

**SYLLABUS**  
**FOR THE TRADE OF**  
**FLORICULTURE & LANDSCAPING**  
**UNDER**  
**CRAFTSMEN TRAINING SCHEME (CTS)**

*YEAR – 2002*

*Designed by*

Government of India  
Ministry of Labour (D.G.E.&T.)  
**CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE**  
EN-Block, Sector-V, Salt Lake  
Kolkata-700 091

**List of members of the Trade Committee Meeting approved the syllabus for the trade of “Floriculture & Landscaping” under CTS held on 11.11.2002 at CSTARI**

	<u>S/Sri</u>		
1.	H. Somasundaram, Director	C.S.T.A.R.I., Kolkata	Chairman
2.	B. C. Ghosh, Director	Dept. of Food Processing Industries & Horticulture	Member
3.	Dr. S. Chakraborty, Asstt. Director	Dept. of Food Processing Industries & Horticulture	Member
4.	Dr. S. K. Basu, Landscape Consultant	The Agri-Horticulture Society, Kolkata	Member
5.	Dr. P. K. Das, Jt. Secretary	The Agri-Horticulture Society, Kolkata	Member
6.	M. S. Kundu, Principal	Agriculture Trg. Centre, R.K. Mission Ashram	Member
7.	Avijit Patra, Proprietor	Laxmi Narayan Nursery	Member
8.	Susen Dey, Proprietor	Ma Shibani Nursery	Member
9.	Siburam Mondal Malik, Gardener	Ma Shibani Nursery	Member
10.	Susanta Ari, Proprietor	Sister Nursery	Member
11.	B. N. Mondal, Gardener	Laxmi Narayan Nursery	Member
12.	T. Mukhopadhyay, DDT	CSTARI, Kolkata	Member
13.	S. Kant, DDT	CSTARI, Kolkata	Member
14.	M. S. Ekambaram, ADT	CSTARI, Kolkata	Member
15.	A. K. Samaddar, JTA	CSTARI, Kolkata	Member

## **GENERAL INFORMATION**

1. Name of the Trade : FLORICULTURE & LANDSCAPING
2. N.C.O. Code No. :
3. Duration of Craftsmen Training : Six Months
4. Entry Qualification : Passed 12<sup>th</sup> Class Examination with Biology as major subject or Vocational Training in Agro-Horticulture.
5. Unit Size : 20
6. Space Requirement : 1 Hectare Plot of Land.

**Syllabus for the Trade of “Floriculture and Landscaping” under C.T.S.**

**Duration : Six Months**

**A) Fundamentals of Floriculture**

<b>Week No.</b>	<b>Trade Practical</b>	<b>Trade Theory</b>
1	Common garden operations using different implements.	Introduction and scope; branches of industry (cut flowers, pot plants, seeds and bulbs, essential oil Landscaping, interiorscaping).
2	Handling of soils, purpose of nursery bed, potting media, potting etc.	Soils and other media, manures and fertilizers, irrigation
3	Propagation by cutting, budding, greating.  Audio Visual demonstration.	Environmental factors, ecological physiology, photo periodism, dormancy, growth regulators. - Cultivation under protection. - Garden implements and important operations, control of diseases, insects and weeds. - Methods of propagation. - Time of Propagation.
4	Handling of seeds, bulbs, cut flowers, nursery plants, pot plants. Audio Visual demonstration.	Methods of seeds & bulbs collection and storing. Post harvest technology of cut flowers, seeds, bulbs .
5	Acquaintance with soil types, various manures, fertilizers, Vermin composed, pesticides, growth regulator.	Irrigation & Water management.

