

**SELF STUDY REPORT  
FOR THE PROGRAMME  
B.Sc. (Hons.) Horticulture**

**Submitted by**

**Pandit Jawaharlal Nehru College of Agriculture  
and Research Institute, Karaikal – 609 603  
(A Government of Puducherry Institution)**

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## 6.4 SELF STUDY REPORT FOR THE PROGRAMME

### B.Sc. (Hons.) Horticulture

#### 6.4.1 Brief History of the Degree Programme

**Name of the degree programme** : B.Sc. (Hons.) Horticulture

**Year of start** : 2016-17

**Objectives** :

1. To impart technical education in the field of Horticulture at under-graduate level with high standards.
2. To produce graduates of high calibre in horticulture.
3. To produce graduates capable of multi-tasking in vegetable, flower and fruit production as well as in landscaping and ornamental horticulture
4. To develop human resources specialized in horticulture in the U.T. of Puducherry.

#### Accomplishments

- PAJANCOA&RI is a Govt. of Puducherry Sponsored Institute. It is the Only institute offering UG degree programme in Horticulture in UT of Puducherry
- Adequate land area (225 acres)
- Experienced faculty (59 No's) with expertise
- Recognized by UGC under section 2 (f) & 12 (B)
- A modernized computer lab with Internet/Wi-Fi-Connectivity is available for students.
- Internet/Wi-Fi-Connectivity available in all academic blocks, lecture halls and Hostels.
- Paperless office communication to all staff and students
- Lecture halls, Seminar Hall and Conference Hall are renovated and modernized with LCD projectors.
- All academic blocks and Examination Halls are provided with CCTV Surveillance System.
- Well established laboratories

- Well established and separate hostels for Boys and Girls (both UG & PG) students.
- The facilities including canteen, mess, students' consumer co-operative store *etc.* are available.
- Organizing coaching classes to the students appearing for JRF examination of ICAR.
- Sports facilities are available for Outdoor and Indoor games

#### 6.4.2 Faculty strength

Well experienced faculty members are available in the College. The Faculty is highly competent to offer under graduate degree programme in agriculture. The following Table gives the present position of the faculty strength in the College to offer B.Sc. (Hons.) Horticulture.

Table 6.4.2 Department-wise faculty strength

Sl. No.	Department	Discipline	No. of Faculty position sanctioned			Faculty position filled (by recruitment /promotion)			Vacancy
			Prof.	Assoc. Prof.	Asst. Prof.	Prof.	Assoc. Prof.	Asst. Prof.	
1.	Agricultural Economics and Extension	Agri. Econ.	1	1	5	2	~	5	~
		Agri. Extn.	~	1	2	1	1	1	~
		Maths	~	~	1	~	~	1	~
		Comp.Sci.	~	~	1	~	~	1	~
		Agri. Stat.	~	~	1	~	~	1	~
2.	Agricultural Entomology	Agri. Ento.	1	2	4	1	~	1 + 3*	2
		Nematology	~	~	1	1	~	~	~
3.	Agronomy	Agronomy	1	3	7	6	~	3	2
		Animal Husb.	~	~	1	1	~	~	~
		Agri. Engg.	~	~	2	~	~	1*	1
4.	Plant Breeding and Genetics	Pl. Br. & Gen.	1	2	5	3	~	2+1*	2
		Seed Tech.	~	1	1	2	~	~	~
		Cr. Physiol.	~	~	2	~	~	1	1
5.	Plant Pathology	Pl. Path.	1	1	2	2	~	1	1
		Agri. Mic.	~	1	1	2	~	~	~
6.	Soil Science & Agricultural Chemistry		1	2	4	4	~	2	1
7.	Horticulture		1	2	5	4	~	2+1*	1
8.	Physical education		~	~	2	~	~	1	1
<b>Total</b>			<b>7</b>	<b>16</b>	<b>47</b>	<b>29</b>	<b>1</b>	<b>28</b>	<b>12</b>

\* ~ Contract Teachers

### 6.4.3 Technical and Supporting Staff

The college has created and appointed adequate technical/laboratory/farm staff for catering the needs of the B.Sc. (Hons.) Horticulture. The department wise distribution of technical, supporting and field staff is furnished in Table 6.4.3

