprehensive knowledge related to various post handling operations in handling the cut flowers
 - Acquire knowledge on methods of enhancing the vase life of cut flowers
 - Knowledge on dry flower making and essential oil extraction from flower crops
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UNIT- I

Scope and Importance of commercial floriculture. Problems / constraints for floriculture industry in India. Industrial importance of commercial flowers in India & abroad: Production technology of cut flowers- introduction- origin and distribution- importance - species and varieties - climate and soil requirements- propagation – Rootstocks - land preparation- planting- Manures and fertilizers- cultural operations – intercultural operations - harvesting- post harvest management- yield – physiological disorders

- a) Rose b) Carnation c) Gerbera

UNIT II

Production technology of cut flowers- introduction- origin and distribution- importance - species and varieties - climate and soil requirements- propagation – Rootstocks - land preparation- planting- Manures and fertilizers- cultural operations – intercultural operations - harvesting- post harvest management- yield – physiological disorders

- a) Gladiolus b) Tuberose c) Chrysanthemum d) Orchids

UNIT - III

Production technology of loose flowers - introduction- origin and distribution- importance - species, varieties and hybrids - climate and soil requirements- propagation – Rootstocks - land preparation- planting- Manures and fertilizers- cultural operations – intercultural operations - harvesting- post harvest management- yield – physiological disorders

a) Marigold b) Jasmine c) Crossandra

UNIT- IV

Post harvest handling of cult flowers – Factors effecting post harvest shelf life of cut flowers – steps in post harvest handling – Harvesting, pre-cooling, Rehydration, Grading, Packing, Transportation

Floral preservatives – components of floral preservatives, different types of floral preservatives

UNIT- V

Processing and value addition in flower crops – Methods of Dry flower making - Air drying, Sun drying, Embedded drying, Microwave oven drying, Oven Drying, Freeze drying, Glycerin drying, water drying, Press drying, etc. – Skeletonizing – Tinting of flowers Essential oils – types (Concretes, absolutes, pomades, Resinoids) - Extraction methods of essential oils – Steam distillation, Solvent extraction, effleurage, Supercritical Fluid Extraction

Reference books:

1. Randhawa, G.S. and Mukhopadhyaya, A. 1998. *Floriculture in India*. Allied Publishers Pvt. Ltd., New Delhi
2. Bose, T.K. 1999. *Floriculture and Landscaping*. Naya Prakash, Kolkatta.

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COURSE 7A -COMMERCIAL FLORICULTURE

MODEL QUESTION PAPER

Time: 3 hours

Marks: 75 marks

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer any five of the following questions in Part A. Part B consists of 5 Units. Answer one full question (A or B) from each unit (i.e., Q.No 9 from Unit – I, Q.No 10 from Unit – II, Q.No 11 from Unit – III, Q.No 12 from Unit – IV, Q.No 13 from Unit – V). Each question carries 10 marks.

PART – A

Answer any *Five* of the following question.

(5X5=25M)

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

(P.T.O)

PART - B

Answer All The Questions. Each question carries 10 marks (5X10= 50M)

9.	(A) OR (B)
10.	(A) OR (B)
11.	(A) OR (B)
12.	(A) OR (B)
13.	(A) OR (B)

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COURSE 6D-DRYLAND HORTICULTURE

(Total hours of teaching – 90 hours)

Theory:

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

- to understand the importance of dryland horticulture in rainfed areas
 - Acquire the knowledge rainfall patterns, water budgeting, soil and water conservation techniques and different water conservation techniques
 - Acquire knowledge on methods to enhance water use efficiency
 - Acquire knowledge on Integrated farming Systems and
 - Knowledge on drought tolerant crops and their adoptive mechanisms
-

UNIT I

Definition, importance and limitation of dry land horticulture, present status and future scope. Constraints encounter in dry lands. Agro-climatic features in rain shadow areas, scarce water resources, high temperature, soil erosion, run-off losses etc.

UNIT II

Techniques and management of dry land horticulture, watershed development, soil and water conservation methods-terraces, contour bunds, etc. Methods of control and impounding of run-off water-farm ponds, trenches, macro catch pits, etc., in-situ water harvesting methods, micro catchment, different types of tree basins etc.

UNIT III

Methods of reducing evapotranspiration, use of shelter belts, mulches, antitranspirants, growth regulators, etc. water use efficiency-need based, economic and conjunctive use of water, micro systems of irrigation etc.

UNIT IV

IFS concept and alternate land use systems. Selection of plants having drought resistance. Special techniques, planting and after care-use of seedling races, root stocks, in-situ grafting, deep pitting/planting, canopy management etc. Characters and special adaptation of crops: ber, aonla, annona, jamun, wood apple, bael, pomegranate, carissa, date palm, phalsa, fig, west Indian cherry and tamarind.

