

# **JSS College of Arts, Commerce and Science**

**(AUTONOMOUS)**

**Ooty road, Mysore-570025**



## **DEPARTMENT OF BOTANY**

### **HORTICULTURE**

**Add-on-Course- Syllabus**

**W.e.f**

**2019-2020**

## TABLE OF CONTENTS

Sl. No.	Description	Page No.
1.	<b>Cover Page</b>	1
2.	<b>Table of Contents</b>	2
3.	<b>Proforma of instructions and Examination for COC., Programme in Horticulture</b>	3
4.	<b>List of BOS Members (2017-19),Resolution &amp; Annexure</b>	4-5
5.	<b>Panel of Examiners</b>	6-7
6.	<b>Aim and objectives of the course</b>	8-9
8.	<b>I COC., I Semester</b>	
	a. Theory Paper I	10-11
	b. Practical Paper I	12
	c. Blue print for theory Q P	13
	d. Scheme for practical Q P	14
9.	<b>I COC., II Semester</b>	
	a. Theory Paper I	15-16
	b. Practical Paper I	17
	c. Blue print for theory Q P	18
	d. Scheme for practical Q P	19
10.	<b>II COC., III Semester</b>	
	a. Theory Paper I	20
	b. Practical Paper I	21
	c. Blue print for theory Q P	22
	d. Scheme for practical Q P	23
11.	<b>II COC., IV Semester</b>	
	a. Theory Paper I	24
	b. Practical Paper I	25
	c. Blue print for theory Q P	26
	d. Scheme for practical Q P	27
12.	<b>III COC., V Semester</b>	
	a. Theory Paper I	28
	b. Practical Paper I	29
	c. Blue print for theory Q P	30
	d. Scheme for practical Q P	31
13.	<b>III COC., VI Semester</b>	
	<b>Advanced horticulture-Dissertation</b>	32
14.	<b>Scheme of Evaluation</b>	33
15.	<b>References</b>	34

**PROFORMA FOR THE SCHEME OF STUDY AND EXAMINATION OF THE CAREER ORIENTED  
CERTIFICATE / DIPLOMA / ADVANCED DIPLOMA COURSES IN HORTICULTURE**

Semester	Paper and title	Theory Hrs. / Week	Practical Hrs/ Week	Duration of theory exam	Duration of practical exam	Marks for theory exam	Marks for practical exam	Internal Assessment marks theory	Internal assessment marks practical	Total marks for each subject
I	Basics of Horticulture	2	2	3	P1 - 2 hrs.	70	20	05	05	100
II	Nursery, Plant Propagation, Medicinal & Aromatic Plants	2	2	3	P2 - 2 hrs.	70	20	05	05	100
III	Branches Of Horticulture	2	2	3	P3 - 2 hrs.	70	20	05	05	100
IV	Gardening And Landscaping	2	2	3	P4 - 2 hrs.	70	20	05	05	100
V	Horticultural Exhibitions, Schemes & Subsidies	2	2	3	P5 - 2 hrs.	70	20	05	05	100
VI	Advanced Horticulture – II (Dissertation)	70 Dissertation				30 Viva – Voce				100
<b>TOTAL</b>										<b>600</b>

**NOTE:**

- The candidate should produce the valued and certified record during the practical examination.
- Sixth Semester Dissertation is for 70 marks and Viva-voce for 30 marks, Based on project report.

**JSS COLLEGE OF ARTS, COMMERCE AND SCIENCE (AUTONOMOUS)  
OOTY ROAD, MYSURU-25**

---

**DEPARTMENT OF BOTANY**

---

**PROCEEDINGS OF THE MEETING OF BOARD OF STUDIES FOR THE PROGRAMMES  
B. Sc. IN BOTANY, BIOCHEMISTRY, MICROBIOLOGY (B.Sc. 07) AND CHEMISTRY,  
BOTANY, ZOOLOGY, (B.Sc. 08) HELD ON 14 JUNE 2019 AT 11.00 AM IN THE CHAMBER  
OF THE CHAIRMAN, DEPARTMENT OF BOTANY, JSS COLLEGE, OOTY ROAD,  
MYSURU-25**

---

MEMBERS	SIGNATURE
<b>Dr. S Prathibha</b> Associate Professor, Dept. of Botany, JSS College, Ooty Road Mysuru Chairman	
<b>Dr. Sowmya</b> Associate Professor, Department of Botany Yuvaraja's college, Mysuru  Member (VC Nominee)	
<b>Dr. Syed Fasihuddin</b> Associate professor of Botany Govt. Science College Bengaluru- 560001  Member (AC Nominee)	
<b>Dr. V. N. Muralidhar</b> Associate professor of Botany Govt. first grade College Sira- 572137 Tumkur District  Member (AC Nominee)	

At the outset, the Chairman, BOS in Botany, welcomed the members to the meeting of BOS and briefed about the agenda to be discussed. The following agenda were placed by the Chairman which were discussed and resolved as follows:

---

**Agenda 1:** To frame/ revise, discuss and approve the Scheme/ Syllabus under Choice Based Credit System for the programmes: B.Sc. in Botany, Biochemistry, Microbiology and Chemistry, Botany, Zoology from the academic year 2019-20 onwards.

