

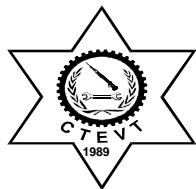
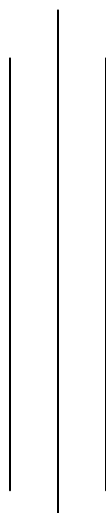
***CURRICULAR PROGRAM GUIDE***  
***[SHORT TERM]***

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***ASSISTANT FLORIST***



Council for technical education and vocational training  
**Curriculum development division**  
**2007**

**Job title: Assistant florist**

**Duties: Major areas of responsibilities**

1. *Introduce floriculture and gardening activities in the locality*
2. *Manage soil and nutrients*
3. *Make compost*
4. *Manage disease and pests*
5. *Plan nursery*
6. *Manage nursery*
7. *Design and develop gardens*
8. *Maintain garden and garden plants*
9. *Produce plants*
10. *Produce cut flowers*
11. *Market plants and cut flowers*
12. *Arrange and decorate house plants*
13. *Prepare and arrange fresh and dry flowers*
14. *Prepare and maintain lawn*
15. *Perform hanging gardening*
16. *Perform cactus gardening*
17. *Perform orchid gardening*
18. *Perform rose gardening*
19. *Prepare bonsai*

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## **1. Introduction:**

This competency based short term “Assistant florist” is designed to produce lower level technical workforce able to work as an assistant florist equipped with skills, knowledge and positive attitudes related to nursery management, gardening, cut flower production and flower arrangement/decoration in order to meet the demand of such workforce in the country so as to contribute in the national streamline of poverty reduction in the kingdom of Nepal.

## **2. Aims**

The main aim of this curricular program is to produce skilled workforce in the field of floriculture and gardening by providing training to school dropouts and unemployed youths and link them to employment opportunities. The aims of this guide are:-

- a. To produce lower level technical workforce able to assist in flower production and gardening.
- b. To produce lower level technical workforce able to assist in decoration and arrangement of ornamental plants.
- c. To produce such technical workforce who will be able to be self-employed/an entrepreneur.

## **3. Objectives:**

After the completion of this training program, the trainees will be able:

- To introduce floriculture and gardening activities in the locality
- To soil and nutrients
- To make compost
- To manage disease and pests
- To plan nursery
- To manage nursery
- To design and develop gardens
- To maintain garden and garden plants
- To produce plants / cut flowers
- To market plants and cut flowers
- To arrange and decorate house plants
- To prepare and arrange fresh and dry flowers
- To prepare and maintain lawn
- To perform hanging gardening
- To perform cactus gardening
- To perform orchid gardening
- To perform rose gardening
- To prepare bonsai
- To communicate with others

#### **4 Program Description:**

This Program guide provides skills and knowledge necessary for Chief Gardner. There will be both demonstration by trainers/instructors and opportunity by trainees to carry out the skills/tasks necessary for these level of technical workforce. Trainees will practice and learn skills by using typical tools, materials and equipment necessary for the program.

On successful completion of this training, the trainees will be able to plan Nursery, manage the Nursery, manage soil and Nutrients for plant, manage disease and pests of plants, design and develop gardens, maintain gardens and garden plants, produce ornamental plants, produce cut flowers, arrange and decorate house plants, prepare and arrange fresh and dry flowers, and communicate with others.

## 5 Program Structure:

S.N.	Training program areas	Nature	Hours distribution			Full marks
			Theory	Practical	Total	
1.	<b>Introduction to floriculture and gardening</b>	T	23	0	23	20
2.	<b>Soil/Nutrient Management</b>	T+P	4	16	20	20
3.	<b>Compost making</b>	T+P	2	8	10	10
4.	<b>Disease/Pest Management</b>	T+P	4	16	20	20
5.	<b>Nursery Planning</b>	T+P	4	16	20	10
6.	<b>Nursery Management</b>	T+P	5	20	25	20
7.	<b>Designing/Developing Gardens</b>	T+P	5	20	25	20
8.	<b>Maintaining garden and garden plants</b>	T+P	5	20	25	10
9.	<b>Production of plants</b>	T+P	5	20	25	20
10.	<b>Production of cut flowers</b>	T+P	5	20	25	20
11.	<b>Marketing of plants and cut-flowers</b>	T+P	3	12	15	20
12.	<b>Arranging and decorating house plants</b>	T+P	5	20	25	20
13.	<b>Preparing and arranging fresh and dry flowers</b>	T+P	5	20	25	20
14.	<b>Lawn preparation and maintenance</b>	T+P	4	16	20	20
15.	<b>Hanging garden / gardening</b>	T+P	3	12	15	20
16.	<b>Cactus garden / gardening</b>	T+P	4	16	20	20
17.	<b>Orchid garden / gardening</b>	T+P	4	16	20	20
18.	<b>Rose garden / gardening</b>	T+P	4	16	20	20
19.	<b>Bonsai preparation</b>	T+P	3	12	15	10
	<b>Total:</b>		97	296	393	340

**6 Duration:** The total duration of the program will be of 393 hours

**7 Target group:**

The target group for this training will be all the literate individuals interested to be a florist or chief Gardner. Priority will be given to females, Dalits, Janajatis, conflict affected people and the disables.

**8 Group size:**

The group size of this training program will be maximum of 20.

**9 Target location:**

The target location of this training program will be all over Nepal.

**10 Medium of Instruction:**

The medium of instruction for this training program will be Nepali or English or both.

**11 Pattern of attendance:**

The trainees should have 80% attendance in theory classes and 90% in Practical (Performance) to be eligible for internal assessment and final examinations.

**12 Focus of the program:**

This is a competency based program. This program emphasizes on competent performance of the task specified in it. 80% time is allotted to the competencies and 20% to the related technical knowledge. So, the main focus will be on the performance of the specified competencies/tasks /skills included in this program guide.

**13 Entry criteria:**

Individuals who meet the following criteria will be allowed to enter in this curricular program:

- Be literate
- Minimum of 15 years of age
- Should pass entrance examination
- Preference will be given to female, Dalit, Janjati, Conflict affected people and the disables.

**14 Follow up suggestion:**

This is not a training program only for training sake. The ultimate success of this program will rest on the proficiency of the graduates of this training program in providing services in the community either by wage employment or by self-employment.

In other to assess the success of this program and collect feedbacks/inputs for the revision of the program, a schedule of follow up is suggested as follows:-

- **First follow up:** - Six months after the completion of the training program.
- **Second follow up:** - Six months after the completion of the first follow up.
- **Follow up cycle:** - In a cycle of one year after the completion of second follow up for five years.



### **15 Certificate requirement:**

The related training institute will provide the certificate of “Chief Gardner” to those individuals who successfully complete the tasks and related knowledge specified in this guide.

### **16 Grading system:**

The trainees will be graded as follow based on the marks in percentage secured by them in tests/evaluations:-

- Distinction: Passed with 80% or above
- First division: Passed with 75% or above
- Second Division: Passed with 65% or above.
- Third division: Passed with 60% or above.

### **17 Student Evaluation Details:**

- Continuous evaluation of the trainees’ performance is to be done by the related instructor/trainer to ensure the proficiency over each competency.
- Related technical knowledge learnt by the trainees will be evaluated through written or oral tests as per the nature of the content
- Trainees must secure minimum marks of 60% in an average of both theory and practical evaluations.
- There will be three internal assessments and one final evaluation.
- The ratio between internal and final examination of knowledge test will be 20:80 but for the performance test it will be 80:20.
- The entrance test will be conducted by the concerned training institute.

### **18 Trainers’ Qualification:**

- B.Sc. Ag or Equivalent in the related field / B.Sc. or equivalent with training & job experience of 5 years in the related field
- Good communicative & instructional skills.
- Experience in the related field.

### **19 Trainer – Trainees Ratio:**

- 1:10 for practical classes
- Depends on the nature of subject matter and class room situation for theory classes.

### **20 Suggestion for instruction**

- **Demonstrate task performance**
  - Demonstrate task performance in normal speed
  - Demonstrate slowly with verbal description of each and every steps in the sequence of activity flow of the task performance using question and answer techniques
  - Repeat the above step for the clarification on trainees demand if necessary.
  - Perform fast demonstration of the task performance.

- **Provide trainees the opportunity to practice the task performance demonstrated.**
  - Provide trainees to have guided practice:- create environment for practicing the demonstrated task performance and guide the trainees in each and every step of task performance
  - Provide trainees the opportunity to repeat & re-repeat as per the need to be proficient on the given task performance
  - Switch to another task demonstration if and only if the trainees developed proficiency in the given task performance
- **Evaluation performance of the trainees/ student**
  - perform task analysis
  - Develop a detail task performance check list
  - Perform continuous performance evaluation of the trainees / students by applying the performance check list.