**B) Plant Materials and their Cultivation**

6 - 8	<p>Method of identifying major types of ornamental plants – Flowering (Trees, Shrubs, Climbers, Cacti, Succulents, House plants etc.) Pruning and shaping of the plants. Identification of indoor and bonsai plants.</p> <p>Other cultural practices like planting time and distances and methods of planting, nutrition, irrigation &amp; plant protection.</p> <p>Culture of Pot plants.</p> <p>Identification of weeds and their control.</p> <p>Making of herbaceous and shrubby borders.</p>	<p>Importance of identification and classification. Description of the categories of ornamental plants, lawns, pot plants, cut flower crops, bulbous plants, annuals and other bedding plants, rock garden plants and aquatic plants.</p> <p>Cultural practices : soil and climate, land preparation and planting, manuring, irrigation and other intercultural operations.</p> <p>Control of insect pests, diseases and weeds.</p> <p>Detailed study (plant height, shape and spread; flower colour, time and blooming duration foliage/fruit/bark beauty, hardiness, deciduous/evergreen) and uses of important species of each category wherever applicable.</p> <p>Landscape plants :</p> <p>a) Trees, b) Lawn, c) Shrubs, d) Hedges, e) Edges, f) Climbers, g) Pot plants, h) Cut flower crops, i) Annuals and other bedding plants, j) Bulbous plants, k) Flock gardens, l) Aquatic plants etc.</p>
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### C) Nursery and Seed Production

<p>9 - 11</p>	<p>Studying and identification of seeds &amp; testing viability.</p> <p>Seed treatment, soil treatment before sowing.</p> <p>Studying seed sowing in beds and containers.</p> <p>Studying different media, soil mixture for raising plants by seeds, cutting.</p> <p>Methods of different types of seed sowing.</p> <p>Transplanting or potting the seedling in the pots, polythene bags and in other containers.</p> <p>Studying of floricultural tools used in maintenance and in propagation.</p> <p>Studying propagation by runners, suckers, off shoots &amp; other vegetative means.</p>	<p>Introduction : Importance of Nursery and seed production, selection of site for open and covered culture. Soil preparation, soil sterilization, propagating structures, preparation of soil mixture for seed sowing and pot plants.</p> <p>Seed production methods for pure seed, open seed, cross pollinated seed and hybrid seed, harvesting, cleaning, seed testing, germination test and packing.</p> <p>Seedling production methods for annuals and other herbaceous ornamentals and their methods of packing.</p> <p>Selection of Nursery sites &amp; structures.</p>
<p>12 - 13</p>	<p>Studying the propagating materials – their harvesting and storing etc.</p> <p>Preparing of Nursery plants by various vegetative methods &amp; their maintenance.</p>	<p>Bulb / Corm production and storage methods for Gladiolus, Tuberose, Freesia, Dahlia, Amaryllis, Begonia, Glaxonia, Football Lily, Day lily, Spider lily and other lilies, Crinum, Daffodil and Narcissus, Iris, Caladium, Tulip, Cannas and Zephyr lily etc.</p> <p>Methods of harvest, protection, storage and packing.</p>
<p>14 - 16</p>	<p>Practicing simple and tongue layering, ground layering, air layering or gootee.</p> <p>Practicing leaf cutting and leaf bud cutting.</p> <p>Transplanting of rootstock for preparing grafts.</p> <p>Practicing various budding methods on different rootstock at different times.</p> <p>Harvesting different types of seed.</p> <p>Repotting of pot bound plants</p> <p>Pinching, disbudding and application of growth regulators.</p>	<p>Pot Plants : Important foliage plants. Flower plants, Cacti, Succulents, Palm, Conifers and their methods of propagation, maintenance and packing.</p> <p>Lawn grasses : Seed and turf for plains, hills and coastal regions.</p> <p>Seed and turf production and their methods of packing and supply.</p> <p>Landscape plants : Trees, Shrubs, Climbers, ground covers. Hedge and edge plants, bamboos. Rock plants, ater plants and their propagation and packing methods.</p> <p>Method of production of Herbaceous rooted cuttings/suckers- Chrysanthemum, Carnation, Dahlia, Gerbera, and Anthurium etc.</p> <p>Methods of production of budded / grafted plants – Rose, Bougainvillea, Hibiscus.</p>