---

The Chairman appraised the members about the introduction of Choice Based Credit System to the above said programmes with the course matrix in 2017-18. Accordingly, a draft revised/ modified Scheme/ Syllabus was presented and placed before the Board for their opinion and approval.

**Resolution:** The BOS went through the Scheme/ Syllabus and discussed in length about various aspects of the same. After incorporation of the changes suggested by the members of BOS, the Syllabus was approved. Details of changes made with respect to the introduction of revised/ modified Scheme/ Syllabus in the existing courses is shown in Annexure-I.

---

**Agenda 2:** To prepare the Panel of Examiners for the examinations for the year 2019-20.

---

The Chairman presented the proposed Panel of Examiners to I to VI Semester examinations of 2019-20.

**Resolution:** After incorporating of certain changes suggested by the members, the Panel of Examiners was approved.

---

**Agenda 3:** Approval of Reference Books

---

The Chairman presented the proposed list of Reference Books to the Members.

**Resolution:** After incorporating of certain changes suggested by the members, the list of Reference Books was approved.

---

**Agenda 4:** Any other matter with the permission of the Chairman

---

The career oriented course Horticulture syllabi was thoroughly analysed and the contents were restructured according to the present day requirement. Total hours of teaching per paper, Question paper pattern, Maximum marks allotted and the hours per unit are also changed as per the BOS member's corroboration to bring uniformity.

Finally the meeting was concluded with the Chairman thanking the Members for their active participation in the deliberations of the meeting.

Chairman

## LIST OF APPROVED PANEL OF EXAMINERS:

Sl. No	Name	Designation and DOB	Joining Date
<b>Internal Examiners</b>			
1.	Dr.Prathibha S Jss College, Ooty Road, Mysore	Asso. Prof. 28/04/1964	28/08/1986
2.	Kiran B L Jss College, Ooty Road, Mysore	Asst. Prof. 30/12/1992	23/09/2015
3.	Divya gouda Jss College, Ooty Road, Mysore	Asst. Prof.	
<b>External Examiners</b>			
4.	Shivanna M Bharathi College, Bharathi Nagarar	Asso. Prof. 30/06/1958	19/11/1985
5.	Ravikumar B S AVK College For Women, Hassan	Asso. Prof. 13/07/1962	16/07/1987
6.	Nagarathnamma Govt College For Women, Mandya	Asso. Prof. 01/06/1959	10/08/1992
7.	Mallikarjunamiah M N Govt. first grade boys college, Mandya.	Asso. Prof. 05/11/1963	14/08/1992
8.	Hemavathi C Maharani`s Science College For Women, Mysore	Asso. Prof. 05/04/1966	17/08/1992
9.	Vijay C R Maharani`s Science College For Women, Mysore	Asso. Prof. 01/10/1962	29/12/1992
10.	Shivalingaiah Maharani`s Science College for Women, Mysore	Asst. Prof. 01/06/1968	08/01/1996
11.	Purushotham S P Maharani`s Science College for Women, Mysore	Asst. Prof. 15/05/1967	02/08/1996
12.	Lingaraju D P AVK College for Women, Hassan	Asst. Prof. 26/02/1965	23/10/2002
13.	Basavaraju G L Govt College for Women, Mandya	Asst. Prof. 21/07/1976	30/01/2004
14.	Devika M Saradavilas College, Mysore	Asst. Prof. 14/03/1970	14/12/2005
15.	Suresh N S Maharani`s Science College for Women, Mysore	Asst. Prof. 25/02/1975	02/05/2006
16.	Jayalakshmi B Maharani`s Science College for Women, Mysore	Asst. Prof. 18/11/1974	14/07/2006
17.	Sowmya H K Govt Science College,Hassan	Asst. Prof. 18/06/1970	22/12/2007
18.	Thoyajaksha Govt Science College, Hassan	Asst. Prof. 20/07/1970	24/12/2007
19.	Sandhya Rani D Maharani`s Science College for Women, Mysore	Asst. Prof. 24/08/1972	24/12/2007
20.	Pushpalatha H G Maharani`s Science College for Women, Mysore	Asst. Prof. 23/12/1979	26/12/2007
21.	Ashok N Pyati Maharani`s Science College for Women, Mysore	Asst. Prof. 22/04/1970	28/12/2007
22.	Indushree PES College, Mandya	Asst. Prof.	
23.	Lalitha V Maharani`s Science College for Women, Mysore	Asst. Prof.	