## **21. List of training program areas**

- Introduction to floriculture and gardening
- Soil/Nutrient Management
- Compost making
- Disease/Pest Management
- Nursery Planning
- Nursery Management
- Designing/Developing Gardens
- Maintaining garden and garden plants
- Production of plants
- Production of cut flowers
- Marketing of plants and cut-flowers
- Arranging and decorating house plants
- Preparing and arranging fresh and dry flowers
- Lawn preparation and maintenance
- Hanging garden / gardening
- Cactus garden / gardening
- Orchid garden / gardening
- Rose garden / gardening
- Bonsai preparation

## 21.1. Introduction to floriculture and gardening

S.N.	Tasks	Related Technical Knowledge
1	<b>Develop concept of the climate and geography of Nepal</b>	Climate: <ul style="list-style-type: none"> <li>• Weather</li> <li>• Weather elements- temperature, rainfall, light, and humidity</li> <li>• Seasons</li> <li>• Climate / climatic zones               <ul style="list-style-type: none"> <li>▪ Tropical</li> <li>▪ Sub-tropical</li> <li>▪ Temperate</li> <li>▪ Alpine and sub-alpine</li> <li>▪ Arid and semi arid</li> </ul> </li> <li>• Climatic zones of Nepal</li> </ul> Introduction to the Nepalese geography: <ul style="list-style-type: none"> <li>• Geographical zones of Nepal</li> <li>• Geographical distribution of horticultural plants / gardens in Nepal</li> <li>• Land:               <ul style="list-style-type: none"> <li>○ Flat and</li> <li>○ Sloppy</li> </ul> </li> <li>• Facing:               <ul style="list-style-type: none"> <li>○ East</li> <li>○ West</li> <li>○ South</li> <li>○ North</li> </ul> </li> </ul>
2	<b>State concept of floriculture</b>	Floriculture: <ul style="list-style-type: none"> <li>• Definition</li> <li>• Importance with aesthetic &amp; economic values</li> <li>• Scope in Nepal</li> </ul>
3	<b>Define related technical terms /general terminologies</b>	Collection and definition of technical terms related to floriculture and gardening
4	<b>Identify ornamental Plants (Ops)</b>	Identification of ornamental plants: <ul style="list-style-type: none"> <li>• Definition</li> <li>• Listing Ops with their:-               <ul style="list-style-type: none"> <li>▪ Origin</li> <li>▪ Nepali name</li> <li>▪ English name</li> <li>▪ Botanical name</li> </ul> </li> <li>• Morphology of typical Ops.</li> </ul>
5	<b>Classify ornamental plants</b>	Classification of ornamental plants: <ul style="list-style-type: none"> <li>• Classification, system of classification, and the related terms</li> <li>• Systems of classification of ornamental plants</li> <li>• How to classify a given ornamental plant</li> </ul>
6	<b>Handle /maintain following tools/equipment / machinery used in horticulture:</b> <ul style="list-style-type: none"> <li>• Spades</li> <li>• Hoe</li> <li>• Trowel</li> <li>• Decatur</li> <li>• Hedge share</li> <li>• Rake</li> <li>• Shovel</li> <li>• Fork</li> </ul>	Horticultural tools / equipment / machinery:- Identification, function / uses, handling, care / maintenance, safety precautions, and storage of:- <ul style="list-style-type: none"> <li>• Spades</li> <li>• Hoe</li> <li>• Trowel</li> <li>• Decatur</li> <li>• Hedge share</li> <li>• Rake</li> <li>• Shovel</li> <li>• Fork</li> </ul>

	<ul style="list-style-type: none"> <li>• Seed germinator</li> <li>• Sprinkler</li> <li>• Pruning saw</li> <li>• Lopper</li> <li>• Hand saw</li> <li>• P<sub>H</sub> meter</li> <li>• Balance</li> <li>• Seed sowing machine</li> <li>• Auger</li> <li>• Soil testing kit box</li> <li>• Ropes etc</li> </ul>	<ul style="list-style-type: none"> <li>• Seed germinator</li> <li>• Sprinkler</li> <li>• Pruning saw</li> <li>• Lopper</li> <li>• Hand saw</li> <li>• P<sub>H</sub> meter</li> <li>• Balance</li> <li>• Seed sowing machine</li> <li>• Auger</li> <li>• Soil testing kit box</li> <li>• Ropes etc.</li> </ul>
7	<p><b>Carry out study of common ornamental plants in relation to morphology and cultural practices</b></p>	<p>Introduction to the common ornamental plants-</p> <ul style="list-style-type: none"> <li>• Rose</li> <li>• Gladiolus</li> <li>• Chrysanthemum</li> <li>• Carnation</li> <li>• Dahlias</li> <li>• Zinnia</li> <li>• Cactus</li> <li>• Orchids</li> <li>• Tuberose</li> </ul> <p>Introduction to common indoor ornamental plants</p>
8	<p><b>Acquire conceptual knowledge / understanding of the followings in brief:</b></p> <ul style="list-style-type: none"> <li>• Garden in urban areas</li> <li>• Types of gardens and their features</li> <li>• Winter and summer gardening / sun VS shade</li> <li>• Nursery management</li> <li>• Compost making</li> <li>• Soil management</li> <li>• Essential elements for plant growth</li> <li>• Plant propagation techniques</li> <li>• Construction of garden-gate, wall, steps, path, roads, and paving</li> <li>• Construction of lawn and its maintenance</li> <li>• Tree, shrubs, climber and hedge and their role in landscaping</li> <li>• House plants and decoration</li> <li>• Indigenous plants for house and garden decoration</li> <li>• Plant houses-green house, net house, polythene house and cloche</li> <li>• Pesticides, fungicides, and herbicides and their uses in gardens</li> <li>• Uses of fertilizer and</li> </ul>	<p>Brief introduction to the followings:</p> <ul style="list-style-type: none"> <li>○ Garden in urban areas</li> <li>○ Types of gardens and their features</li> <li>○ Winter and summer gardening / sun VS shade</li> <li>○ Nursery management</li> <li>○ Compost making</li> <li>○ Soil management</li> <li>○ Essential elements for plant growth</li> <li>○ Plant propagation techniques</li> <li>○ Construction of lawn and its maintenance</li> <li>○ Tree, shrubs, climber and hedge and their role in landscaping</li> <li>○ House plants and decoration</li> <li>○ Indigenous plants for house and garden decoration</li> <li>○ Plant houses-green house, net house, polythene house and cloche</li> <li>○ Pesticides, fungicides, and herbicides and their uses in gardens</li> <li>○ Uses of fertilizer and manure in gardens</li> <li>○ Organic garden, non chemical pesticide and their importance</li> <li>○ Container gardening</li> <li>○ Hanging gardening</li> <li>○ Orchid gardening</li> <li>○ Cactus gardening</li> <li>○ Herb gardening</li> <li>○ Rose gardening</li> <li>○ Use of the following in landscaping: <ul style="list-style-type: none"> <li>▪ Ground cover plants</li> <li>▪ Edge plants</li> <li>▪ Stony plants</li> <li>▪ Pond plants</li> </ul> </li> <li>○ Arrangement of fresh and dry flower</li> </ul>

	<p>manure in gardens</p> <ul style="list-style-type: none"> <li>• Organic garden, non chemical pesticide and their importance</li> <li>• Container gardening</li> <li>• Hanging gardening</li> <li>• Orchid gardening</li> <li>• Cactus gardening</li> <li>• Herb gardening</li> <li>• Rose gardening</li> <li>• Use of the following in landscaping: <ul style="list-style-type: none"> <li>○ Ground cover plants</li> <li>○ Edge plants</li> <li>○ Stony plants</li> <li>○ Pond plants</li> </ul> </li> <li>• Arrangement of fresh and dry flower</li> <li>• Bonsai and its preparation technique</li> <li>• Pruning and training of fruit trees and uses of bordeo paste</li> <li>• Fruit trees and their care</li> <li>• Construction and maintenance of rock garden</li> <li>• Techniques of making water fountain</li> <li>• Garden tools and their safe use</li> <li>• Lay out of vegetable garden</li> <li>• Production of vegetable through out the year</li> <li>• Topiary making</li> </ul>	<ul style="list-style-type: none"> <li>○ Bonsai and its preparation technique</li> <li>○ Pruning and training of fruit trees and uses of bordeo paste</li> <li>○ Fruit trees and their care</li> <li>○ Construction and maintenance of rock garden</li> <li>○ Techniques of making water fountain</li> <li>○ Garden tools and their safe use</li> <li>○ Lay out of vegetable garden</li> <li>○ Production of vegetable through out the year</li> <li>○ Topiary making</li> </ul>
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## 21.2. Soil/Nutrient Management

S.N.	Tasks	Related Technical Knowledge
1.	Develop concept of soil	Introduction to soil: <ul style="list-style-type: none"> <li>• Definition of soil</li> <li>• Soil forming process and weathering</li> <li>• Soil structure</li> <li>• Soil texture</li> <li>• Soil profile</li> <li>• Soil color</li> <li>• Soil P<sub>H</sub></li> <li>• Soil components- water, air, microbes, and minerals</li> <li>• Living organisms in soil- soil microbes and earthworm and their role in soil fertility improvement</li> <li>• Importance in floriculture and gardening</li> </ul>
2.	Develop concept of soil fertility	soil fertility: <ul style="list-style-type: none"> <li>• concept and definition of soil fertility</li> <li>• Importance of soil fertility in floriculture and gardening</li> <li>• Factors affecting soil fertility</li> <li>• Nutrients- major, minor, and trace elements: their functions and deficiency symptoms in horticultural crops</li> </ul>
3.	Develop concept of fertilizer / manure	Fertilizer / manure: <ul style="list-style-type: none"> <li>• concept and definition of fertilizer and manure</li> <li>• Identification , uses, and importance of fertilizer and manure in horticulture and gardening</li> <li>• Types of fertilizer-chemical and organic</li> <li>• Chemical fertilizer- urea, ammonium nitrate, ammonium sulfate, calcium sulfate, calcium nitrate, Potassium nitrate Potassium phosphate, ammonium phosphate, phosphoric acid, bone meal, single super phosphate, double super phosphate, and triple super phosphate</li> <li>• Identification, composition (nutrient % ) and handling of the above chemical fertilizers</li> <li>• Why, when, how much and how to apply chemical fertilizers in fields and gardens safely</li> <li>• Methods, techniques and processes of chemical fertilizer application</li> <li>• Fertilizer dose calculations</li> <li>• Organic fertilizers- FYM and compost</li> <li>• FYM- cow dung, horse dung, pig manure, poultry manure, pigeon manure, night soil, bone manure, mustard oil cake manure, dry blood, straw, horticultural peat, leaf mould</li> <li>• Identification and composition of different types of organic fertilizers</li> <li>• Why, when, how much and how to apply organic fertilizers in fields and gardens safely</li> </ul>