Table 6.4.3 Department wise technical, supporting and field staff

Name of the Department	Name of the post	Present position
Dean's secretariat	Junior/Senior Accounts Officer #	--
	Superintendent #	1
	Stenographer Gr.II	1
	Assistant #	2
	UDC	2
	LDC	4
	Attender	1
	MTS (Security)	3
Education Section	Data Entry Operator	1
	Typist	1
	Attender	1
Ag. Econ. & Extension	Projector Operator	1
	MTS (General)	2
Ag. Entomology	MTS (General)	2
Agronomy	Lab Attendant	1
	Field man	3
	Field Assistant	3
	Helper	2
	Data Entry Operator	1
	Agri. Mazdoor	31
	Casual labourers	42
Horticulture	Lab Attendant	1
	Field man	1
	Field Assistant	2
	Gardener	1
	Agri. Mazdoor	21
	Casual labourers	11
Plant Pathology	MTS (General)	1
Pl. Breeding & Genetics	MTS (General)	3
	Field Assistant	2
Soil Sci. & Ag. Chem.	Lab Attendant	1
	MTS (General)	1
	Field Assistant	1
Physical Education	MTS (General)	1
Engineering and Maintenance wing	Executive Engineer (Civil) #	--
	Junior Engineer(Civil)	2
	Junior Engineer (Electrical)	--
	Work Assistant	3
	Electrician	1

Name of the Department	Name of the post	Present position
Engineering and Maintenance wing	Mechanic (WS)	1
	Mazdoor	8
	MTS (House Keeping)	13
	Casual labourers	7
Vehicle Section	Driver Gr.I	3
	Driver Gr.II	2
	Driver Gr. III	2
	Cleaner	3
<b>Total</b>		<b>197</b>

# Posts filled on deputation basis from other Departments of Govt. of Puducherry

#### 6.4.4 Classrooms and laboratories

There are four undergraduate lecture halls in the college exclusively meant for the students B.Sc. (Hons.) Horticulture. Each lecture hall is provided with the necessary teaching aids such as Black board, LCD projector, Over head projector, furniture, electrical fittings, podium *etc.* for effective delivery of the curriculum. Each lecture hall also has internet access points for use by the students. In addition, each lecture hall has a Reverse Osmosis water purifier to provide drinking water facility to the students.

The laboratories are well equipped to conduct the practicals/hands on training to the students. The laboratory facilities available in each department for the B.Sc. (Hons.) Horticulture is furnished in Table 6.4.4.

Table 6.4.4 Laboratory facilities available for the B.Sc. (Hons.) Horticulture

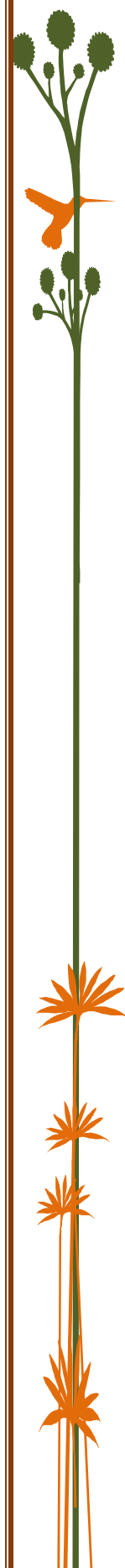
Department	Name of laboratories
Agricultural Economics & Extension	UG laboratory
	Audio Visual laboratory
	Computer laboratory
Agricultural Entomology	UG laboratory
	Insect repository
Agronomy	UG laboratory
	Agrometeorology observatory,
	Instructional farm
	Farm machinery workshop
	Animal husbandry units
Plant Breeding & Genetics	UG laboratory
	Tissue culture laboratory
	Glasshouse
	UG laboratory for Seed Technology
	Seed Testing lab
	Seed grading lab
UG laboratory for Crop Physiology	

Department	Name of laboratories
Plant Pathology	UG laboratory for Plant Pathology Spawn and Mushroom production lab UG laboratory for Agricultural Microbiology
Horticulture	UG laboratory Green house for vegetable cultivation Instructional farm and orchards
Soil Science & Agricultural Chemistry	UG laboratory Instrumentation laboratory

The list of major instruments/equipments available in the UG laboratories is furnished hereunder.