24.	Gayathri Devi N Jss College for women Chamarajanagar	Asst. Prof.	
25.	Revanamaba B Maharani`s Science College for Women, Mysore	Asst. Prof.	
26.	Dr.M.K. Mahesh Yuvarajas college, Mysore.	Asso. Prof.	
27.	Shravani, K.A Yuvarajas college, Mysore.	Asst. Prof.	
28.	Dr.krishna Yuvarajas college, Mysore.	Asst. Prof.	
29.	Dr.krishnamurthy Yuvarajas college, Mysore.	Asst. Prof.	
30.	Kalpashree Yuvarajas college, Mysore	Asst. Prof.	
31.	Dr. Sowmya, R Yuvarajas college, Mysore	Asst. Prof.	
32.	Deepa hebbar Maharani`s Science College for Women, Mysore	Asst. Prof.	

# UGC SPONSERED CAREER ORIENTED COURSE IN HORTICULTURE

## **Aim and objectives of the course:**

1. To provide students with a broad educational background, which in addition to emphasising agricultural sciences, gives an appreciation of horticulture's role in augmenting economic growth, development and improvement of society.
2. To prepare people enrolled in horticultural courses to contribute to public policy formulation through their own personal development as informed citizens.
3. To promote the importance of horticulture in food, medicinal and ornamental plant production, providing employment, improving the environment, creating and managing sports and recreation facilities, as one of the main leisure pursuits-gardening

## **Scope and relevance:**

1. The Horticulture has gained importance in recent years as a significant component of agriculture. Summarizing the advantages of horticulture, it is stated that, horticultural crops provide better food, higher income- improving the economic status of the farmers, all the year round occupation to the farm population engaged in production, transportation, processing and marketing operations in addition to the entrepreneurs.
2. Horticultural farming promotes the development of natural resources, yields higher returns from land, enhances the land values, creates a better purchasing power among the people and as a consequence adds to the general prosperity.
3. Horticultural crops play an important role in Commerce, particularly in export trade and food processing industry, besides their value in human consumption.
4. Career opportunities include farm/ estate managers, plantation experts, supervisors, project co-ordinators, landscape architects and consultants, floral designers and horticultural therapists etc...
5. Professional qualification, combined with an inclination towards gardening produce efficient floriculturists, landscaping professionals.
6. Horticulture has also played a significant role in women empowerment, providing employment opportunities to them in mushroom cultivation, floriculture, Horticultural shows and exhibitions, bonsai, indoor and terrace gardening, rockery, dish and bottle gardening, vegetable seed production etc...



## **Eligibility for Admission:**

### **STUDENT OF SCIENCE STREAM**

#### **Course No. 1: Certificate course in Horticulture**

Those who complete I and II Semesters successfully are eligible.

#### **Course No. 2: Diploma in Horticulture**

With certificate in Horticulture, those who complete III & IV semester successfully are eligible.

#### **Course No. 3: Advanced Diploma in Horticulture**

With Diploma in Horticulture, those who complete V and VI Semesters successfully are eligible.

NOTE: The student has to attend 75% of the classes that held in each semester would be eligible for taking up the Final Exams.

## **CAREER ORIENTED COURSE**

### **COURSE: HORTICULTURE**

Certificate Course - One year (I and II Semesters)

Diploma Course - Two years (I to IV Semesters)

Advanced Diploma Course - Three years (I to VI Semesters)

**CERTIFICATE COURSE**

**I SEMESTER**

**THEORY**

**Paper code: HRA010**

**30 Hours  
2 hrs/Week**

**Basics of Horticulture**

**Total Marks 70: 60(Theory) +05 (Internal Assessment-Test)**

**A. UNIT I: Introduction to Horticulture (2 Lectures)**

1. Definition, Branches
2. Scope and Importance

**B. UNIT II: Basic requirements of Horticulture: ( 14 Lectures)**

**a. Soils:** Types, Physical characteristics

**b. Climate:** Types Humid, Arid and Semiarid. Temperature, Relative humidity and Rainfall,

**c. Garden implements and tools**

**d. Manures, Fertilizers & improvement of soil fertility:** introduction, important organic manures, chemical fertilizers, methods of application, nutrient requirements of vegetable crops, time of application.

**e. Organic Farming:** Organic farming practices – Raising of green manure crops (Leguminous Crops).

**f. Irrigation and water management:** introduction, factors determining irrigation, annual precipitation, period of moisture depletion, stages of the crops, types of the crops, soil types, rate of absorption by plants, nature of crops, system of irrigation, surface irrigation, sub soil irrigation, overhead system of irrigation.

