



JAI HIND COLLEGE
BASANTSING INSTITUTE OF SCIENCE
&
J.T.LALVANI COLLEGE OF COMMERCE
(AUTONOMOUS)

"A" Road, Churchgate, Mumbai - 400 020, India.

Affiliated to
University of Mumbai

Program : BSc.

Proposed Course: Botany (Applied Component)

Horticulture

Semester VI

Credit Based Semester and Grading System (CBGS) with effect from the
academic year 2020-21

T.Y.B.Sc. Horticulture & Gardening Syllabus (Applied Component)

Academic year 2020-2021

Semester VI			
Course Code	Course Title	Credits	Lectures /Week
SBOT6AC	HORTICULTURE AND GARDENING – II	2	4
SBOT6ACPR	PRACTICALS IN HORTICULTURE AND GARDENING –II	2	4



PREAMBLE

Today plant science is a fusion of the traditional components with the modern aspects of biochemistry, molecular biology and biotechnology. Over the years, Botany has shown enormous gain in information and applications owing to tremendous inputs from research in all its aspects. With global recognition of the need for conservation, ecologists have contributed significantly in assessing plant diversity. Taxonomists have explored newer dimensions for the classification of plants. New insights have been gained in functional and structural aspects of plant development by utilizing novel tools and techniques for botanical research. Challenging areas of teaching and research have emerged in ecology and reproductive biology. Concern for ever increasing pollution and climate change is at its highest than ever before. Keeping these advancements in view, the vision of the curriculum at the undergraduate level is perfectly timed. From the beginning of 2019-2020 session; the Botany students of Jai Hind College shall have the benefit of a balanced, carefully-crafted course structure taking care of different aspects of plant science, namely plant diversity, physiology, biochemistry, molecular biology, reproduction, anatomy, taxonomy, ecology, economic botany and the impact of environment on the growth and development of plants. All these aspects have been given due weightage over the six semesters. It is essential for the undergraduate students to acquaint themselves with various tools and techniques for exploring the world of plants up to the sub-cellular level. A unit on instrumentation is proposed to provide such an opportunity to the students before they engage themselves with the learning of modern tools and techniques in plant science. Keeping the employment entrepreneurship in mind, applied component has been designed. On the whole, the curriculum is a source of lot of information and is supported by rich resource materials. It is hoped that a student graduating in Botany with the new curriculum will be a complete botanist. Students are encouraged to opt for AAA courses in other subjects like Microbiology, Life Sciences, Chemistry, etc.

Semester VI – Theory

Course code: SBOT6AC	HORTICULTURE AND GARDENING –II (Credits : 2 Lectures/Week: 4)	
	<p>Objectives:</p> <ul style="list-style-type: none"> • Students will learn the basic principles of landscape gardening, different types of gardens and important garden features. • They will learn the commercial production and harvesting of flowers, fruits and vegetables. They will also learn various techniques of preservation of fruits and vegetables. • The topic on principles of landscape gardening is added to understand the basic concepts involved in construction of various types of garden. <p>Outcomes:</p> <ul style="list-style-type: none"> • Students will acquire entrepreneurial skills. • Students will have in-depth knowledge about crop cultivation & food preservation technology. • The topic on landscape gardening will enlighten students about the importance of the need of space gardening and basic techniques involved in construction of different types of gardens. 	
Unit I	<p><u>LANDSCAPE GARDENING</u></p> <ul style="list-style-type: none"> • Principles of landscaping & garden design. • Urban gardening, Space gardening, vertical walls, traffic islands, Beautification of buildings, terrace gardens, Indoor plants & Indoor gardens- Hydroponics, Terrarium/ Bottle garden, Dish garden • Purpose, Method of preparation and management of Important garden features and types of plants used- Paths & Avenues, Hedges & Edges, Lawn, Flowerbeds, Arches & Pergolas, Fencing, Water bodies & Rock garden.. • Mughal garden: e.g. Shalimar Garden (Kashmir), Buddist garden: e.g Lumbini garden (Bangalore) Japanese garden: e.g. S. K Patil garden, Botanical garden: e.g. BSI (Kolkatta), Vertical wall garden Theme park: e.g. Veer Jijamata Udyan, Hesco (Dehradoon), Nakshatra Garden. 	15 L

<p>Unit II</p>	<p><u>COMMERCIAL PRODUCTION</u></p> <ul style="list-style-type: none"> • High –tech Horticultural production- Green house technology- Meaning, types, layout & construction, irrigation systems. Care & attention. Hardening of plants. • Floriculture – Scope & importance, soil and climatic requirement, cultivation practices and Economics for Green-house production of Gerbera, and Orchids; enhancing and delaying period of bloom by special methods. • Olericulture - Soil and climatic requirement and cultivation practices & Economics for: <ul style="list-style-type: none"> ➤ Underground vegetable: Potato ➤ Fruit vegetable: Tomato ➤ Leafy vegetables: Spinach ➤ Flower Vegetable: Cauliflower • Pomology - Soil and climatic requirement and cultivation practices and Economics of Mango and Coconut 	<p>15 L</p>
<p>Unit III</p>	<p><u>HORTICULTURAL PRODUCE & ENTERPRENEURSHIP</u></p> <p>Commercial production of the following –</p> <ul style="list-style-type: none"> • Maturity- Factors responsible for maturity & ripening methods used for delaying ripening. • Harvest- Time of harvest, harvesting and handling of harvested products . • Storage of fresh produce- Types of storage techniques for horticultural produce. • Horticultural business, management and Entrepreneurship development - Horticulture as a business definition and nature, organization, planning and operation of Horticulture farm business. 	<p>15 L</p>