17 - 18	<p>Studying Bonsai plants, containers and methods of making, preserving, watering, disease and pest, packing etc.</p> <p>Grading of container grown plants.</p> <p>Studying packing of seed, seedlings, rooted cuttings pot plants, Lawn grass, Trees, Shrubs – Cacti, Bonsai.</p> <p>Studying different types of boxes used for packing.</p>	<p>Bonsai: Importance, Criteria for selection of plants, various steps in Bonsai &amp; forest.</p> <p>Methods of making Bonsai containers and soil potting &amp; repotting.</p> <p>Training, pruning and punching; watering, manuring, pest and diseases and their control &amp; methods of packing .</p>
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#### **D) Commercial Flowers**

19 –22	<p>Identification and study of important commercial varieties of the flowering crops.</p> <p>Preparation of ground and beds for planting specific flower crops.</p> <p>Top dressing (application of fertilizers for specific flower crops).</p> <p>Pinching and disbudding in specific flower crops.</p> <p>Providing support and training for specific crops.</p> <p>Use of growth regulators, preparation of solutions and applications.</p> <p>Identification of pests and diseases. Preparation of solutions and application of sprays or dusts.</p> <p>Study of quality parameters for cut flowers for domestic markets and for export.</p> <p>Study of pulsing solutions and holding of cut flowers.</p> <p>Harvesting, conditioning and storage of cut flowers.</p> <p>Study of packing materials – wrapping and tying materials, packing cartons.</p> <p>Packing of cut flowers for local and out station markets and for export.</p>	<p>Scope, importance, cultivars, soil and climatic requirements, propagation, nutrition and water management, management of insect pests, diseases and weeds, specific cultural operations, harvesting, grading, pulsing, storage. Packing of the following commercially important flowers :</p> <p>For losse flowers: Jasmines, Chrysanthemums, Rose, Crossandra, Barleria, Balsam, Marigold, China aster, Tuberose, Garenias, Dahlia, Hibiscus.</p> <p>For long stem cut flowers :</p> <p>Perennials : Rose, Gladiolus, Carnation, Gerbera Chrysanthemums.</p> <p>Orchids, Anthuriums, Water lilies, Freesia, Iris, Lilium amaryllis, Tulip, Hyacinth, Tuberose, Haemanthus, Dahlia, Narcissus, Hemerocallis Sterlitzia, Helicormia.</p> <p>Annuals :</p> <p>Antirrhinum, Aster, Delphinium, Dianthus, Centauria, Celosia, (Cockscomb) Helichrysum, Gazenia, Statice Gomphrena, Stock, Candytuft, Gypsophila.</p> <p>Cut Greens:</p> <p>Asparagus, Ferns, Grevillea, Callistemon, Solidago, Palms, Cycad, Thuja, Lemon grass; Prunus, Russelia.</p> <p>Specific cultural requirements for certain crops (Chrysanthemum, Carnation, Rose, Marigold) such as pinching, disbudding, regulation Scheduling/forcing of flowering, use of growth regulators. Cultivation under cover such as Poly &amp; Net Houses and specific requirements of control of light temperature &amp; humidity for flower crops such as Chrysanthemum, Carnation, Rose, Orchids.</p>
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19 - 22	<p>Study of poly houses, net houses, tunnels etc. for cultivation under cover, and preparation of estimates and plans.</p> <p>Control of temperature, humidity, and light in covered structures.</p> <p>Preparation of flowers for display for flower shows.</p> <p>Visit to Commercial Nurseries, Cut flower production Enterprises, Flower Shows, Flower Markets.</p>	
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### E) Landscaping & Indoor Gardening