**UNIT III: Plant growth regulators in Horticulture: ( 8 Lectures)**

Introduction, induction, breaking of seed dormancy, fast growth of seedling, control of growth vigor, plant tissue culture, control of flowering, flower thinning, modification of sex expression, fruit thinning, induction of parthenocarpy and fruit ripening, control of fruit drops, weed control, control of plant growth.

**UNIT IV: Classification of garden plants: (6 Lectures)**

Introduction, annuals, biennials, perennials, shrubs, trees, climbers, succulents, cacti, ferns, gymnosperms, palms, orchids, bulbous ornamentals.

**Paper code: HRA010**

**Certificate Course  
Basics of Horticulture  
I Semester - Practicals**

**Max. Marks: 20  
2 hrs/Week**

1. Study of soil-types, water holding capacity.
2. Identification of manures.
3. Study of methods of composting and making Vermicompost.
4. Biofertilizers – *Rhizobium*, *Azotobacter*, Phosphotisers. VAM  
(Vesicular Arbuscular Mycorrhizal fungi, Blue green algae– Azolla.
5. Systems of irrigation
6. Classification of garden plants
7. Tools and Equipments used in Horticulture.

**I COC., I Semester**  
**Basics of Horticulture**  
**Scheme of theory question paper**

**Time: 3.00 Hours**

**Max. Marks: 70**

Units	Hours Allotted	No. of questions from each category			Total Marks 70
		2marks (5/8)=10	5marks (4/6)=20	10marks (4/6)=40	
<b>UNIT I: Introduction to Horticulture</b>	02	2x1=2	5x1=5	-	<b>07</b>
<b>UNIT II: Basic requirements of Horticulture</b>	14	2x4=8	5x2=10	10x3=30	<b>48</b>
<b>UNIT III: Plant growth regulators in Horticulture</b>	08	2x1=2	5x1=5	10x2=20	<b>27</b>
<b>UNIT IV: Classification of garden plants</b>	06	2x2=4	5x2=10	10x1=10	<b>26</b>
<b>Total</b>	<b>30</b>	<b>8x2=16</b>	<b>5x6=30</b>	<b>10x6=60</b>	<b>106</b>

Paper code: HRA010

**I Semester Practicals  
Basics of Horticulture**

**Time: 2 Hours**

**Max. Marks: 20**

**I. Identify 'A' and 'B'**

**2x2= 4 marks**

(A-Soil Types- Sandy, Loamy, Black Soil,  
B-Manures- Compost, Rhizobium, Urea)

**II. Perform the following experiment 'C'.**

**4 marks**

(C- Water holding capacity/ Arc Auxanometer Experiment)

**III. Write critical notes 'D' & 'E'**

**2x2=4 marks**

(D & E- Tools and Equipments-Pruning Shear, Hedge Shear, Digging Fork, Pick Axe, Spade, Rose Can)

**IV. Comment on 'F' & 'G'**

**2x2=4 marks**

(F- Systems of Irrigation-Surface/Drip/Sub Soil/Overhead Irrigation  
G- Garden Plants- *Aloe vera*, *Opuntia*, *Cycas*, *Areca lutescens*, *Vanda*)

**V. Viva-Voce**

**4 marks**

**Note:** Each student should submit the **duly valued and certified practical record** at the time of practical examination.

Paper code: HRB010

**CERTIFICATE COURSE**

**II Semester- Theory**

**Nursery, Plant Propagation, Medicinal & Aromatic Plants**

**30 Hours**

**2 hours/week**

**UNIT I: Establishment and management of Nurseries: (8 Lectures)**

Definition, importance of nurseries, classification of nurseries, and management of nurseries

**1. Basic requirements for Nurseries:**

- a. Agro-climatic conditions
- b. Topography
- c. Selection of site
- d. Selection of soil
- e. Seed bed preparation
- f. Water supply and irrigation
- g. Parts of nursery- a) Building structures, b) Propagating structures- raising of seedlings

**2. Management of nursery**

- a. Irrigation
- b. Nutrition
- c. Weed control
- d. Plant protection
- e. Uprooting, packing and transplantation

**UNIT II: Plant propagation: (6 Lectures)**

Introduction, sexual propagation- advantages, disadvantages, vegetative propagation- cuttage, layerage- advantages and disadvantages, ground layering, air layering, budding, graftage- advantages, principles and methods, specialized plant parts, micropropagation, transplanting.

**UNIT III: Training and pruning, tillage, mulching and (10 Lectures)**

**weed management:** Introduction to training- principles, methods, training with and without support, pruning- thinning out, heading back, uses, special techniques and root pruning, ringing, notching, smudging, bending, coppicing, pollarding, lopping, pinching, disbudding, containment pruning, thinning.