Unit IV	<p align="center"><u>FRUIT AND VEGETABLE PRESERVATION TECHNIQUES</u></p> <ul style="list-style-type: none"> • Storage of Plant Produce- Preservation of flowers, Fruits and Vegetables • Drying (Dehydration)- (Natural conditions – Sun drying; Artificial drying- hot air drying, Vacuum drying, Osmotically dried fruits, Crystallized or Candied fruits, Fruit Leather Freeze Drying) • Freezing (Cold air blast system , Liquid immersion method, Plate freezers, Cryogenic Freezing, Dehydro freezing, Freeze drying) with the help of suitable examples • Canning • Pickling (in brine, in vinegar, Indian pickles) • Sugar Concentrates (Jams, Jellies, Fruit juices) • Food preservatives • Use of antioxidants in preservation • Study of E-numbers: Types & its significance. 	15 L
<p>References:</p> <ul style="list-style-type: none"> • Randhawa G.S. & Mukhopadhyay A., Floriculture in India, Allied Publishers 1986 • Rao, Manibhushan K., Textbook of Horticulture, McMillan Publication, Second edition, 2005 • Singh Jitendra, Basic Horticulture, Kalyani Publishers, 2011 • Chadha, K. L., Handbook of Horticulture, Indian Council of Agricultural research, Kisan Forum Pvt. Ltd. 2014 		

Semester VI – Practical

Course Code: SBOT6ACPR	PRACTICALS IN HORTICULTURE AND GARDENING –II (Credits:2 1 Practicals/Week: 4)
	<ol style="list-style-type: none">1. Preparation of garden layout2. List of plants suitable for garden locations- 2-3 plants for each location3. Identification of important horticultural plants:<ul style="list-style-type: none">• Herbs – foliage any 2 and flowering any 2• Shrubs – foliage any 2 flowering any 2• Trees – foliage any 2 and flowering any 2• Climbers – any 2• Lianas – any 2• Epiphytes – any 2• Creepers –any 2• Trailers – any 2• Aquatic plants – any 3 (preferably various habitat)• Succulents – any 2• Weeds –any 104. Flower arrangements<ul style="list-style-type: none">• Indian (Gajara , veni, garland, rangoli)• bouquets - Baskets , hand ,torch type)• Japanese - Ikebana• Western - table floral arrangement5. Preparation of Jams, Jellies, Squashes/ Syrups, Pickle, Sauce6. Information regarding to soil, temperature, irrigation, fertilizer requirements and propagation methods for:<ul style="list-style-type: none">• Green house plants:<i>Gerbera</i>, Orchids• Vegetables: Potato and Tomato• Fruits: Mango and Coconut7. Vegetable and Fruit Carving8. Biojewellery.

JAI HIND COLLEGE, CHURCHGATE

T.Y.B.Sc. Horticulture Practical Examination March/ April 2019

Semester VI

Total Marks: 100

Time: 5 hrs.

Q. 1 Preparation of an appropriate garden plant for the given area 'A' which will include the locations: _____, _____ & _____. (16)

Q. 2 Use the given material 'B' to create a flower arrangement –

Indian/ Western/ Japanese (10)

Q. 3 a) Use the appropriate material to make and display bio-jewellery. (10)

b) Use the appropriate material to make and display vegetable /fruit carving. (10)

Q. 4 (a) Identify the horticulture plants 'C', 'D', 'E' and 'F' Comment on their importance. (16)

Q. 4 (b) Identify the green house plans 'G'. Comment on their propagation and requirements for growth. (08)

Q. 5 Prepare Jam/ Jelly/ Pickle/ Squash/ Sauce from the given material using appropriate method and proportion. (10)

Q. 6 Field report and report of organoleptic test. (10)

Q. 7 Viva – voce (05)

Q. 8 Journal (05)

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For specimen B follow the below key

Indian style: Rangoli, Garland, Gajra, Veni, Torch bouquet, table flower arrangement.

Western style : Hand bouquet , basket bouquet, table flower arrangement

Japanese : Ikebana table arrangement,

Evaluation Scheme

[A] Evaluation scheme for Theory courses

I. Continuous Assessment (C.A.) - 40 Marks

(i) C.A.-I: Test – 20 Marks of 40 mins. duration

(ii) C.A.-II: Test /Assignment/Project/on the spot surprise class test -

II. Semester End Examination (SEE)- 60 Marks

[B] Evaluation scheme for Practical courses (SEE – 50 marks)

Visits : To Garden /Parks / Nurseries/ Exhibition / Horticulture industries / Research Station and record of visits should be duly certified and presented at practical examination.

Practical examination will be held at the college / institution at the end of the semester. The students are required to present a duly certified journal for appearing at the practical examination, failing which they will not be allowed to appear for the examination.

In case of loss of Journal and/ or Report, a Lost Certificate should be obtained from Head of the Department/ Co-ordinator of the department ; failing which the student will not be allowed to appear for the practical examination.