23 - 25	<p>Tours, surveying and drafting.</p> <p>Preparation and execution of landscape plants.</p> <p>Maintenance of gardens and lawns.</p> <p>Accessories and containers for Flower arrangements.</p> <p>Floral arrangement.</p> <p>Preparation of floral ornaments, bouquets etc.</p> <p>Preparation of bottle gardens, terrarium etc.</p> <p>Maintenance and recycling of indoor pot plants.</p>	<p>Importance and scope.</p> <p>History &amp; styles of gardens, famous gardens.</p> <p>Application of elements and principles.</p> <p>Features and components of gardens.</p> <p>Home gardens and garden structures.</p> <p>Enrichment items and right lighting.</p> <p>Soil ,water and energy conservation through Landscaping.</p> <p>Selection of plants based on landscape value and uses.</p> <p>Maintenance of gardens and lawns.</p> <p>Avenue trees.</p> <p>Indoor gardens, terrace gardens, window gardens, trough/bottle garden, aquarium ,baskets, mini landscape, Rock Gardens.</p> <p>Selection and arrangements of indoor pot plants, their care and recycling.</p> <p>Preparation of Garden competitions and Flower Shows.</p> <p>Preparation for Floral ornaments – Garlands, Bangles, Crowns, Veni, Rangoli; baskets and bouquets, button holes, corsages.</p> <p>Principles and styles of flower arrangement, characteristics of Oriental, Western and Japanese (Ikebana) arrangements.</p> <p>Conditioning of cut flowers and cut greens for arrangement.</p> <p>Drying of plant material and selection of additional items used in flower arrangements.</p> <p>Prolonging self life of Vase flowers.</p>
26	<b>Revision and Test</b>	

## List of Tools & Equipment for “Floriculture & Landscaping” for a Batch of 20 Trainees

<u>Sl. No.</u>	<u>Description of Item</u>	<u>Quantity</u>
A) <u>Tools &amp; Implements</u>		
1.	Kassi / Spade	20 nos.
2.	Khurpi	20 nos.
3.	Hand hoe	20 nos.
4.	Saw	20 nos.
5.	Watering Can	05 nos.
6.	Rose Can	05 nos.
7.	Grass Cutter	20 nos.
8.	Budding & Grafting Knives	10 nos.
9.	Secateur	10 nos.
10.	Forceps	05 nos.
11.	Buckets	10 nos.
12.	Edge Cutter	02 nos.
13.	Tree Pruner	02 nos.
B) <u>Farm Structures</u>		
14.	Green House	01 no.
15.	Poly House	01 no.
16.	Misting Unit	01 no.
C) <u>Farm Equipment</u>		
17.	Power Triller with Bowing Attachment	01 no.
18.	Wheel Barrow	01 no.
19.	Hand Sprayer (Small)	05 nos.

20.	Foot Sprayer	02 nos.
21.	Hand Gloves	20 nos.
22.	Balance	01 no.
23.	Sieve / Stainer	02 nos.

D) Miscellaneous Farm Supplies

24.	Earthen Pots	100 nos.
25.	Plastic Pots	100 nos.
26.	Polythene Bags	500 nos.
27.	Seed Packets	1000 nos.
28.	Brown paper bags	1000 nos.
29.	Gunny bags	10 nos.
30.	Tags-labels	100 nos.
31.	Thread balls	12 nos.
32.	Budding-tape	10 nos.
33.	Sirki	10 nos.
34.	Bamboos	20 nos.
35.	Boxes (Packing)	10 nos.
36.	Sutli	05 kgs.
37.	Moss-grass	05 kgs.
38.	Polythene roll	01 no.
39.	Tags-label (Metallic)	100 nos.
40.	Tray	10 nos.
41.	Grass Mower	01 no.

E) Laboratory Equipment

42. Refrigerator 01 no.

F) Glass Wares

43. Beakers 05 nos.

44. Measuring Cylinder 05 nos.

G) Chemicals

45. Growth regulators :  
G.A. 01 bottle  
N.A.A. 01 bottle  
I.A.A. 01 bottle  
I.B.A. 01 bottle  
Routine Hormone 01 bottle

H) Identification Materials

46. Flower Germ Plasm

47. Seed material

48. Packing materials

I) Accessories for flower arrangement

49. Different types of flower containers

50. Flower vases

51. Pin holder

J) Laboratory Misc. Supplies

52. Duster 20 nos.

53. Soap 20 nos.

54. Cotton balls 10 nos.

55. Filter paper (Packs) 10 nos.

56. Filter cloth 10 mtrs.

K) Compact Disc

57. Educational CD 01 no.