**UNIT IV: Medicinal and aromatic plants, plantation crops (6 Lectures)**

- 1. Medicinal and aromatic plants:** Introduction and significance.
- 2. Plantation crops:** Introduction and significance.



**Paper code: HRB010**

**CERTIFICATE COURSE**

**Nursery, Plant Propagation, Medicinal & Aromatic Plants**

**II SEMESTER  
Practicals**

**Max.Marks:30  
2 hrs/Week**

1. Types of Nurseries
2. Plant propagation:
  - a. cuttage
  - b. layering
3. Plant propagation
  - a. grafting
4. Training and pruning- photographs
5. Inorganic and organic mulching
  - a. Tillage- Man, Animal and machine
  - b. Powered tillages
6. Common weeds of horticulture
7. Medicinal and aromatic plants- 4 each
8. Plantation crops- 4 each

**I COC., II Semester  
Nursery, Plant Propagation, Medicinal & Aromatic Plants**

**Scheme of theory question paper**

**Time: 3.00 Hours**

**Max. Marks: 70**

Units	Hours Allotted	No. of questions from each category			Total Marks 70
		2marks (5/8)=10	5marks (4/6)=20	10marks (4/6)=40	
<b>UNIT I: Establishment and management of Nurseries:</b>	08	2x3=6	5x2=10	10x1=10	<b>26</b>
<b>UNIT II: Plant propagation</b>	06	2x2=4	5x2=10	10x1=10	<b>24</b>
<b>UNIT III: Training and pruning, tillage, mulching and weed Management.</b>	10	2x2=4	5x1=5	10x2=20	<b>29</b>
<b>UNIT IV: Medicinal and aromatic plants, plantation crops</b>	06	2x1=2	5x1=5	10x2=20	<b>27</b>
<b>Total</b>	<b>30</b>	<b>8x2=16</b>	<b>5x6=30</b>	<b>10x6=60</b>	<b>106</b>

**Paper code: HRB010**

**Certificate Course  
II Semester Practicals**

**Nursery, Plant Propagation, Medicinal Plants & Aromatic Plants**

**Time: 2 Hours**

**Max. Marks: 20**

- I. Planning, layout and establishment of 'A' 4 marks**  
A-Commercial Nursery/Rural Nursery/Urban Nursery/Home Nursery
- II. Perform the following experiments 'B' & 'C'. 2x2=4marks**  
B- Grafting- Wedge /Approach/ T- budding  
C- Layering-Simple/Compound/Trench/Air layering
- III. Identify with reasons 'D' & 'E' 2x2=4marks**  
D-Tillage-Animal driven/Machine Driven/Man Driven Tillage/  
Mulching- Organic Mulching/ Inorganic Mulching  
E- Common Weeds of Horticulture- Congress weed/Tridax/Digitaria/  
Amaranthus
- IV. Comment on 'F' & 'G' 2x2=4 marks**  
F- Medicinal Plants & Aromatic Plants-Phyllanthus, Tinospora /  
Ocimum, Mint  
G- Plantation Crops-Coffee/Vanilla/Coconut/Rubber/Tea
- V. Viva-Voce 4 marks**

**Note:** Each student should submit the **duly valued and certified practical record** at the time of practical examination.

## DIPLOMA COURSE

### III SEMESTER THEORY

Paper code: HRC010

30 Hours  
2 hrs/Week

## BRANCHES OF HORTICULTURE

### UNIT I: (10 lectures)

- a. **Olericulture:** Introduction, importance of vegetable cultivation, classification of vegetables (according to source of plant parts and season), current status of vegetables in India, cultivation of vegetables, bottlenecks/ limitations in vegetable cultivation.
- b. **Fruit culture (pomology):** introduction, importance of fruits from social point of view, in art and culture, religious importance, general utility, nutritive and economic value, classification of fruits based on climatic adaptability. Pomology in Indian scenario.
- c. **Orchards:** introduction, planning, layout and establishment of orchard. Orchard cultivation.

### UNIT II: Preservation of fruits and vegetables: (05 lectures)

Introduction, preservation methods, preparation of jam, jelly, squash, syrups and pickles.

### UNIT III: Floriculture: (05 lectures)

Introduction, importance of Floriculture from social, economic, health and aesthetic point of view. Marketing and floristry in Indian scenario. Future and scope of Floriculture in India- employment opportunities.