UNIT V

Study of rainfall patterns. Water budgeting, contour bunding/ trenching, micro catchments, soil erosion and its control. Study of evapotranspiration, mulches, life saving irrigation. Special techniques of planting and aftercare in dry lands. Study of morphological and anatomical features of drought tolerant fruit crops. Mapping of arid and semi arid zones of India. Life saving irrigation. Visit to public institutes involved in dryland horticulture

Reference books:

1. Dryland Horticulture by M.K. Jaydev, P.L. Siroj and B.D. Sharma
2. Dryland Agriculture and Wasteland Management Emerging Issues and Extension Strategies Hardcover-1 by C. Karthikeyan, K. Thangaraja, K. Chandrakandan
3. Dryland Horticulture by A. P. Sivamurugan, S. Marimuthu, R. Arunkumar, D. Raja, P. Murugesaboopathi

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COURSE 6D-DRYLAND HORTICULTURE

MODEL QUESTION PAPER

Time: 3 hours

Marks: 75 marks

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer any five of the following questions in Part A. Part B consists of 5 Units. Answer one full question (A or B) from each unit (i.e., Q.No 9 from Unit – I, Q.No 10 from Unit – II, Q.No 11 from Unit – III, Q.No 12 from Unit – IV, Q.No 13 from Unit – V). Each question carries 10 marks.

PART – A

Answer any *Five* of the following question.

(5X5=25M)

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

(P.T.O)

PART - B

Answer All The Questions. Each question carries 10 marks (5X10= 50M)

9.	(A) OR (B)
10.	(A) OR (B)
11.	(A) OR (B)
12.	(A) OR (B)
13.	(A) OR (B)

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COURSE7D - PLANTATION CROPS

(Total hours of teaching – 90 hours)

Theory:

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

- to understand the importance of plantation crops in industrial development and national economy
 - Acquire the knowledge on production aspects of plantation crops
 - Acquire knowledge on processing of plantation crops
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UNIT I

Plantation crops- Scope and Importance, Area and production, Export and import potential, role in national economy Coconut – Botanical name- Family- Origin- Importance- Varieties – Climate – Soil- Propagation- Planting- Manuring- Irrigation – Inter Cultivation – Harvesting – Yield – Processing

UNIT II

Production technology of Arecanut - Botanical name- Family- Origin- Importance- Varieties – Climate – Soil- Propagation- Planting- Manuring- Irrigation – Inter Cultivation – Harvesting – Yield – Processing Production technology of Cashew - Botanical name- Family- Origin- Importance- Varieties – Climate – Soil- Propagation- Planting- Manuring- Irrigation – Inter Cultivation – Harvesting – Yield – Processing

UNIT III

Production technology of Tea - Botanical name- Family- Origin- Importance- Varieties – Climate – Soil- Propagation- Planting- Manuring- Irrigation – Inter Cultivation – Harvesting – Yield – Processing Production technology of Coffee - Botanical name- Family- Origin- Importance- Varieties – Climate – Soil- Propagation- Planting- Manuring- Irrigation – Inter Cultivation – Harvesting – Yield - Processing

UNIT IV

Production technology of Rubber - Botanical name- Family- Origin- Importance- Varieties – Climate – Soil- Propagation- Planting- Manuring- Irrigation – Inter Cultivation – Harvesting – Yield - Processing

Production technology of Cocoa - Botanical name- Family- Origin- Importance- Varieties – Climate – Soil- Propagation- Planting- Manuring- Irrigation – Inter Cultivation – Harvesting – Yield – Processing

UNIT V

Production technology of Oilpalm - Botanical name- Family- Origin- Importance- Varieties – Climate – Soil- Propagation- Planting- Manuring- Irrigation – Inter Cultivation – Harvesting – Yield – Processing

Production technology of Palmyrah palm - Botanical name- Family- Origin- Importance- Varieties – Climate – Soil- Propagation- Planting- Manuring- Irrigation – Inter Cultivation – Harvesting – Yield – Processing

Reference books:

1. Parthasarathy, V.A., P.K. Chattopadhyay and T.K. Bose 2006. *Plantation Crops*. Vol I and II. Parthasankar basu Naya Udyog, Kolkata.
2. Kumar, N., Abdul Khader, J.B.M, Rangaswamy, P. and Irulappan, I. 2004. *Introduction to Spices, Plantation crops, Medicinal and Aromatic Crops*. Oxford and IBH publishing Co, New Delhi.

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V SEMESTER - W.E.F. 2022-23

COURSE7D - PLANTATION CROPS

MODEL QUESTION PAPER

Time: 3 hours

Marks: 75 marks

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer any five of the following questions in Part A. Part B consists of 5 Units. Answer one full question (A or B) from each unit (i.e., Q.No 9 from Unit – I, Q.No 10 from Unit – II, Q.No 11 from Unit – III, Q.No 12 from Unit – IV, Q.No 13 from Unit – V). Each question carries 10 marks.

PART – A

Answer any *Five* of the following question.

(5X5=25M)

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

(P.T.O)

PART - B

Answer All The Questions. Each question carries 10 marks (5X10= 50M)

9.	(A) OR (B)
10.	(A) OR (B)
11.	(A) OR (B)
12.	(A) OR (B)
13.	(A) OR (B)