		<ul style="list-style-type: none"> <li>• Methods, techniques and processes of organic fertilizer application</li> </ul>
<b>4.</b>	<b>Identify soil types</b>	Soil types: <ul style="list-style-type: none"> <li>• Concept of soil types- classification</li> <li>• Types of soil in Nepal</li> <li>• Characters of different types of soil</li> <li>• Methods of solubility test or hand test</li> </ul>
<b>5.</b>	<b>Classify the given soil</b>	Classification: <ul style="list-style-type: none"> <li>• Identification of the given soil type</li> <li>• How to classify the given soil type</li> </ul>
<b>6.</b>	<b>Find out soil pH value</b>	Soil P <sub>H</sub> <ul style="list-style-type: none"> <li>• Definition of soil P<sub>H</sub></li> <li>• Soil PH for specific crop</li> <li>• Methods of testing ph by ph meter or litmus paper</li> <li>• Precautions to be followed</li> </ul>
<b>7.</b>	<b>Test soil for NPK</b>	NPK test: <ul style="list-style-type: none"> <li>• Concept</li> <li>• Need / importance</li> <li>• Why, when, where, and how to test NPK of soil</li> <li>• Precautions to be followed</li> </ul>
<b>8.</b>	<b>Apply principles of IPNS</b>	Integrated plant nutrient system ( IPNS ): <ul style="list-style-type: none"> <li>• Concept</li> <li>• Need / importance</li> <li>• Why, when, where, and how to establish and maintain IPNS</li> <li>• Precautions to be followed</li> </ul>
<b>9.</b>	<b>Adjust pH value</b>	Adjusting pH value: <ul style="list-style-type: none"> <li>• concept</li> <li>• Methods of adjusting ph of the soil</li> <li>• Liming and adjusting / amending acidic soil</li> <li>• Use of gypsum and amending saline soil</li> <li>• Precautions in different steps</li> </ul>
<b>10.</b>	<b>Improve soil</b>	Soil improvement: <ul style="list-style-type: none"> <li>• Methods of improving soil</li> <li>• Treatment of the deficiency of nutrients</li> <li>• Precautions to be followed</li> <li>• Role of Irrigation and drainage in soil improvement</li> </ul>
<b>11.</b>	<b>Prepare modified soil</b>	Modified soil: <ul style="list-style-type: none"> <li>• Concept and definition of modified soil</li> <li>• Importance and uses</li> <li>• Technique of preparing modified soil- how to make it</li> <li>• Safety precautions to be followed</li> </ul>



### 21.3. Compost making

S.N.	Tasks	Related Technical Knowledge
1	Develop concept of compost / compost making	Compost and compost making <ul style="list-style-type: none"> <li>• Definition of compost and compost making</li> <li>• Characteristics of good / ripen compost</li> <li>• How to make proper compost</li> <li>• Composting materials- what materials should be used and what materials should not be used</li> <li>• Method of incorporating in soil- how to work the compost into the soil and when and its advantages</li> <li>• How to make a proper compost bin / bed</li> <li>• The addition of lime to speed up decomposition</li> <li>• Precautions to be followed</li> </ul>
2	Enlist types of compost	Types of compost <ul style="list-style-type: none"> <li>• Organic compost</li> <li>• Inorganic compost</li> </ul>
3	Develop concept of organic compost	Concept of organic compost: <ul style="list-style-type: none"> <li>• Definition</li> <li>• Characteristics</li> <li>• Identification</li> <li>• How to make</li> <li>• Advantages</li> <li>• When and how much to apply in the soil</li> </ul>
4	Develop concept of inorganic compost	Concept of inorganic compost: <ul style="list-style-type: none"> <li>• Definition</li> <li>• Characteristics</li> <li>• Identification</li> <li>• How to make</li> <li>• Advantages</li> <li>• When and how much to apply in the soil</li> </ul>
5	Enlist methods of compost making	Methods of compost making: <ul style="list-style-type: none"> <li>• Heap method</li> <li>• Pit method</li> <li>• Mix method</li> <li>• Container /bin method</li> <li>• verming method</li> </ul>
6	Make compost by heap method	Heap method of compost making: <ul style="list-style-type: none"> <li>• Concept</li> <li>• Process and steps</li> <li>• Advantages</li> <li>• Quality of compost</li> <li>• Precautions to be followed</li> </ul>
7	Make compost by pit method	Pit method of compost making: <ul style="list-style-type: none"> <li>• Concept</li> <li>• Process and steps</li> <li>• Advantages</li> <li>• Quality of compost</li> <li>• Precautions to be followed</li> </ul>

<b>8</b>	<b>Make compost by mix method</b>	Mix method of compost making: <ul style="list-style-type: none"> <li>• Concept</li> <li>• Process and steps</li> <li>• Advantages</li> <li>• Quality of compost</li> <li>• Precautions to be followed</li> </ul>
<b>9</b>	<b>Make compost by container / bin method</b>	Container / bin method of compost making: <ul style="list-style-type: none"> <li>• Concept</li> <li>• Process and steps</li> <li>• Advantages</li> <li>• Quality of compost</li> <li>• Precautions to be followed</li> </ul>
<b>10</b>	<b>Make vermi-compost</b>	Vermi- compost making: <ul style="list-style-type: none"> <li>• Concept</li> <li>• Process and steps</li> <li>• Advantages</li> <li>• Quality of Vermi- compost</li> <li>• Precautions to be followed</li> </ul>
<b>11</b>	<b>Evaluate the product / compost</b>	Compost evaluation: <ul style="list-style-type: none"> <li>• Criteria of evaluation</li> <li>• Comparison of the present compost against the criteria</li> <li>• Grading decision , how to grade, and its importance</li> </ul>
<b>12</b>	<b>Store the product / compost</b>	Storage: <ul style="list-style-type: none"> <li>• Concept</li> <li>• How to store compost</li> <li>• Precautions to be followed</li> </ul>
<b>13</b>	<b>Apply compost in field / garden / nursery</b>	Fertilizer application: <ul style="list-style-type: none"> <li>• Concept</li> <li>• How much to apply</li> <li>• Methods /processes / steps</li> <li>• Precautions to be followed</li> </ul>
<b>14</b>	<b>Market / sell the product / compost</b>	Market / sell the product / compost: <ul style="list-style-type: none"> <li>• Advertisement</li> <li>• Selection of market</li> <li>• Collection of demands</li> <li>• Sale contract and delivery</li> <li>• Sales promotion techniques</li> <li>• Precautions</li> </ul>
<b>15</b>	<b>Calculate profit / loss</b>	Calculate profit / loss: <ul style="list-style-type: none"> <li>• Calculation of costs</li> <li>• Calculation of revenues</li> <li>• Calculation of profit / loss</li> </ul>

## 21.4. Disease and pest management

S.N.	Tasks	Related Technical Knowledge
1.	Develop concept of plant protection	<p>Plant protection:</p> <ul style="list-style-type: none"> <li>• Introduction to plant protection</li> <li>• Definition, concept, and importance of plant protection</li> </ul> <p>Entomology:</p> <ul style="list-style-type: none"> <li>• Definition, concept and importance</li> <li>• Insects and their mouth parts</li> <li>• Definition of pests</li> <li>• Damage caused by insects and pests</li> <li>• Plant protection techniques against insects and pests</li> <li>• Damage likely to be caused by the following pests and their control – aphids, ants, caterpillars, chafer beetles and cutworms, earthworm, earwigs, leaf hoppers, leather jackets, mealy bugs, red spider mites, scale insects, slug and snails, termites, thrips, white fly, and wire worms</li> <li>• How to control the following disorders – black spot of roses, chlorosis, damping off, dollar spot, downy mildew, fairy rings, fusarium patch and snow mould, ophiobolus patch, powdery mildew, and rust</li> <li>• Controlling insects by organic and inorganic methods</li> </ul> <p>Pathology:</p> <ul style="list-style-type: none"> <li>• Definition , concept and importance of pathology</li> <li>• Diagnosis of ill health in plants with procedures of diagnosis</li> <li>• Plant damaging agents and how they damage pants</li> <li>• Causes of ill health in plants – biotic and abiotic factors / agents</li> <li>• Diagnosis and control of :</li> <li>• Root and root collar diseases</li> <li>• Bark, cambium, stem, branches and twigs diseases</li> <li>• Foliage diseases – leaves, shoot, buds, flower, and fruits</li> <li>• Health and safety procedures</li> </ul>
2.	Develop the concept of disease control	<p>Concept of disease control:</p> <ul style="list-style-type: none"> <li>• Meaning of prevention, treatment, control and management of diseases</li> <li>• Controlling disease by organic methods</li> <li>• Controlling disease by inorganic methods</li> <li>• Cultural control</li> <li>• Crop rotation</li> <li>• Use of resistant varieties</li> <li>• Mix cropping system</li> <li>• Biological control</li> <li>• Physical control</li> <li>• Planting and harvesting time adjustment</li> <li>• Use of clean seed and planting materials</li> <li>• Use of hot water treatment method</li> <li>• Hygienic growing of plants</li> </ul>

3.	<b>Diagnose disease and pests</b>	Diagnosis of disease and pests: <ul style="list-style-type: none"> <li>• Definition of disease and pests</li> <li>• Possible diseases of plants</li> <li>• Pests that cause damage to plants</li> <li>• Identification and diagnosis of the diseases and pests of plants</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
4.	<b>Select pesticides /fungicides/ insecticides / herbicides</b>	Selecting fungicide , pesticide, insecticide, and herbicide: <ul style="list-style-type: none"> <li>• Definition of fungicide , pesticide, insecticide, and herbicide</li> <li>• Contact and systematic pesticides</li> <li>• Preventive and systematic fungicide</li> <li>• Listing of different chemicals used in fungicide , pesticide, insecticide, and herbicide</li> <li>• Fungicide - Concept, types, and their application ( where ,when, how much and how)</li> <li>• Pesticide / insecticide - Concept, types, and their application ( where ,when, how much and how)</li> <li>• Herbicides- Concept, types, selective and nonselective herbicides and their application ( where ,when, how much and how)</li> <li>• Criteria for selection and selection procedure</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
5.	<b>Prepare solutions</b>	Preparation of solutions: <ul style="list-style-type: none"> <li>• Procedure to prepare the solutions of fungicide , pesticide, insecticide, and herbicide for spray- when, where, how much, and how to prepare</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
6.	<b>Spray solution</b>	Spraying prepared solutions: <ul style="list-style-type: none"> <li>• Why, when, how much and how to spray chemicals to plants</li> <li>• Procedure to spray the solution of fungicide and pesticide to plants</li> <li>• Precautions to be taken</li> <li>• Health and safety regulations</li> <li>• Record keeping</li> </ul>
7.	<b>Follow safety measures</b>	Follow of safety measures: <ul style="list-style-type: none"> <li>• Safe ways of spraying the solution of fungicide and pesticide to plants</li> <li>• Precautions to be taken-what precautions, when, where, and how to follow</li> <li>• Health and safety regulations</li> <li>• Record keeping</li> </ul>
8.	<b>Perform IPM</b>	Integrated pest management(IPM): <ul style="list-style-type: none"> <li>• Concept, importance, principles &amp; practices</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>

