

DEPARTMENT OF BOTANY				CLASS: I M.Sc. Botany				
Sem	Course Type	Course Code	Course Title	Credits	Contact Hours/week	CIA	Ext	Total
II	Major Elective-2	21P2BME2	Horticulture	4	5	25	75	100

Nature of Course			
Knowledge and skill	✓		Employability oriented
Skill oriented	✓		Entrepreneurship oriented

Objectives

1. To understand the importance and divisions of horticulture.
2. To acquire knowledge on plant propagation and fruit crop cultivation.
3. To learn about vegetable cultivation and kitchen gardening.
4. To get to know about landscaping and components of gardens.

UNIT	CONTENT	CLO	K LEVEL	HOURS
I	Introduction of Horticulture: Importance and scope - Horticulture - Divisions - Horticulture – Climate, Soil profile and texture and nutritional needs – Manures and fertilizers – Organic manures – Inorganic fertilizers – Biofertilizers – Methods of applications of manures and fertilizers – irrigation methods – Surface irrigation – Sub irrigation – trib irrigation methods – Plant protection and pest control for horticulture crops.	1	Up to K4	15
II	Plant propagation: Conventional propagation methods and by specialized vegetative structures - Artificial methods: Cutting - types (root, stem, leaf cuttings), advantages and disadvantages - Layering: types - (simple, compound, tip, trench, mound, air-layering) advantages and disadvantages - Grafting: types (inarching, splice, whip/tongue, cleft, bark, epicotyl) advantages and disadvantages - Budding: Types - (T-budding, shield, patch, and ring budding) advantages and disadvantages - Stock – scion relationships.	2	Up to K4	15
III	Fruit crops: Training and pruning methods for fruit plants – Induction of flowering, flower thinning - fruit setting and fruit development – parthocarpy ,Seedlessness in horticultural fruits – Importance of plant growth regulators in fruit crops – Cultivation and harvesting methods of important fruit crops; <i>Mango, Sapota, pomegranate, grapes and guava.</i>	3	Up to K4	15

IV	Flower and vegetable crops: Floriculture – Cultivation of commercial flower crops – <i>Rose, Jasmine, Chrysanthemum, Crossandra, and Gerberas</i> – Cut flowers – Vase life period – Packages for export of cut flowers - Flower decoration – Dry and wet decoration - Classification of vegetables – Cultivation of important vegetables - <i>Tomato, Potato, Onion, Cabbage</i> and <i>Snake guard</i> – Layout for a model kitchen garden – Suitable vegetable crops for home gardens.	4	Up to K4	15
V	Landscape designing: Principles and methods of landscape designing – Types of garden – Garden components – Shrubs and shrubberies, ornamental hedges, edges, flower beds, borders and carpet beds – Climbers and creepers – Foliage plants - Succulents and cacti – Ornamental palms – Orchids - Topiary and trophy - Rockeries and arches – Lawn making and maintenance – Water garden - Layout for college garden - Indoor gardening – Hanging baskets - Bonsai plants – Training and pruning – Terrace garden.	5	Up to K4	15

Books for study

1. Kumar N (1987), Introduction to Horticulture, Rajalakshmi publishers, Nagercoil,
2. Edmond JB. (1977) Fundamentals of Horticulture. Tata McGraw Hill Publishers Co. Ltd., New Delhi.
3. Kumaresan V (2014) Horticulture saras publication. Nagarcoil.

Books for Reference

1. Manibushan Rao K (1991), Textbook of Horticulture. Macmillan publishing Co., New York.
2. Rao KM (2000), Text book of Horticulture. Macmillan India Ltd, New Delhi. 2000
3. George A (2002), Horticulture Principles and Practices. 2nd Ed. Pearson Education, Delhi.
4. Sheela VL (2011). Horticulture MJP Publishers, Chennai.
5. Prakash J and Bhandary K.R. Floriculture Technology, Trades and Trends. Oxford and IBH publication ,New Delhi,
6. Edward A (2000). The Principles of Floriculture ,White Forgotten Book publication
7. Alex Laurie & Victor H. Ries Floriculture Fundamentals and Practices . The Ohio State University Second Edithion New McGRAW-HILL Book Company

Web Resources

1. <https://en.wikipedia.org/wiki/Horticulture>
2. <https://en.wikipedia.org/wiki/Landscape>

Rationale for Nature of the Course:

Selling of fruit and fruit crops, advisory to several gardens, exporting value added products