### UNIT IV: (10 lectures)

1. **Arboriculture:** introduction, cultivational aspects of trees, common shade trees, benefits of arboreta.
2. **Harvesting and handling of horticultural products:** maturity indices, types of harvesting (manual, mechanical, chemical). Post harvest handling (washing, sorting, grading, waxing, packaging, labeling, storage)

**Diploma Course**  
**Branches of Horticulture**

**III SEMESTER**

**Paper code: HRC010**

**Practicals**

**Max.Marks:20**

**2 hrs/Week**

1. Introduction & cultivation of vegetables- Onion, Tomato, Potato, Lady's finger
2. Introduction & cultivation of fruits- Mango, Banana, Pomegranate, Grapes
3. Planning & layout of Orchards
4. Preservation of fruits and vegetables
5. Identification and cultivation of flowers- Rose, Tuberose, *Gerbera*, *Anthurium*, *Chrysanthemum*, Jasmine
6. Identification of avenue trees
7. Post harvesting techniques

**Note:** Each student should submit the **duly valued and certified practical record** at the time of practical examination.

**Diploma Course**  
**II COC., III Semester**  
**Branches of Horticulture**  
**Scheme of theory question paper**

**Time: 3.00 Hours**

**Max. Marks: 70**

Units	Hours Allotted	No. of questions from each category			Total Marks 70
		2marks (5/8)=10	5marks (4/6)=20	10marks (4/6)=40	
<b>UNIT I: Olericulture , Fruit culture, Orchards</b>	10	2x2=4	5x2=10	10x2=20	<b>34</b>
<b>UNIT II: Preservation of fruits and vegetables</b>	05	2x3=6	5x2=10	10x1=10	<b>26</b>
<b>UNIT III: Floriculture:</b>	05	2x1==2	-	10x1=10	<b>12</b>
<b>UNIT IV: Arboriculture Harvesting and handling of horticultural products</b>	10	2x2=4	5x2=10	10x2=20	<b>34</b>
<b>Total</b>	<b>30</b>	<b>8x2=16</b>	<b>5x6=30</b>	<b>10x6=60</b>	<b>106</b>

**Paper code HRC010**

**Diploma Course  
II COC., III Semester  
Branches of Horticulture**

**Practicals**

**Max. Marks: 20**

- I. Planning layout and establishment of Orchard 'A'. 4marks**
- II. Cultivation of vegetables and fruits 'B' and 'C'. 2X2=4marks**
- B- (Onion, tomato, Potato, Lady's finger)  
C- (Mango, Banana, pomegranate, grapes)
- II. Identify with reasons 'D' and 'E'. 2X2=4marks**
- D- (flowers- Rose, Tuberose, *Gerbera*, *Anthurium*, *Chrysanthemum*)  
E- (Avenue trees (*Cassia*, *Albizzia*, *Spathodia*, Rain tree).
- III. Comment on 'F' and 'G'. 2X2=4marks**
- F- Jam, jelly, squash, syrups and pickles  
G- Post harvesting techniques.
- V. Viva-Voce 4 marks**

**Note:** Each student should submit the **duly valued and certified practical record** at the time of practical examination.

**Paper code: HRD010**

**Diploma Course**

**IV SEMESTER**

**Theory**

**30 Hours  
2 hrs/Week**

## **Gardening and Landscaping**

### **UNIT I: Garden and its parts:**

**(10 lectures)**

1. Introduction, living elements, hedges, edges, trees, flower beds, lawn, shrubs, climbers and creepers, paths, arches, pergola, rockery, carpet beds, topiary, trophy, sunken garden, water garden, non living elements.
2. Gardening: Introduction, Formal style, Informal style, planning a garden, creating a garden, establishment of the garden.
3. Landscaping: Home garden, Public garden. Educational institution, commercial complexes, companies.

### **UNIT II: Water gardens, terrace gardens (roof garden) rockery:**

**(08 lectures)**

1. **Water gardens:** Introduction, lily pool, Formal and Informal pools.
2. **Terrace gardens (roof garden):** Introduction, components of roof garden.
3. **Rockery:** Introduction, components of rock garden, importance.

### **UNIT III: Indoor gardening and Bonsai:**

**(04 lectures)**

Introduction, potted plants, hanging baskets, bonsai, bromeliad tree, terrarium, bottle garden, and dish garden.

### **UNIT IV: Kitchen garden and lawn making:**

**(06 lectures)**

1. **Kitchen garden:** Introduction, layout and establishment of Kitchen garden.
2. **Lawn making:** Introduction, grasses useful for lawns, Astroturf.