<b>9.</b>	<b>Prepare calendar of operation</b>	Preparation of calendar of operation: <ul style="list-style-type: none"><li>• Concept, importance, and use</li><li>• Factors or things to be considered while preparing the calendar of operation</li><li>• Method of preparing the calendar of operation for disease &amp; pest management- when, and how to prepare</li><li>• Precautions to be taken</li><li>• Record keeping</li></ul>
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### 21.5. Nursery Planning

S.N.	Tasks	Related Technical Knowledge
1.	Select site	Site selection for nursery: <ul style="list-style-type: none"> <li>• Criteria for site selection for a nursery</li> <li>• What kinds of information are needed to select the site for nursery</li> <li>• Why these information are necessary</li> <li>• “how to process” the field data based on the information collected</li> <li>• Selection of the site based on the observation data and criteria determined</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
2.	Prepare production plan	Production plan: <ul style="list-style-type: none"> <li>• Definition of production plan, importance and uses</li> <li>• Right time for sowing seeds and propagating plants by cuttings/grafting.</li> <li>• Right time and procedure for growing cut flowers</li> <li>• How to prepare a calendar of operation for propagating plants and growing cut flowers</li> <li>• Components of production plan</li> <li>• Preparation of production plan- when, where, that to consider, and how to prepare</li> <li>• Precautions to be taken</li> <li>• Record keeping.</li> </ul>
3.	Prepare layout design of the nursery	Lay out design of the nursery: <ul style="list-style-type: none"> <li>• Concept, importance, and uses</li> <li>• Components of the nursery layout and design</li> <li>• Method of drawing every components on the map according to the scale</li> <li>• Keeping the legend on map</li> <li>• Preparation of complete lay out design- when, where, what to consider, and how?</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
4.	Plan for tools/materials/equipment/machineries	Planning for tools , materials, equipment, and machineries: <ul style="list-style-type: none"> <li>• Concept, importance, and uses</li> <li>• Identification and function of each</li> <li>• Tools and materials to be required for a nursery</li> <li>• Uses of each and every tools and material</li> <li>• Way of using and storing them.</li> <li>• A complete plan of for tools , materials, equipment, and machineries needed</li> <li>• Precaution to be taken</li> <li>• Record keeping</li> </ul>

5.	<b>Plan for procurement</b>	Planning for procurement: <ul style="list-style-type: none"> <li>• Concept, importance, and uses</li> <li>• Best quality materials</li> <li>• Short listing of suppliers</li> <li>• How to match the procurement schedule with production schedule</li> <li>• A complete procurement plan</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
6.	<b>Plan for human resources</b>	Human resources plan: <ul style="list-style-type: none"> <li>• Job description</li> <li>• human resources</li> <li>• Methods of recruitment</li> <li>• A complete human resources plan</li> <li>• Precautions</li> <li>• Record keeping</li> </ul>
7.	<b>Plan for marketing</b>	Marketing plan: <ul style="list-style-type: none"> <li>• Concept, importance, and uses of marketing plan</li> <li>• Concept of marketing</li> <li>• Market survey</li> <li>• Different ways of sales promotion</li> <li>• A complete marketing plan</li> <li>• Precautions</li> <li>• Record keeping</li> </ul>
8.	<b>Prepare budget</b>	Budget preparation: <ul style="list-style-type: none"> <li>• Concept, importance, and uses of budget</li> <li>• Components of a budget</li> <li>• Sources of income and items of expenditures occurring in the nursery</li> <li>• A complete marketing plan</li> <li>• Precautions to be taken</li> <li>• Method of record keeping</li> </ul>

## 21.6. Nursery Management

S.N.	Tasks	Related Technical Knowledge
1.	Perform nursery registration	Nursery registration: <ul style="list-style-type: none"> <li>• Why, where, when, and how to register the nursery?</li> <li>• Legal registration process and its importance</li> <li>• Precautions to be followed</li> <li>• Record keeping</li> </ul>
2.	Layout the nursery	Nursery lay out: <ul style="list-style-type: none"> <li>• Method – why, where, when, and how to lay our the nursery?</li> <li>• Method of map reading</li> <li>• The scale of the map</li> <li>• Pegging method</li> <li>• Locating every component on the available site</li> <li>• Precautions to be followed</li> <li>• Record keeping</li> </ul>
3.	Arrange tools and materials	Tools and materials for nursery: <ul style="list-style-type: none"> <li>• Identification</li> <li>• Functions</li> <li>• Care, maintenance, and storage</li> <li>• Buying, receiving and storing all the necessary tools, equipments and materials for the nursery.</li> <li>• Precautions to be followed</li> <li>• Record keeping</li> </ul>
4.	Develop concept of plant houses	Plant houses: <ul style="list-style-type: none"> <li>• Plant houses – concept, types, necessity, and advantages of plant houses</li> <li>• Plant houses construction – concept, needs, where, when, how, what type including shape and size, and what construction materials?</li> <li>• Green house               <ul style="list-style-type: none"> <li>▪ Glass house</li> <li>▪ Fiber glass house</li> <li>▪ Wooden house</li> </ul> </li> <li>• Net house</li> <li>• Polythene house</li> <li>• Cloche /plastic tunnel</li> <li>• Precautions to be followed</li> <li>• Record keeping</li> </ul>
5.	Develop concept of house plants	House plants: <ul style="list-style-type: none"> <li>• House plants – concept, necessity, and advantages of house plants</li> </ul> Types: concepts, identification, and value of - <ul style="list-style-type: none"> <li>• Green house plants               <ul style="list-style-type: none"> <li>▪ Glass house plants</li> <li>▪ Fiber glass house plants</li> <li>▪ Wooden house plants</li> </ul> </li> <li>• Net house plants</li> <li>• Polythene house plants</li> <li>• Cloche /plastic tunnel plants</li> </ul> Precautions to be followed and record keeping
6.	Construct shade house	Shade house construction: <ul style="list-style-type: none"> <li>• Concept and need of the shade house</li> <li>• Why, where, when, and how to construct shade house</li> <li>• How to manage construction materials</li> </ul>



		<ul style="list-style-type: none"> <li>• Listing needs to supervise the construction work</li> <li>• Keeping record of human resources involved in the construction and make the bill for payment</li> <li>• Precautions to be taken</li> </ul>
<b>7.</b>	<b>Construct green house</b>	<p>Green house construction:</p> <ul style="list-style-type: none"> <li>• Concept and need of the green house</li> <li>• Why, where, when, and how to construct green house</li> <li>• How to manage construction materials</li> <li>• How to supervise the construction work</li> <li>• How to keep record of human resources involved in the construction and make the bill for payment</li> <li>• Precautions to be taken</li> </ul>
<b>8.</b>	<b>Construct net house</b>	<p>Net house construction:</p> <ul style="list-style-type: none"> <li>• Concept and need of the net house</li> <li>• Why, where, when, and how to construct net house</li> <li>• How to manage construction materials</li> <li>• How to supervise the construction work</li> <li>• How to keep record of human resources involved in the construction and make the bill for payment</li> <li>• Precautions to be taken</li> </ul>
<b>9.</b>	<b>Construct polythene house</b>	<p>Polythene house construction:</p> <ul style="list-style-type: none"> <li>• Concept and need of polythene house</li> <li>• Why, where, when, and how to construct polythene house</li> <li>• How to manage construction materials</li> <li>• How to supervise the construction work</li> <li>• How to keep record of human resources involved in the construction and make the bill for payment</li> <li>• Precautions to be taken</li> </ul>
<b>10.</b>	<b>Construct cloche</b>	<p>Cloche /plastic tunnel construction:</p> <ul style="list-style-type: none"> <li>• Concept and need of cloche / plastic tunnel</li> <li>• Why, where, when, and how to construct cloche / plastic tunnel</li> <li>• How to manage construction materials</li> <li>• How to supervise the construction work</li> <li>• How to keep record of human resources involved in the construction and make the bill for payment</li> <li>• Precautions to be taken</li> </ul>
<b>11.</b>	<b>Manage small scale irrigation / drainage system</b>	<p>Irrigation system:</p> <ul style="list-style-type: none"> <li>• Concept and importance of irrigation</li> <li>• Concept and importance of irrigation</li> <li>• Relation between irrigation and drainage</li> <li>• The need of water for plants” growth and development</li> <li>• Affect of excess water in plant growth and development</li> <li>• Where, when, and how to manage irrigation / drainage system</li> <li>• Precautions to be taken</li> <li>• Keeping records</li> </ul>
<b>12.</b>	<b>Prepare media for Nursery</b>	<p>Media preparation:</p> <ul style="list-style-type: none"> <li>• Concept, importance and uses</li> <li>• The standard ratio of soil, sand and manure for various purposes.</li> <li>• Sterilization of the media</li> <li>• Where, when, and how to prepare media</li> <li>• Precautions to be followed</li> <li>• How to keep record</li> </ul>

<b>13.</b>	<b>Prepare modified soil for nursery for Nursery</b>	Modified soil preparation for nursery: <ul style="list-style-type: none"> <li>• Concept, importance and uses</li> <li>• When, where, and how to prepare modified soil preparation for nursery</li> <li>• Precautions to be followed</li> <li>• How to keep record</li> </ul>
<b>14.</b>	<b>Select seeds</b>	Seed selection: <ul style="list-style-type: none"> <li>• Concept and importance</li> <li>• Criteria for seed selection</li> <li>• The quality of seeds</li> <li>• The viability of seeds</li> <li>• Precautions to be followed</li> <li>• How to keep records</li> </ul>
<b>15.</b>	<b>Propagate plants</b>	Plant propagation: <ul style="list-style-type: none"> <li>• Concept, importance and types of plant propagation</li> <li>• Where, when, which method, and how to propagate plants</li> <li>• Different techniques of propagating plants</li> <li>• The appropriate seasons for propagating plants</li> <li>• The media for propagating plants</li> <li>• The precautions to be taken</li> <li>• Keeping records</li> </ul>
<b>16.</b>	<b>Fill poly-bags</b>	Poly bag filling: <ul style="list-style-type: none"> <li>• Concept, need, and importance of filling poly bags</li> <li>• Where, when, how much, with what, and how to fill poly bags</li> <li>• The size of poly-bags</li> <li>• The quality of poly-bags</li> <li>• The quantity of media</li> <li>• The level of the media to be filled up</li> <li>• The precautions to be taken</li> <li>• The method of keeping record</li> </ul>
<b>17.</b>	<b>Perform manuring</b>	<ul style="list-style-type: none"> <li>• Manuring:</li> <li>• Concept, importance, types and identification of of them</li> <li>• Why, when, where, how much to apply manure</li> <li>• The precautions to be taken</li> <li>• Record keeping</li> </ul>
<b>18.</b>	<b>Perform fertilizing</b>	Fertilizing: <ul style="list-style-type: none"> <li>• Concept, types, identification, and importance of fertilizers</li> <li>• Knowledge on why, when, where, how much, and how to apply fertilizers</li> <li>• Fertilizer (amount ) calculation</li> <li>• The knowledge on foliar spray</li> <li>• The method to prepare fertilizer in given proportions</li> <li>• The right process of spraying</li> <li>• The precautions to be taken</li> <li>• The method of record keeping</li> </ul>