Lesson Plan

Unit	Description	Hrs	Mode
I	a) Importance and scope of horticulture	1	Chalk and talk PPT, LMS and Group discussion
	b) Divisions of horticulture	2	
	c) Soil profile and texture	2	
	d) Organic manures and Inorganic fertilizers	2	
	e) Methods of applications of manures and fertilizers	2	
	f) Method of Surface irrigation	1	
	g) Method of Sub irrigation	1	
	h) Method of trib irrigation	2	
	i) Plant protection and pest control for horticulture crops.	2	
II	a) Cutting - types (root, stem, leaf cuttings)	3	Chalk and talk PPT, LMS and Group discussion
	b) Layering: types - (simple, compound, tip, trench, mound, air-layering)	3	
	c) Grafting: types (inarching, splice, whip/tongue, cleft, bark, epicotyl)	3	
	d) Budding: Types - (T-budding, shield, patch, and ring budding)	3	
	e) Stock – scion relationships	3	
III	a) Training and pruning methods for fruit plants	2	Chalk and talk PPT, LMS and Group discussion
	b) fruit setting and fruit development	1	
	c) Importance of plant growth regulators in fruit crops	3	
	d) Cultivation and harvesting methods of <i>Mango pomegranate, grapes and guava.</i>	3	
	e) Cultivation and harvesting methods of <i>grapes and guava</i>	3	
	f) Cultivation and harvesting methods of <i>pomegranate,</i>	3	
IV	a) Cultivation of <i>Rose, Jasmine, Chrysanthemum, Crossandra, and Gerberas</i>	5	Chalk and talk PPT, LMS and Group discussion
	b) Packages for export of cut flowers	1	
	c) Flower decoration – Dry and wet decoration	2	
	d) Cultivation of <i>Tomato, Potato, Onion, Cabbage and Snake guard</i>	5	
	e) Layout for a model kitchen garden	2	
V	a) Principles and methods of landscape designing	2	Chalk and talk PPT, LMS and Group discussion
	b) Types of garden	2	
	c) Shrubs and shrubberies,	2	
	d) Ornamental hedges, edges, flower beds, borders and carpet beds-	2	
	e) Topiary and trophy	2	
	f) Rockeries and arches	2	
	j) Maintenance of Water garden	1	Chalk and talk PPT, LMS and Group discussion
	k) Hanging baskets	1	
	l) Bonsai plant	1	
		75	

Course designer: Dr.M. Karpaga Jothi, Assistant Professor

Activities having direct bearing on Skill development / Employability / Entrepreneurship

Demonstration of several horticultural practices and propagation techniques of economic crops

Understand the types and landscape gardening through visits to several popular gardens

Pedagogy:

Chalk and Talk, PPT, Group Discussion, Seminar, Interaction, Problem Solving, Quiz, Virtual Labs & Learning Management System (CANVAS).

Course outcome

CLOs	CLO-Statement	Knowledge level
Students will be able to know, understand, apply and analyse		
CLO1	the divisions of horticulture, facts and applications of biofertilizers, irrigation methods.	Up to K4
CLO2	the advantages and disadvantages of various methods of plant propagation	Up to K4
CLO3	the horticultural practices of fruit crops	Up to K4
CLO4	the floriculture and landscape gardening	Up to K4
CLO5	the types of garden, principles and methods of landscape designing	Up to K4

Mapping programme specific outcomes with Course Learning Outcomes

	PSO1	PSO2	PSO3	PSO4	PSO5
CLO1	2	3	1	1	3
CLO2	1	3	1	3	3
CLO3	2	1	1	2	2
CLO4	3	3	1	2	3
CLO5	2	2	1	3	3

PG Botany Blue Print

Test	10 marks	As per table below
Assignment	5 marks	K4
Seminar	5 marks	K4
Quiz	5 marks	K4

Learning Outcome Based Education (LOBE) & Assessment

Formative – Blue Print

Articulation Mapping-K Levels with Courses Learning Outcomes (CLOs)

Units	CLOs	K- Level	Section A		Section B (Either/or Choice)	Section C (Open Choice)
			Short Answers			
			No. of Questions	K- Level		
1	CLO x	Up to K3	2	K2,K3	2 (K3&K3)	2 (K2,K3)
2	CLO y	Up to K4	3	K2, K2, K3	2 (K4&K4)	1 (K3/K4)
No. of Questions to be asked			5		4	3
No. of Questions to be answered			5		2	2
Marks for each question			2		5	10
Total Marks for each section			10		10	20

Learning Outcome Based Education (LOBE) & Assessment

Summative Examination – Blue Print

Articulation Mapping-K Levels with Courses Learning Outcomes (CLOs)

Units	CLOs	K- Level	Section A		Section B		Section C (Either/or Choice)	Section D (Open Choice)
			MCQs		Short Answers			
			No. of Questions	K- Level	No. of Questions	K- Level		
1	CLO 1	Up to K2	2	K1 & K1	1	K1	2 (K1&K1)	1 (K2)
2	CLO 2	Up to K3	2	K2 & K3	1	K1	2 (K2&K2)	1 (K3)
3	CLO 3	Up to K4	2	K2 & K3	1	K2	2 (K3&K3)	1 (K3)
4	CLO 4	Up to K4	2	K3 & K4	1	K2	2 (K4&K4)	1 (K4)
5	CLO 5	Up to K4	2	K3 & K4	1	K3	2 (K4&K4)	1 (K4)
No. of Questions to be asked			10			5	10	5
No. of Questions to be answered			10			5	5	3
Marks for each question			1			2	5	10
Total Marks for each section			10			10	25	30

Distribution of Section- wise marks with K Levels in the summative examinations

K Levels	Section A (No Choice)	Section B (No Choice)	Section C (Either/or)	Section D (Open Choice)	Total Marks	% of Marks without choice	Consolidated
K1	2	4	10	-	16	13.33	35%
K2	2	4	10	10	26	21.66	
K3	4	2	10	20	36	30.00	30%
K4	2	-	20	20	42	35.00	35%
Total Marks	10	10	50	50	120	100.00	100%