**Department of Agricultural Entomology  
(Disciplines: Entomology and Nematology)**

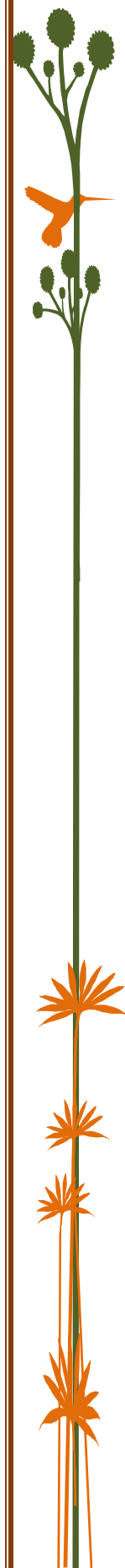
Sl. No.	Name of the Equipment
1.	HPLC
2.	Stainless steel Autoclave
3.	Laminar flow
4.	Glass Bead Sterilizing Unit for tile laminar flow
5.	4KvA Servo Krykard Stabilizer
6.	Beehives
7.	Steel racks for rearing of insects
8.	Stereoscopic microscopes
9.	Double distillation Unit
10.	Insect boxes
11.	Potter's Tower
12.	Work tables
13.	Class room rostrums
14.	LPG stove and cylinder
15.	Soxhlet apparatus
16.	Haemocytometer
17.	Microwave oven
18.	Pressure cooker
19.	Electric Stove with regulators
20.	Centrifuge
21.	Refrigerated centrifuge
22.	Ocular micrometer and stage micrometer
23.	Dissection microscope
24.	Field cage frames
25.	Compound microscope
26.	Microscope with CCD camera
27.	Insect blow-ups
28.	Insect wooden cages
29.	Insect Flying Tunnel
30.	Television and VCR
31.	Refrigerators



Sl. No.	Name of the Equipment
32.	Sericulture video cassette teaching aids
33.	Olfactometer
34.	Five KG balance
35.	Insect vial cabinet
36.	Digital camera
37.	Sony Handycam
38.	Deep freezer
39.	Spectrophotometer
40.	Slide projector
41.	Advanced Plant Growth Chamber SANYO make
42.	Hot water bath
43.	Hot air oven
44.	Microtome
45.	Blender
46.	Electronic balance
47.	Rotary vapour bath
48.	Hot plate
49.	Eppendorf micro centrifuge
50.	PCR instrument
51.	Insect repository
52.	Fixed insect and plant specimens
53.	Insect traps
54.	Different types of sprayers
55.	Sonicator
56.	Screen house
57.	Motic stereozoom microscopes
58.	Insect collection nets
59.	Storage pest monitoring kit
60.	Honey extractor
61.	Insect cabinets

#### Department of Agronomy

Sl. No.	Name of the Instrument
1.	Willey Mill
2.	Willey mill (Heavy duty)
3.	Electronic balances
4.	Physical and Chemical balances
5.	Digital conductivity meter
6.	Digital pH meter
7.	Portable water quality analyzer
8.	Spectrophotometer
9.	Flame Photometer
10.	Semi automatic nitrogen analyzer
11.	GPS meter
12.	Sand bath
13.	Mechanical shaker

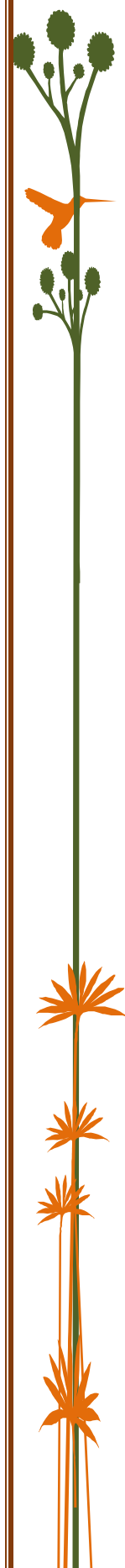




Sl. No.	Name of the Instrument
14.	Hot air ovens
15.	Muffle furnace
16.	High speed centrifuge
17.	Automatic solvent extraction system
18.	Automatic fibre extraction system
19.	Neutron moisture probe
20.	Leaf area meter
21.	Lux meter
22.	Refractometer
23.	Magnetic stirrer