<b>19.</b>	<b>Shape / train / prune plants</b>	Shaping / training / pruning plants: <ul style="list-style-type: none"> <li>• Concept and importance of shaping / training / pruning plants</li> <li>• Why, when, where, and how to shape / train / prune plants</li> <li>• Types of shaping systems – leader, open leader, and modified leader systems</li> <li>• Different methods of shaping/ training / pruning</li> <li>• The method of wiring</li> <li>• Precautions to be followed</li> <li>• Keeping records</li> </ul>
<b>20.</b>	<b>Make compost</b>	Compost making: <ul style="list-style-type: none"> <li>• Knowledge on compost- organic and inorganic compost</li> <li>• The methods of compost making- heap, pit, mix, container / bin, and verming methods</li> <li>• Why, when. where, how much, which method, and how to make compost</li> <li>• Precautions to be followed</li> <li>• Keeping record</li> </ul>
<b>21.</b>	<b>Perform mulching</b>	Mulching <ul style="list-style-type: none"> <li>• Concept and identification of mulch</li> <li>• Where, how much, and how to mulch</li> <li>• The importance of mulching</li> <li>• The materials for mulching</li> <li>• The proper ways of mulching</li> <li>• The mulching time</li> <li>• The precautions to be taken</li> <li>• The method of record keeping</li> </ul>
<b>22.</b>	<b>Perform staking</b>	Staking: <ul style="list-style-type: none"> <li>• Concept</li> <li>• When, where, and how to stake plants</li> <li>• The importance of staking</li> <li>• The staking time</li> <li>• The method of tieing</li> <li>• The precautions to be taken</li> <li>• Record keeping</li> </ul>
<b>23.</b>	<b>Perform pinching</b>	Pinching: <ul style="list-style-type: none"> <li>• Concept</li> <li>• Where, when, how much and how to pinch</li> <li>• The importance of pinching</li> <li>• The method of pinching</li> <li>• The precautions to be taken</li> <li>• Method of record keeping</li> </ul>
<b>24.</b>	<b>Perform dead headings</b>	Dead headings <ul style="list-style-type: none"> <li>• Concept and need</li> <li>• The advantages of removing dead heads</li> <li>• When, where, and how to perform dead heading</li> <li>• The method of cutting dead shoots, dead flowers and seed pods</li> <li>• The precautions to be taken</li> <li>• The method of record keeping</li> </ul>

25.	<b>Perform spraying</b>	Spraying: <ul style="list-style-type: none"> <li>• Concept and importance</li> <li>• Knowledge on insecticide, pesticide, fungicide, hormone and foliar spray</li> <li>• Identification of appropriate spray materials for various cases/purposes.</li> <li>• When, where, how much, and how to spray chemicals</li> <li>• Precautions to be taken</li> <li>• Method of record keeping</li> </ul>
26.	<b>Spray vitamins /plant growth regulators(PGR)</b>	Spraying vitamins / plant growth regulators(PGR): <ul style="list-style-type: none"> <li>• Concept and importance</li> <li>• When, where, how much, and how to spray vitamins/ plant growth regulators(PGR)</li> <li>• Precautions to be taken</li> <li>• Method of record</li> </ul>
27.	<b>Perform weeding</b>	Weeding: <ul style="list-style-type: none"> <li>• Definition and concept of weed</li> <li>• Purpose of weeding and its importance</li> <li>• Concept of weed control and its methods</li> <li>• Regular weeding scheme</li> <li>• Post weeding operation</li> <li>• Precautions to be taken</li> <li>• Method of record keeping</li> </ul>
28.	<b>Protect nursery plants</b>	Nursery plant protection: <ul style="list-style-type: none"> <li>• Definition , concept and importance</li> <li>• Nursery plant protection technology</li> <li>• Calendar of operation for nursery protection</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
29.	<b>Perform repotting</b>	Repotting: <ul style="list-style-type: none"> <li>• Concept and importance of repotting</li> <li>• Method of making pot ready for repotting</li> <li>• Repotting method- when, where, how to carry out repotting</li> <li>• Precautions to be taken</li> <li>• Method of record keeping</li> </ul>
30.	<b>Paint pots</b>	Painting the pots: <ul style="list-style-type: none"> <li>• Concept and need of painting the pots</li> <li>• Importance of painting</li> <li>• Tools and materials needed for painting the pots</li> <li>• Method of painting safely – where, when, how much, in what pattern, in what color combination, and how to paint pots</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
31.	<b>Manage waste</b>	Waste management: <ul style="list-style-type: none"> <li>• Concept, need, and importance of waste management</li> <li>• Methods and techniques- where, when, and how to manage wastage</li> <li>• Managing every day waste of the nursery</li> <li>• Precautions to be taken</li> <li>• Keeping records</li> </ul>

## 21.7. Designing/Developing Gardens

S.N.	Tasks	Related Technical Knowledge
1.	Observe site	Observation of the site: <ul style="list-style-type: none"> <li>• Introduction- concept, need, what, when, where, and how to observe site</li> <li>• Essential criteria for observing site for the garden development</li> <li>• Keeping record of all the conditions of the site</li> <li>• Precautions to be taken</li> </ul>
2.	Measure the site	Measuring the site: <ul style="list-style-type: none"> <li>• Introduction- concept, need, what, when, where, and how to measure the site</li> <li>• Method of measurement of a site</li> <li>• Precautions to be taken</li> <li>• Records keeping</li> </ul>
3.	Prepare a site map	Preparation of site map: <ul style="list-style-type: none"> <li>• Introduction- concept, need, when, where, and how to prepare site map</li> <li>• Method of drawing a map of the site</li> <li>• The scale of the map</li> <li>• Precautions to be followed</li> <li>• Records keeping</li> </ul>
4.	<b>Prepare design of various gardens:</b> <ul style="list-style-type: none"> <li>• <b>Mugal garden</b></li> <li>• <b>English garden</b></li> <li>• <b>Japanese garden</b></li> <li>• <b>Cottage garden</b></li> <li>• <b>Korian /Chinese garden</b></li> <li>• <b>Rock garden</b></li> <li>• <b>Patio garden</b></li> <li>• <b>Water garden</b></li> <li>• <b>Sun VS shade garden</b></li> </ul>	Preparation of designs of various gardens: <ul style="list-style-type: none"> <li>• The components of garden</li> <li>• Method of drawing every components on the map according to the scale</li> <li>• Keeping the legend on map</li> </ul> Method of designing following gardens: <ul style="list-style-type: none"> <li>• Mugal garden</li> <li>• English garden</li> <li>• Japanese garden</li> <li>• Cottage</li> <li>• Korian / Chinese garden</li> <li>• Rock garden</li> <li>• Patio garden</li> <li>• Water garden</li> <li>• Sun VS shade garden</li> </ul> Features of the above gardens Precautions to be taken and recording
5.	<b>Lay out the designed gardens:</b> <ul style="list-style-type: none"> <li>• <b>Mugal garden</b></li> <li>• <b>English garden</b></li> <li>• <b>Japanese garden</b></li> <li>• <b>Cottage garden</b></li> <li>• <b>Korian /Chinese garden</b></li> <li>• <b>Rock garden</b></li> <li>• <b>Patio garden</b></li> <li>• <b>Water garden</b></li> <li>• <b>Sun VS shade garden</b></li> </ul>	Lay out of the designed gardens: <ul style="list-style-type: none"> <li>• Why, when, where, and how to layout the designed gardens</li> </ul> Lay out of the following gardens: <ul style="list-style-type: none"> <li>• Mugal garden</li> <li>• English garden</li> <li>• Japanese garden</li> <li>• Cottage</li> <li>• Korian / Chinese garden</li> <li>• Rock garden</li> <li>• Patio garden</li> <li>• Water garden</li> <li>• Sun VS shade garden</li> </ul> Precautions to be taken and recording

6.	<b>Establish gardens:</b> <ul style="list-style-type: none"> <li>• <b>Mugal garden</b></li> <li>• <b>English garden</b></li> <li>• <b>Japnese garden</b></li> <li>• <b>Cottage garden</b></li> <li>• <b>Korian /Chinese garden</b></li> <li>• <b>Rock garden</b></li> <li>• <b>Patio garden</b></li> <li>• <b>Water garden</b></li> <li>• <b>Sun VS shade garden</b></li> </ul>	Establishment of the gardens: <ul style="list-style-type: none"> <li>• Why, when, where, and how to establish the gardens</li> </ul> Establishment of the following gardens: <ul style="list-style-type: none"> <li>• Mugal garden</li> <li>• English garden</li> <li>• Japnese garden</li> <li>• Cottage garden</li> <li>• Korian / Chinese garden</li> <li>• Rock garden</li> <li>• Patio garden</li> <li>• Water garden</li> <li>• Sun VS shade garden</li> </ul> Precautions to be taken and recording
7.	<b>Manage resources</b>	Resources management: <ul style="list-style-type: none"> <li>• Concept, needs, and types of resources needed</li> <li>• When, where, how much, and how to manage resources</li> <li>• Explain about the required resources (materials) needed</li> <li>• Estimation of resources- men, materials, money etc.</li> <li>• Managing resources up to the site</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
8.	<b>Perform landscaping</b>	Land scaping: <ul style="list-style-type: none"> <li>• Definition of land scaping</li> <li>• Types of land scaping</li> <li>• Suitable plants for land scaping</li> <li>• Why, where, when, and of land scaping</li> <li>• Selection of plant species for land scaping</li> <li>• Plantation for land scaping</li> <li>• Displaying plants</li> <li>• Managing resources for land scaping</li> <li>• Method of reading map</li> <li>• Process of landscaping as per design</li> </ul> Trees, shrubs, climbers, hedges and topiar: <ul style="list-style-type: none"> <li>• Introduction: concept , characteristics and identification</li> <li>• Role of them in land scaping</li> </ul> Precautions to be taken and records keeping
9.	<b>Select plant species</b>	Selection of plant species: <ul style="list-style-type: none"> <li>• Why, when, where, which, and how to select plant species</li> <li>• Criteria for selecting plant species</li> <li>• Identification of all the proposed plants species</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>