**Diploma Course**

**IV SEMESTER**

**Paper code: HRD010**

**Practicals**

**Max.Marks:30**

**2 hrs/Week**

- 1) Study of Garden and its parts
  - a) living elements- hedges, edges, trees, flower beds, lawn, shrubs, climbers
- 2) a. living elements- creepers, paths, arches, pergola, rockery, carpet beds, topiary, trophy, sunken garden, water garden
  - b. non living elements.
- 3) Landscaping
- 4) Study of Water gardens
- 5) Study of Terrace gardens & Rockery
- 6) Cultivation of potted plants
- 7) Bonsai culture
- 8) hanging baskets, bromeliad tree, terrarium, bottle garden, and dish garden
- 9) Kitchen garden & lawn

**Diploma Course**  
**II B.Sc., IV Semester**

**Gardening and Landscaping**  
**Scheme of theory question paper**

**Time: 3.00 Hours**

**Max. Marks: 70**

Units	Hours Allotted	No. of questions from each category			Total Marks 70
		2marks (5/8)=10	5marks (4/6)=20	10marks (4/6)=40	
<b>UNIT I: Garden and its parts</b>	12	2x3=6	5x2=10	10x2=20	<b>36</b>
<b>UNIT II: Water gardens, terrace gardens (roof garden) rockery</b>	08	2x2=4	5x2=10	10x2=20	<b>34</b>
<b>UNIT III: Indoor gardening and Bonsai.</b>	04	2x1=2	5x1=5	10x1=10	<b>17</b>
<b>UNIT IV: Kitchen garden and lawn making</b>	06	2x2=4	5x1=5	10x1=10	<b>19</b>
<b>Total</b>	<b>30</b>	<b>8x2=16</b>	<b>5x6=30</b>	<b>10x6=60</b>	<b>106</b>

**Paper code: HRD010**

**Diploma Course  
II COC., IV Semester  
Gardening and Landscaping**

**Max. Marks: 20**

- |             |  |                   |
|-------------|--|-------------------|
| <b>I.</b>   | <b>Planning layout and establishment of ‘A’</b><br>(Kitchen garden/lawn making/terrace garden)   | <b>4marks</b>     |
| <b>II.</b>  | <b>Identify and critically comment on ‘B’&amp; ‘C’.</b><br>(B- Living elements & Non Living elements<br>C- Hanging baskets, bromeliad tree, terrarium, bottle garden, and dish garden) | <b>2x2=4marks</b> |
| <b>III.</b> | <b>Perform minor experiment ‘D’</b><br>(D-cultivation of potted plants/Water garden/rockery)   | <b>4 marks</b>    |
| <b>IV.</b>  | <b>Perform minor experiment ‘E’</b><br>(E- Steps in bonsai culture/landscaping of home garden/ landscaping of public garden/ landscaping of educational institution garden)            | <b>4 marks</b>    |
| <b>V.</b>   | <b>Viva-Voce</b>   | <b>4marks</b>     |

**Note:** Each student should submit the **duly valued and certified practical record** at the time of practical examination.

**Paper code: HRE010**

**Advanced Diploma Course**  
**V Semester- Theory**  
**Horticultural Exhibitions, Schemes & Subsidies**

**30 Hours**  
**2 hrs/Week**

**UNIT I: Green House and Hydroponics: (04 lectures)**

**1. Green House:** Introduction, types and significance.

**2. Hydroponics (soil-less culture):** Introduction, types- water culture, sand culture, gravel culture, aeroponics, and scope.

**UNIT II: Display of flowers: (10 lectures)**

Introduction, flower arrangement, types, western style, eastern style, components of flower arrangements, conditioning of flowers, arranging the flowers in the container, Ikebana, dry decoration, preservation methods, dried arrangement, cut flowers, and bouquets.

**UNIT III: Horticultural show: (08 lectures)**

Introduction, eligibility of gardens, exhibition of roots, vegetables, cut flowers, pot plants. Exhibition of flower arrangement, vegetable carving and rangoli.

**UNIT IV: Schemes, Subsidies and extension programmes: (08 lectures)**

- 1. Schemes:** Available from banks, Departments and Private organizations for developing entrepreneurships in Horticulture. (Nurseries / Agriclinics / Hopcoms / NABARD / National Horticulture Board (NHB)).
- 2. Extension programmes:** Agro horticultural societies, Krushi Vignan Kendras (KVK), Krushi Bhavans.

**Paper code: HRE010**

**Advanced Diploma Course**

**V Semester- Practicals**

**Horticultural Exhibitions, Schemes & Subsidies**

**Max.Marks:20**

**2 hrs/Week**

1. Study of Green House
2. Hydroponics
3. Types of flower arrangement
4. Ikebana
5. Vegetable carving and Horticultural exhibition through photographs
6. Study of vegetable, fruit, flower rangoli and mixed rangoli
7. Entrepreneurships in Horticulture

**Advanced Diploma Course**  
**III COC., V Semester**  
**Horticultural Exhibitions, Schemes & Subsidies**  
**Scheme of theory question paper**