**Department of Plant Breeding and Genetics**  
(Disciplines: Pl. Br. & Gen., Seed Sci. & Tech. and Crop Physiology)

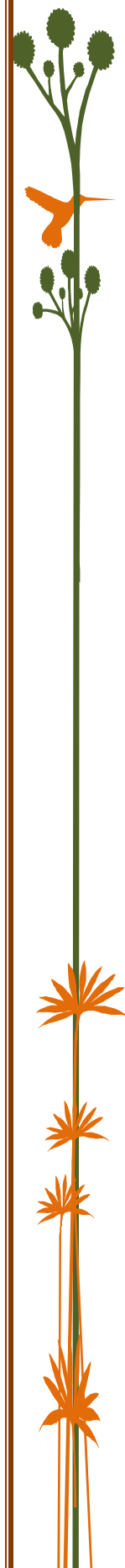
Sl. No.	Name of the Equipment
1.	Weswox Rotary Microtome
2.	NOVEX – Trinocular Microscope
3.	NOVEX – Binocular microscope
4.	Leica - Trinocular Fluorescent Microscope with photomicrography system
5.	Equitron – Vertical Autoclave
6.	Dissection microscope
7.	Zoom stereo binocular microscope Gentner model GSZ-77
8.	Olympus model HAS student monocular microscope
9.	Olympus model GB lab monocular microscope
10.	Olympus model KICET-I Trinocular microscope
11.	Electronic Precision balances
12.	Hot Air Oven
13.	Flame photometer – CL –360
14.	Fuji Compensating Planimeter
15.	Elico Agrophotometer
16.	Remi Model Rotary Shaker
17.	Electrophoresis Unit
18.	Binocular Stereo Microscope
19.	Laboratory Mill (Willey type) Mico Make
20.	Complete Area Measurement system
21.	Milton ray Spectronic 20 Spectrophotometer
22.	Vacuum pump
23.	Leaf Chamber Analyser (Portable)
24.	Lux meter
25.	Ausco incubator
26.	Remi Centrifuge
27.	pH meter
28.	Gel Documentation System
29.	Thermal Cycler
30.	Refrigerated Centrifuge
31.	Electrophoresis – PAGE



Sl. No.	Name of the Equipment
32.	Deep Freezer (~ 86°C)
33.	Gel Documentation system
34.	Spectrophotometer
35.	Gradient thermal cycler
36.	Microwave oven
37.	Neolab water bath
38.	Incubator
39.	UV trans illuminator
40.	pH meter
41.	Conductivity meter
42.	Seed Germinator
43.	BOD incubator
44.	Seed moisture analyser
45.	Laminar Flow Chamber
46.	Thermal Cycler
47.	Gel Electrophoresis Unit

**Department of Plant pathology**  
(Disciplines: Plant Pathology and Agricultural Microbiology)

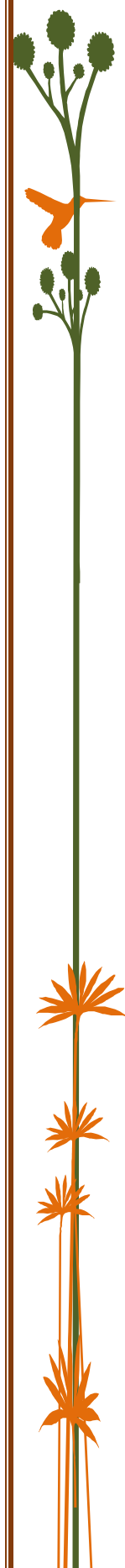
S. No.	Name of the Instrument
1.	Students monocular microscope – Make OLYMPUS
2.	Horizontal Laminar Flow Chamber – Model 1104
3.	Hot Air Circulating Oven
4.	Dissecting microscope
5.	Refrigerators
6.	Microwave Oven
7.	Self Indication Scale
8.	Bench Top incubator cum Shaker – NEOLAB model OSI 264
9.	Mini Quartz Distiller
10.	Monocular Inclined microscope
11.	Autoclave (Vertical)
12.	Inoculation Hood
13.	Sterio zoom Microscope (Binocular version)
14.	Sterio zoom Microscope (Trinocular version)
15.	Monocular microscope
16.	Top Pan Balance with LCD display
17.	Trinocular Microscope with microphotography and image analyzing software
18.	Incubation Hood
19.	Binocular Microscope
20.	Hot Air Oven
21.	Autoclave – vertical 10” x 18”
22.	pH meter
23.	EC meter
24.	Monocular microscope – Olympus – model HSA