10.	<b>Perform plantation</b>	Plantation: <ul style="list-style-type: none"> <li>• Why, when, where, what, and how to perform plantation</li> <li>• Identification of plants to be planted</li> <li>• Method of marking the position of plantation and pitting</li> <li>• Right method of plantation for tree, shrubs, hedges, borders and seasonal plants</li> <li>• Precautions to be taken.</li> <li>• Records keeping</li> </ul>
11.	<b>Develop gardens:</b> <ul style="list-style-type: none"> <li>▪ Mughal garden</li> <li>▪ English garden</li> <li>▪ Japanese garden</li> <li>▪ Cottage garden</li> <li>▪ Korean/ Chinese garden</li> <li>▪ Rock garden</li> <li>▪ Patio garden</li> <li>▪ Water garden</li> <li>▪ Sun Vs shade gardens</li> </ul>	Developing gardens: <ul style="list-style-type: none"> <li>• Concept, importance, and how to develop following gardens with their specific features and methods of developing:             <ul style="list-style-type: none"> <li>▪ Mugal garden</li> <li>▪ English garden</li> <li>▪ Japnese garden</li> <li>▪ Cottage garden</li> <li>▪ Korian / Chinese garden</li> <li>▪ Rock garden</li> <li>▪ Patio garden</li> <li>▪ Water garden</li> <li>▪ Sun VS shade garden</li> </ul> </li> <li>• Precautions to be taken</li> <li>• Keeping records</li> </ul>
12.	<b>Develop lawn</b>	Developing lawn: <ul style="list-style-type: none"> <li>• Importance of lawn</li> <li>• Why, when, where, and how to develop a lawn</li> <li>• Steps in developing the lawn</li> <li>• Precautions to be taken</li> <li>• Keeping records</li> </ul>

### 21.8. Maintaining garden and garden plants

S.N.	Tasks	Related Technical Knowledge
1.	<b>Perform hedge and edge cutting</b>	Hedge and edge cutting: <ul style="list-style-type: none"> <li>• Concept, importance, when, where, and how of hedge and edge cutting</li> <li>• Different shapes of hedges</li> <li>• Method of hedge and edge cutting</li> <li>• Time of hedge cutting</li> <li>• Precautions to be followed</li> <li>• Keeping records</li> </ul>
2.	<b>Remove mosses and stains</b>	Removing mosses and stains: <ul style="list-style-type: none"> <li>• Concept, importance, when, where, and how of removing mosses and stains</li> <li>• Methods of removing stains and mosses</li> <li>• Precautions to be taken</li> <li>• Keeping records</li> </ul>
3.	<b>Perform disbudding</b>	Disbudding: <ul style="list-style-type: none"> <li>• Concept, importance, when, where, and how of disbudding</li> <li>• Method of disbudding</li> <li>• Precautions to be taken</li> <li>• Keeping records</li> </ul>
4.	<b>Perform pinching</b>	Pinching: <ul style="list-style-type: none"> <li>• Concept and importance of pinching</li> <li>• Method of pinching- when, where, and how of pinching</li> <li>• Precautions to be taken</li> <li>• Method of record keeping</li> </ul>
5.	<b>Perform supporting / staking</b>	Supporting and staking: <ul style="list-style-type: none"> <li>• concept and importance of supporting &amp; staking</li> <li>• where, and how of supporting &amp; staking</li> <li>• Time for giving support / stake</li> <li>• Method of tieing</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
6.	<b>Perform mulching</b>	Mulching: <ul style="list-style-type: none"> <li>• Concept and importance of mulching</li> <li>• Method of mulching - when, where, and how of mulching</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
7.	<b>Perform pruning</b>	Pruning: <ul style="list-style-type: none"> <li>• pruning</li> <li>• Advantages and disadvantages of pruning</li> <li>• Method of pruning- when, where, and how of pruning</li> <li>• Post pruning activities</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>



<b>8.</b>	<b>Perform training to plants</b>	Training: <ul style="list-style-type: none"> <li>• Concept and importance of training</li> <li>• Advantages and disadvantages of training</li> <li>• Method of training- when, where, and how of training</li> <li>• Systems of shaping – leader, open leader, modified leader systems</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
<b>9.</b>	<b>Perform planting and replanting</b>	Planting and replanting: <ul style="list-style-type: none"> <li>• Concept and importance of planting and replanting</li> <li>• Method of planting and replanting- when, where, and how of planting and replanting</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
<b>10.</b>	<b>Perform sweeping</b>	Method of sweeping: <ul style="list-style-type: none"> <li>• Concept and importance of sweeping</li> <li>• Method of sweeping - when, where, and how of sweeping</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
<b>11.</b>	<b>Clean fallen leaves</b>	Cleaning leaves: <ul style="list-style-type: none"> <li>• Concept and importance of cleaning leaves of plants</li> <li>• Method of cleaning</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
<b>12.</b>	<b>Mow the lawn</b>	Mowing lawn: <ul style="list-style-type: none"> <li>• Concept and importance of mowing the lawn</li> <li>• Method of running mowing machine</li> <li>• Method of mowing- when, where, and how of mowing</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
<b>13.</b>	<b>Apply manure and fertilizer</b>	Application of manure and fertilizer: <ul style="list-style-type: none"> <li>• Knowledge on manure and fertilizer</li> <li>• Method of drying</li> <li>• Method of preparing fertilizer</li> <li>• Method of applying manure and fertilizer to plants- when, where, how much, and how?</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>

## 21.9. Production of plants

<p><b>1.</b></p>	<p><b>Propagate plants by cuttings:</b></p> <ul style="list-style-type: none"> <li>• <b>Soft cutting</b></li> <li>• <b>Semi hard cutting</b></li> <li>• <b>Hard wood cutting</b></li> <li>• <b>Leaf cutting</b></li> <li>• <b>Tip cutting</b></li> <li>• <b>Root cutting</b></li> </ul>	<p>Cuttings:</p> <ul style="list-style-type: none"> <li>• Concept, importance and advantages</li> <li>• Hardiness of plants (hard wood, semi-hard wood and soft wood)</li> </ul> <p>Methods of taking cuttings for:</p> <ul style="list-style-type: none"> <li>• Soft cutting</li> <li>• Semi hard cutting</li> <li>• Hard wood cutting</li> <li>• Leaf cutting</li> <li>• Tip cutting</li> <li>• Root cutting</li> </ul> <p>Method of treating cuttings on hormone and inserting them into the media</p> <p>Propagation of plants by:</p> <ul style="list-style-type: none"> <li>• Soft cutting</li> <li>• Semi hard cutting</li> <li>• Hard wood cutting</li> <li>• Leaf cutting</li> <li>• Tip cutting</li> <li>• Root cutting</li> </ul> <p>Precautions to be taken</p>
<p><b>2.</b></p>	<p><b>Propagate plants by layering:</b></p> <ul style="list-style-type: none"> <li>• <b>Simple layering</b></li> <li>• <b>Trench layering</b></li> <li>• <b>Air layering</b></li> <li>• <b>Mound layering</b></li> </ul>	<p>Layering</p> <ul style="list-style-type: none"> <li>• Concept</li> <li>• Importance and advantages</li> <li>• types</li> </ul> <p>Propagation of plants by-</p> <ul style="list-style-type: none"> <li>• Simple layering</li> <li>• Trench layering</li> <li>• Air layering</li> <li>• Mound layering</li> </ul> <p>Method of using hormone, keeping moss and tightening with plastic band)</p> <p>Precautions to be taken</p>
<p><b>3.</b></p>	<p><b>Propagate plants by ground layering</b></p>	<p>Ground layering:</p> <ul style="list-style-type: none"> <li>• Concept, importance and advantages</li> <li>• Hardiness of plants (hard wood, semi-hard wood)</li> <li>• Method. Of ground layering.</li> <li>• Method of using hormone.</li> <li>• Precautions to be taken</li> <li>• Method of record keeping</li> </ul>
<p><b>4.</b></p>	<p><b>Propagate plants by division</b></p>	<p>Propagation by division:</p> <ul style="list-style-type: none"> <li>• Concept, importance and advantages</li> <li>• Listing plants which are to be propagated by division method</li> <li>• Methods of division</li> <li>• Method of replanting</li> <li>• Precautions to be taken</li> </ul>

5.	<b>Propagate plants by grafting:</b> <ul style="list-style-type: none"> <li>• Tongue grafting</li> <li>• Splice grafting</li> <li>• Approach grafting</li> <li>• Cleft grafting</li> <li>• Bark grafting</li> <li>• Enarching</li> <li>• Bridge grafting</li> <li>• Green wood grafting</li> <li>• stone grafting</li> </ul>	Propagation by grafting: <ul style="list-style-type: none"> <li>• concept of grafting</li> <li>• Importance and advantages</li> </ul> Methods of grafting: <ul style="list-style-type: none"> <li>• Tongue grafting</li> <li>• Splice grafting</li> <li>• Approach grafting</li> <li>• Cleft grafting</li> <li>• Bark grafting</li> <li>• Enarching</li> <li>• Bridge grafting</li> <li>• Green wood grafting</li> <li>• stone grafting</li> </ul> Method of tying the grafted portion Precautions to be taken
6.	<b>Propagate plants by budding:</b> <ul style="list-style-type: none"> <li>• T-budding</li> <li>• Inverted budding</li> <li>• Ring budding</li> <li>• Clip budding</li> <li>• I- budding</li> </ul>	Budding: <ul style="list-style-type: none"> <li>• Concept</li> <li>• Importance and advantages</li> <li>• Root stock and scion selection- why, when, where, and how?</li> </ul> Methods of budding: <ul style="list-style-type: none"> <li>• T-budding</li> <li>• Inverted budding</li> <li>• Ring budding</li> <li>• Clip budding</li> <li>• I- budding</li> </ul> Method of tying the budded portion Precautions to be taken Record keeping
7.	<b>Propagate plants by seeds</b>	Propagation of plants by seeds: <ul style="list-style-type: none"> <li>• Definition of good seed</li> <li>• When, where, and how to propagate plants by seed</li> <li>• Precautions to be taken.</li> <li>• Method of record</li> </ul>
8.	<b>Propagate plants from bulbs</b>	Propagation of plants from bulbs: <ul style="list-style-type: none"> <li>• Bulbs</li> <li>• Daughter bulbs</li> <li>• Method of growing daughter bulbs - When, where, and how?</li> <li>• Precautions to be taken.</li> <li>• Method of record keeping</li> </ul>
9.	<b>Propagate plants by offsets</b>	Propagation of plants by offset: <ul style="list-style-type: none"> <li>• When, where, and how to propagate by offset</li> <li>• Methods of detaching offset from mother plant</li> <li>• Precautions to taken.</li> <li>• Recording keeping</li> </ul>