**Time: 3.00 Hours**

**Max. Marks: 70**

Units	Hours Allotted	No. of questions from each category			Total Marks 70
		2marks (5/8)=10	5marks (4/6)=20	10marks (4/6)=40	
<b>UNIT I: Green House and Hydroponics</b>	04	2x2=4	5x1=5	10x1=10	<b>19</b>
<b>UNIT II: Display of flowers</b>	10	2x2=4	5x2=10	10x2=20	<b>34</b>
<b>UNIT III: Horticultural show</b>	08	2x2=4	5x1=5	10x2=20	<b>29</b>
<b>UNIT IV: Schemes, Subsidies and extension programmes</b>	08	2x2=4	5x2=10	10x1=10	<b>24</b>
<b>Total</b>	<b>30</b>	<b>8x2=16</b>	<b>5x6=30</b>	<b>10x6=60</b>	<b>106</b>

**Paper code HRE010      Advanced Diploma Course**  
**Horticultural Exhibitions, Schemes & Subsidies**  
**V Semester Practicals**

**Max. Marks: 20**

- |  |                   |
|--|-------------------|
| <b>I. Perform the major experiment ‘A’</b><br>(fruits/ vegetables/ grains/flower/ mixed rangoli) | <b>4marks</b>     |
| <b>II. Planning layout and establishment of green house ‘B’.</b>                                 | <b>4marks</b>     |
| <b>III. Identify and critically comment on ‘C’- hydroponics.</b>                                 | <b>4marks</b>     |
| <b>IV. Identify and comment on ‘D’and ‘E’</b><br>(D-cut flower vegetable,E- fruit show)          | <b>2X2=4marks</b> |
| <b>V. Viva-Voce</b>  | <b>4marks</b>     |

# Advanced Diploma Course

VI Semester

Paper code: HRF010

Max.Marks:70 + 30

## Advanced Horticulture – II

These students should study activities of different areas like field study / seed companies / food processing units / nursery management / storage units / horticulture marketing areas / on job training in different institutions.

Each student has to **submit a project report** on allotted Field of study He should also go to the field, study, collect data, analyze, compile and prepare a report.

Examples for under taking project work are mentioned below.

1. Namadhari seed company, Bangalore.
2. Lab. Land Biotech, Mysore.
3. B.V. Pandit, Nanjangud (Ayurvedic Park)
4. Local Nurseries
  - (a) Bhudevi Nursery
  - (b) N. S. Nursery
  - (c) Deccan Nursery
  - (d) Nurserymen co-operative society
  - (e) Swadeshi Biotech, Mysore
  - (f) Visit to land scaping garden spots at different private and public institutions.
  - (g) Shukha Vana & Bonsai garden of sri Ganapathi Sacchidanda Ashrama.
  - (h) Chandravana maintained by Government Ayurvedic Hospital.
  - (i) Karanji lake.

Apart from the above mentioned he/she can take up the dissertation work based on the horticulture syllabus content.



**SCHEME OF THEORY EXAMINATION FOR UGC CAREER  
ORIENTED COURSE IN HORTICULTURE  
(Applicable to Semester I to V)**

Time: 03 Hours

Max. marks: 70

1. Answer any FIVE of the following : 2 x 5 = 10  
(08 questions to be given and 05 to be answered)

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

2. Answer any FOUR of the following 5 x 4 = 20  
(6 questions to be given and 4 to be answered) – Short answer type

- 9.
- 10.
- 11.
- 12.
- 13.
- 14

3. Answer any FOUR of the following 10 x 4 = 40  
(6 questions to be given and 4 to be answered) – Short answer type

- 15.
- 16.
- 17.
- 18.
- 19.
- 20.

\*\*\*

## REFERENCES

1. Complete gardening in India : Gopalaswamy Iyengar
2. Progressive Floriculture : I.S. Yadav & M.L. Choudhary
3. Floriculture in India : G.S. Randhwa
4. Text book of Horticulture : ICAR Publications
5. Vegetable for the tropical region : Premnath
6. Ornamental Horticulture : J.B. Edmond
7. Hand book of Medicinal Plants : S.K. Battacharjee
8. Hand book of Aromatic and plantation : S.K. Battacharjee  
crops
9. Improved packages of practices in : UAS Dharwad and Bangalore  
Horticulture crops
10. Medicinal and Aromatic plants : Farooqui  
cultivation
11. ICAR 1969 Hand book of Agriculture New Delhi
12. Textbook of Economic Botany : Robert Hill
13. Propagation of Horticultural Plants : Adriane and Brisin
14. Plant propagation-principles & practices : Hartman. H.T. & D.E. Kester
15. Handbook of Mushrooms : Nita Bahl
16. Exotica pictorial cyclopedia of : Dr. Alfred Byrd Graf  
exotic plants – Volume 1 to 6.  
Rochrs Company Publishers  
P.O. Box. 125  
East Rutherford  
New Jersey – 07073  
U.S.A.

\*\*\*