S. No.	Name of the Instrument
25.	Monocular microscope – Olympus – model GB
26.	Rotary shaker
27.	Laminar Air Flow Chamber (small)
28.	Laminar Air Flow Chamber (Big)
29.	Horizontal Electrophoresis
30.	Cooling Centrifuge
31.	Gas Chromatograph Model 4010
32.	Bio tech transilluminator
33.	Vacuum pump
34.	Deep Freezer Refrigerator- BPL
35.	EPJ Fluorescence Microscope
36.	Microwave oven Model 700T
37.	Trinocular Microscope with Phase Contrast
38.	Trinocular Stereo Zoom Microscope
39.	Autoclave -Bench Top Fermentor
40.	Autoclave – EQUITRON
41.	Spectrophotometer
42.	ELISA Reader with kit
43.	Hot air oven
44.	Double Distillation Unit
45.	Stereo Zoom Microscope
46.	BOD Incubator, pH meter
47.	Deep Freezer – 40c
48.	Inoculation Hood
49.	Steel Culture Cabinet
50.	Incubator
51.	Wexwox model student microscope

#### Department of Soil Science and Agricultural Chemistry

Sl. No.	Name of the Equipment
1.	pH meter
2.	EC meter
3.	N Auto analyser
4.	Spectrophotometer
5.	Flame Photometer
6.	Atomic Absorption Spectro photometer
7.	Auto titrator
8.	Eppendorf refrigerating centrifuge
9.	Hot plates
10.	Water baths
11.	Hot air ovens
12.	Mechanical Shakers
13.	All quartz double distillation unit
14.	All quartz single distillation unit
15.	Minor instruments and equipments required for soil, plant and water analysis



## Department of Horticulture

Sl. No.	Name of the Equipment
1.	Water bath
2.	Hot air oven
3.	Sand bath
4.	Hand Refractometer
5.	Manual Aluminium orange crusher
6.	Deep freezer
7.	Class room projection Microscope
8.	Dissection Microscope
9.	Zoom stereo Microscope + Nitrogen SLR Camera
10.	Monocular Inclined student microscope
11.	Hand held digital force gauge
12.	Hand held pocket pH meter
13.	Hand held pocket EC, TDS & Temperature meter
14.	Hand held digital Vernier Caliper
15.	Distillation unit
16.	Spectrophotometer
17.	Soxhlet apparatus
18.	Refrigerator
19.	Willey mill
20.	Centrifuge
21.	Leaf area meter
22.	Colony counter
23.	Rotary shaker
24.	Flame photometer

### Instructional farm

The college has 45.0 acres of farm land for horticultural crops managed by the Department of Horticulture and 87.4 acres of farm land for field crops managed by the Department of Agronomy. These farms are used for conducting various field practicals and hands on training to the students. The department of horticulture has adequate number of tractors, farm implements, tools and other machinery for providing hands on training to the students.

Well-equipped air conditioned computer centre is available in the first floor of the administrative block of the institute with a plinth area of 180.0 square meters. The computer centre is equipped with All-in-One Desktops, Hybrid Laptops and Laptops for the use of staff and students of this institute. All these desktops and laptops are connected with internet for browsing. Since 2012, the computer centre is connected with **24 x 7 10 Mbps Internet Access Through NMEICT.**

#### 6.4.5 Conduct of Practical and Hands-on-Training

The practical syllabus is formulated based on the course needs. The student registered for a particular course has to necessarily attend 75 per cent classes conducted to gain eligibility for writing final examination. Practical classes are conducted in the field / experimental lab in the allotted practical hours by the course teacher. The practical exams are conducted as per the prescribed time table for the students who have registered the course.

The students are exposed to hands on Training in gaining practical experience in field operations, in documenting the biometrical traits of the crops, handling of various equipments in the laboratory and estimation of various parameters based on the course requirement.

Also, exposure visit to fields, research institutes, experimental fields, farmers' fields and processing industries are periodically made so as to provide practical exposure to the students. The students are sufficiently benefited with hands-on training during their practical classes. The visits are part of the curriculum and built in the syllabi. During the practical classes, the students are taught on the technology/ process and acquire skills through hands on training regularly.