<b>10.</b>	<b>Transplant seedlings / saplings</b>	Transplantation of seedlings and saplings: <ul style="list-style-type: none"><li>• Concept and identification of seedlings and saplings</li><li>• Handling of seedlings and saplings safely</li><li>• Methods of detaching seedlings and saplings safely from seed beds</li><li>• When, where, and how to transplant seedlings and saplings safely</li><li>• Precautions to taken.</li><li>• Record keeping</li></ul>
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21.10. Production of cut flowers

S.N.	Tasks	Related Technical Knowledge
1.	<b>Develop concept of cut flower cultivation / production</b>	Cut flower cultivation / production: <ul style="list-style-type: none"> <li>• Definition, concept, identification, and importance of cut flower</li> <li>• Scope of cut flower cultivation / production in Nepal</li> <li>• Value of cut flower</li> <li>• Market of cut flower- national and international</li> <li>• Climatic requirement for cut flower cultivation and production- weather / season, temperature, rainfall / water, humidity, light hours etc</li> <li>• Cut flower cultivation / production technology</li> <li>• Cut flower marketing technology</li> </ul>
2.	<b>Select crop</b>	Selection of crop: <ul style="list-style-type: none"> <li>• Criteria for selecting crop for cut flower production</li> <li>• Knowledge on different commercial crop for cut flowers</li> <li>• Knowledge on the climate, geography and time for growing the specific crop</li> <li>• Precautions to be taken</li> <li>• Method of record keeping</li> </ul>
3.	<b>Identify varieties of the crop</b>	Identification of varieties of crop: <ul style="list-style-type: none"> <li>• Names of varieties of crops and their identification</li> <li>• Characters of different varieties for identification</li> <li>• Precautions to be taken</li> <li>• Method of record keeping</li> </ul>
4.	<b>Procure seeds/bulbs/corms/divisions/cuttings/seedlings</b>	Procurement of planting materials: <ul style="list-style-type: none"> <li>• Quality of a seeds , bulbs , corms , divisions , cuttings and seedlings</li> <li>• Reliable sources</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
5.	<b>Prepare field for growing cut flowers</b>	Field preparation for cut flower cultivation: <ul style="list-style-type: none"> <li>• Why, when, where, how to prepare field</li> <li>• Knowledge on P<sub>H</sub> of the soil for desired crop</li> <li>• Method of adjusting the P<sub>H</sub> of the soil</li> <li>• Method of adding compost and fertilizer to the bed</li> <li>• Method of bed preparation for plantation</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
6.	<b>Sow seeds or plant corms/bulbs/seedlings/rhizomes</b>	Sowing and planting seeds and planting materials: <ul style="list-style-type: none"> <li>• Distance and depth for plantation of selected crop</li> <li>• Method of plantation and covering the seeds- Why, when, where, how?</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
7.	<b>Perform irrigation</b>	Irrigation: <ul style="list-style-type: none"> <li>• Importance of irrigation to plants</li> <li>• Method of irrigation- Why, when, where, how?</li> <li>• Precautions to be taken.</li> <li>• Record keeping</li> </ul>
8.	<b>Manage supporting</b>	Managing supports: <ul style="list-style-type: none"> <li>• Knowledge on which plant needs the supporting</li> <li>• Method of support giving to plants - Why, when,</li> </ul>

		<p>where, how?</p> <ul style="list-style-type: none"> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
<b>9.</b>	<b>Perform weeding</b>	<p>Weeding:</p> <ul style="list-style-type: none"> <li>• Knowledge on weeding</li> <li>• Methods of weeding- Why, when, where, how?</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
<b>10.</b>	<b>Perform plant protection activities</b>	<p>Plant protection:</p> <ul style="list-style-type: none"> <li>• Knowledge on disease or pest in nursery</li> <li>• Methods of preparing appropriate dose for spraying</li> <li>• Methods of proper spraying- Why, when, where, how?</li> <li>• Introduction / review of plant protection technology</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> </ul>
<b>11.</b>	<b>Harvest crop</b>	<p>Harvesting the crop:</p> <ul style="list-style-type: none"> <li>• Harvesting time of different floral crops</li> <li>• Method of harvesting different floral crops- Why, when, where, how?</li> <li>• Post harvesting activities</li> <li>• Precautions to be taken</li> <li>• Method of record keeping</li> </ul>
<b>12.</b>	<b>Package the product</b>	<p>Packaging the product:</p> <ul style="list-style-type: none"> <li>• Knowledge on the importance of packaging of harvested crop</li> <li>• Method of packaging- Why, when, where, how?</li> <li>• Precautions to be taken</li> <li>• The method of record keeping</li> </ul>
<b>13.</b>	<b>Harvest corms/bulbs</b>	<p>Harvesting corms and bulbs: Why, when, where, how?</p> <ul style="list-style-type: none"> <li>• Right time for harvesting corms or bulbs</li> <li>• Method of grading harvested corms or bulbs</li> <li>• Method of treating harvested corms or bulbs</li> <li>• Method of storing harvested corms or bulbs</li> <li>• Precautions to be taken</li> <li>• Method of record keeping</li> </ul>

### 21.11. Marketing of plants and cut-flowers

S.N.	Tasks	Related Technical Knowledge
1.	Collect market information	Collection of market information: <ul style="list-style-type: none"> <li>• Collection of market information - Why, what, when, where, how?</li> <li>• Method of preparing a format for market survey</li> <li>• Method of data / information processing</li> <li>• Possible outlets of production</li> <li>• Precautions to be taken</li> <li>• Keeping records</li> </ul>
2.	Visit nursery / wholesale flower market	Visiting nursery / wholesale flower market: <ul style="list-style-type: none"> <li>• Why, what, when, where, how of visiting nursery / wholesale flower market</li> <li>• Information to be collected</li> <li>• visit report</li> </ul>
3.	Advertise through various media	Advertisement: <ul style="list-style-type: none"> <li>• Definition , concept and importance</li> <li>• Advertisement - Why, what, when, where, how?</li> <li>• Writing information to be advertised</li> <li>• Various media for advertisement</li> <li>• Precautions to be taken</li> <li>• Keeping records</li> </ul>
4.	Select marketing channel	Selection of marketing channel: <ul style="list-style-type: none"> <li>• Concept and importance of marketing channel</li> <li>• Criteria for selection of marketing channel</li> <li>• Precautions to be taken</li> <li>• Keeping records</li> </ul>
5.	Fix price	Price fixation: <ul style="list-style-type: none"> <li>• Concept of price and fixing price of the product</li> <li>• Criteria of fixing price</li> <li>• Methods to be applied to fix price of a product</li> <li>• Precautions to be taken</li> <li>• Method of keeping records</li> </ul>
6.	Participate / sell in related exhibitions	Exhibition: <ul style="list-style-type: none"> <li>• Concept of exhibition and its importance in floriculture and gardening</li> <li>• Participation in exhibition and its importance</li> <li>• Selling of products</li> <li>• Precautions to be taken</li> <li>• Method of keeping records</li> </ul>
7.	Provide home delivery services	Providing home delivery services: <ul style="list-style-type: none"> <li>• Concept and importance of home delivery services</li> <li>• Things to be considered while providing home delivery services</li> <li>• Identification of the clients that need home delivery services</li> <li>• Precautions to be taken</li> <li>• Keeping records</li> </ul>
8.	Arrange transportation	Arrangement of transportation: <ul style="list-style-type: none"> <li>• Preparing schedule for delivery / transportation of plants and flowers</li> <li>• Cost effective means/ways of transporting plants and flowers</li> <li>• Precautions to be taken</li> <li>• Keeping records</li> </ul>

9.	<b>Provide discount</b>	Discounts: <ul style="list-style-type: none"> <li>• Concept of discount and its need</li> <li>• Criteria of providing discount</li> <li>• Calculation of discount rate</li> <li>• Providing discount to the regular and the privileged customers</li> <li>• Precautions to be taken</li> <li>• Keeping records</li> </ul>
10.	<b>Supply flowers and plants</b>	Supply of flowers and plants: <ul style="list-style-type: none"> <li>• Concept and need of supplying flowers and plants</li> <li>• Making schedule for daily supply</li> <li>• Safe handling of flowers and plants to be supplied</li> <li>• Managing vehicle for regular supply</li> <li>• Precautions to be taken</li> <li>• Method of keeping records</li> </ul>