#### 6.4.6 Supervision of students in PG./Ph.D. programmes

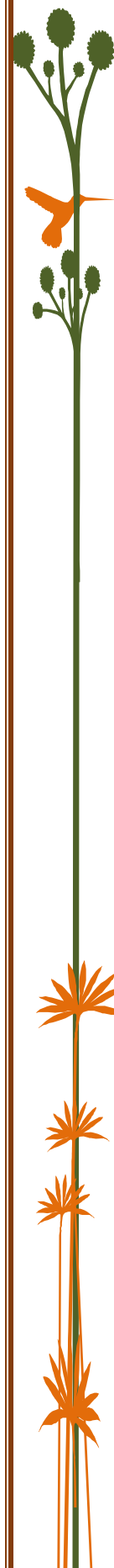
Not applicable to B.Sc. (Hons.) Horticulture degree programme.

#### 6.4.7 Feed back of stakeholders (Students, Parents, industries, employers, farmers, etc.)

- The faculty usually get the feedback from the students at the end of the semester about the contents of the course and the teaching skills of the faculty.
- Parents are periodically invited and briefed about the progress of student performance
- During the exposure visits, after the interaction with the farmers, the feedback on the performance of students is obtained from the farmers.
- Students visit industries related to the course curricula. At that time, feedback is received about their active participation and involvement.

#### 6.4.8 Student intake and Attrition in the programme for last five years

This Institute was started in the year 1987. From the academic year 2016-17, the course B.Sc. (Hons.) Horticulture was started with an intake capacity of 40 students per year. In general, the student attrition is very low and the retention of the students is very



high in B.Sc. (Hons.) Horticulture. The details on the intake capacity, number of students admitted and the student attrition in the last three years is given in Table 6.4.8.

Table 6.4.8 Student intake and attrition in the last three years

Academic year	Intake capacity	Number of students admitted	Attrition Number	Attrition %
2016-17	40	40	0	0.0
2017-18	40	40	1	2.5
2018-19	40	20	0	0.0

#### 6.4.9 ICT application in Curricula Delivery

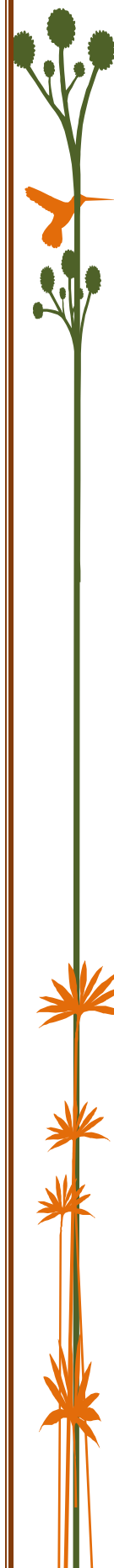
During delivery of curricula to the students, ICT tools are effectively used. All the lecture halls for B.Sc. (Hons.) Horticulture, are provided with LCD projectors and internet facility for better delivery of lectures. The faculty use a combination of lectures and power point presentations to make the concepts/techniques clearly understandable to the students. The important lectures are taught with videos. The students are also trained to make use of the facility for presentation of term papers and assignments.

A separate computer lab with infrastructure facility is available for the students. The students are being taught about the IT facilities. Sufficient furniture, ventilation and lighting facilities are provided in all the class rooms for comfortable listening and writing of the students. A table, podium, whiteboards/screen, black board with duster are available in each class room for the use of teachers. A common generator facility supplies power to all the classrooms to avoid interruption of the class during power failure.

All communications to the students regarding academic calendar, time table for the courses registered, schedule of examinations, internal marks scored by the students, semester results, *etc.* are sent to the students only in the e-notice board of the college. Internet access of 4 Mbps with static IP is used to give access to e-communication portal across the world. Also, the students register the courses to be taken up in a semester in on-line mode.

Regular updates are sent through Whatsapp and Telegram regarding the class schedule and other academic related matter for the benefit of the students.

The teaching faculty is well updated with the usage of IT enabling gadgets. All the classrooms are well equipped with Wi-Fi facility to help in proficient delivery of the course contents.



The institute has signed a MOU with National Knowledge Network Portal, through which staff and students would be able to access e-books and journals. The students and staff have 24 hours x 7 days/week free Internet access (10 Mbps) through NME-ICT project

#### 6.4.12 CERTIFICATE

*I, the Dean/c Dr. V. Kanthaswamy hereby certify that the information contained in the section 6.4.1 to 6.4.9 are furnished as per the records available in the college and degree awarding University*

Signature of the Dean of the college  
with date and seal