### 21.12. Arranging and decorating house plants

S.N.	Tasks	Related Technical Knowledge
1.	<b>Observe site for houseplants</b>	Site observation: <ul style="list-style-type: none"> <li>• Criteria for observing site for house plant decoration</li> <li>• Method of preparing a design of the site for the decoration of house plant</li> <li>• Precautions to be taken</li> <li>• Method of keeping records</li> </ul>
2.	<b>Design arrangement of houseplants</b>	Designing arrangement of house plants: <ul style="list-style-type: none"> <li>• Why, when and how of designing the arrangement of house plants</li> <li>• Precautions to be taken</li> <li>• Keeping records</li> </ul>
3.	<b>Select plants</b>	Plant selection : <ul style="list-style-type: none"> <li>• Identification of house plants</li> <li>• Criteria for selecting house plants for arrangement and decoration- proper plants for proper pots / containers</li> <li>• Precautions to be taken</li> <li>• Method of keeping records</li> </ul>
4.	<b>Select pots / containers</b>	Pots / containers selection: <ul style="list-style-type: none"> <li>• Identification of the containers: <ul style="list-style-type: none"> <li>○ Wooden containers</li> <li>○ Terracotta containers</li> <li>○ Bamboo containers</li> <li>○ Cemented containers</li> <li>○ plastic containers</li> </ul> </li> <li>• of pots/ containers that can be used for decorating house plants: <ul style="list-style-type: none"> <li>○ Square shape</li> <li>○ Triangular shape</li> <li>○ Rectangular shape</li> </ul> </li> <li>• Size of pots/ containers that can be used for decorating house plants</li> <li>• Precautions to be taken</li> <li>• The method of keeping records</li> </ul>
5.	<b>Clean / paint pots / containers</b>	Cleaning and painting pots / containers: <ul style="list-style-type: none"> <li>• Why, when, how to clean pots / containers</li> <li>• Selection of paints- how, when, where?</li> <li>• Why, when, how to paint pots / containers</li> <li>• Precautions to be taken</li> <li>• Keeping records</li> </ul>
6.	<b>Grow / care / maintain / manage house plants</b>	Growing, caring, maintaining and managing house plants: <ul style="list-style-type: none"> <li>• Why. When, where, and how to grow , care ,maintain and manage house plants</li> <li>• Manage proper plant for proper pots / containers</li> <li>• Precautions to be taken</li> <li>• Keeping records</li> </ul>
7.	<b>Display houseplants</b>	Displaying house plants: <ul style="list-style-type: none"> <li>• Method of displaying plants in the right way- why, when, where, and how to display?</li> <li>• Precautions to be taken</li> <li>• Keeping records</li> </ul>

<b>8.</b>	<b>Rearrange houseplants</b>	Rearrangement of house plants: <ul style="list-style-type: none"><li>• concept</li><li>• Importance of rearranging plants</li><li>• Regular watching of the conditions of plants</li><li>• Methods of rearrangement – why, where, when, and how to rearrange house plants?</li><li>• Precautions to be taken</li><li>• Keeping records</li></ul>
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### 21.13. Preparing and arranging fresh and dry flowers

S.N.	Tasks	Related Technical Knowledge
1.	<b>Develop concept of fresh / dry flower/ flower arrangement</b>	Fresh and dry flower: <ul style="list-style-type: none"> <li>• Concept of fresh and dry flower</li> <li>• Fresh and dry flower shops in Nepal</li> <li>• Importance, use and market of fresh and dry flower</li> <li>• Concept and importance of flower arrangement</li> <li>• Difference between fresh and dry flower arrangement</li> <li>• Types of vas</li> </ul>
2.	<b>Handle tools and materials for flower arrangement</b>	Safe handling of the following tools and materials: <ul style="list-style-type: none"> <li>• Concept, importance, functions, use, care, maintenance, handling, storage, and management of the followings:</li> <li>• Jari</li> <li>• Dubo</li> <li>• Scissor</li> <li>• Cellophane paper</li> <li>• Aluminum foil</li> <li>• Wire</li> <li>• Sallow yape</li> <li>• Basket</li> <li>• Flower</li> <li>• Foliage</li> <li>• Oasis</li> <li>• Needle</li> <li>• Thread</li> <li>• Vas</li> <li>• Secature</li> </ul>
3.	<b>Select flower and foliage</b>	Selection of flower and foliage: <ul style="list-style-type: none"> <li>• Selection criteria of fresh and quality flowers and foliage</li> <li>• Non-infested and non-diseased flowers and foliage</li> <li>• Precautions</li> <li>• Record keeping</li> </ul>
4.	<b>Select the design of flower arrangement</b>	Selection of design of flower arrangement <ul style="list-style-type: none"> <li>• Different types of flower arrangements</li> <li>• How to design and select particular flower arrangement design for particular location and occasion</li> <li>• Precautions to be taken</li> <li>• Method of record keeping</li> </ul>
5.	<b>Arrange the flat bouquet</b>	Arrangement of flat bouquet: <ul style="list-style-type: none"> <li>• Method of arranging flowers and foliage in flat bouquet</li> <li>• Precautions to be followed.</li> <li>• Keeping records</li> <li>• Definition of waste</li> <li>• How to manage the waste.</li> </ul>
6.	<b>Arrange the round bouquet</b>	Arrangement of flat bouquet: <ul style="list-style-type: none"> <li>• Method of arranging flowers and foliage in round bouquet</li> <li>• Precautions to be taken</li> <li>• Record keeping</li> <li>• How to manage the waste.</li> </ul>

7.	<b>Arrange the flower vase</b>	Arrangement of flower vase: <ul style="list-style-type: none"> <li>• Method of arranging flowers and foliage in flower vase</li> <li>• Precautions to be taken.</li> <li>• Method of record keeping</li> <li>• Need &amp; method of waste disposal.</li> </ul>
8.	<b>Prepare one side basket arrangement</b>	One side basket arrangement: <ul style="list-style-type: none"> <li>• Method of preparing one side basket arrangement</li> <li>• Precautions to be take.</li> <li>• Method of record keeping</li> <li>• Waste management.</li> </ul>
9.	<b>Prepare round basket arrangement</b>	Round basket arrangement: <ul style="list-style-type: none"> <li>• Method of preparing round basket arrangement</li> <li>• Precautions to be taken.</li> <li>• Method of record keeping</li> <li>• Waste management.</li> </ul>
10.	<b>Perform table arrangement</b>	Table arrangement: <ul style="list-style-type: none"> <li>• Method of preparing table arrangement</li> <li>• Precautions to be taken.</li> <li>• Method of record keeping</li> <li>• Waste management.</li> </ul>
11.	<b>Perform hanging arrangement</b>	Hanging arrangement: <ul style="list-style-type: none"> <li>• Method of preparing hanging arrangement</li> <li>• Precautions to be taken.</li> <li>• Method of record keeping</li> <li>• Waste management.</li> </ul>
12.	<b>Prepare Doobo Mala</b>	Method of preparing Doobo Mala <ul style="list-style-type: none"> <li>• Method of preparing Doobo Mala</li> <li>• Method of using tools and materials</li> <li>• Precautions to be taken.</li> <li>• Method of record keeping</li> <li>• How to manage the waste.</li> </ul>
13.	<b>Prepare Doobo plus Jari Mala</b>	Method of preparing Doobo plus Jari Mala <ul style="list-style-type: none"> <li>• Method of preparing Doobo plus Jari Mala</li> <li>• Method of using tools and materials</li> <li>• Precautions to be taken.</li> <li>• Method of record keeping</li> <li>• How to manage the waste.</li> </ul>
14.	<b>Prepare Doobo plus Sitara Mati Mala</b>	Method of preparing Doobo plus Sitara Mati Mala <ul style="list-style-type: none"> <li>• Method of preparing Doobo plus Sitara Mati Mala</li> <li>• Method of using tools and materials</li> <li>• Precautions to be taken.</li> <li>• Method of record keeping</li> <li>• How to manage the waste.</li> </ul>
15.	<b>Prepare Sitara Half Pan Butta Mala</b>	Method of preparing Sitara Half Pen Butta Mala <ul style="list-style-type: none"> <li>• Method of preparing Sitara Half Pen Butta Mala</li> <li>• Method of using tools and materials</li> <li>• Precautions to be taken.</li> <li>• Method of record keeping</li> <li>• How to manage the waste.</li> </ul>

16.	<b>Perform car decoration with flowers</b>	Method of performing car decoration: <ul style="list-style-type: none"> <li>• Method of performing car decoration</li> <li>• Method of using tools and materials</li> <li>• Precautions to be taken.</li> <li>• Method of record keeping</li> <li>• How to manage waste.</li> </ul>
17.	<b>Perform stage decoration with flowers</b>	Method of performing stage decoration: <ul style="list-style-type: none"> <li>• Method of performing stage decoration</li> <li>• Method of using tools and materials</li> <li>• Precautions to be taken.</li> <li>• Method of record keeping</li> <li>• Waste disposal.</li> </ul>
18.	<b>Perform Mandap decoration with flowers</b>	Method of performing Mandap decoration: <ul style="list-style-type: none"> <li>• Method of performing Mandap decoration</li> <li>• Method of using tools and materials</li> <li>• Precautions to be taken.</li> <li>• Method of record keeping</li> <li>• How to manage waste.</li> </ul>
19.	<b>Prepare flower Garland ( Phool-Mala)</b>	Preparation of flower garlands: <ul style="list-style-type: none"> <li>• Selection of suitable flowers</li> <li>• Method of preparing flower garlands</li> <li>• Method of using tools and materials</li> <li>• Precautions to be taken.</li> <li>• Waste management.</li> </ul>
20.	<b>Prepare Ekebana</b>	Preparation of Ekebana: <ul style="list-style-type: none"> <li>• Introduction to Japanese flower arrangement</li> <li>• Method of preparing Ekebana</li> <li>• Types of flowers, foliage and twigs for Ekebana</li> <li>• Precautions to be taken in different steps</li> <li>• Method of record keeping</li> <li>• Waste management.</li> </ul>
21.	<b>Prepare Moribana</b>	Preparation of Moribana: <ul style="list-style-type: none"> <li>• Method of preparing Moribana</li> <li>• Types of flowers, foliage and twigs for Moribana</li> <li>• Precautions to be taken in different steps</li> <li>• Method of record keeping</li> <li>• Waste management.</li> </ul>
22.	<b>Prepare Jiubana</b>	Preparation of Jiubana: <ul style="list-style-type: none"> <li>• Method of preparing Jiubana</li> <li>• Types of flowers, foliage and twigs for Jiubana</li> <li>• Precautions to be taken in different steps</li> <li>• Method of record keeping</li> <li>• Waste management.</li> </ul>

### 21.14. Lawn preparation and maintenance

S. N.	Tasks	Related technical knowledge
1	Develop concept of lawn	Lawn: Concept and introduction Importance
2	Identify varieties of grass seeds	Varieties of grass and their identification
3	Identify sources of grass seeds	Reliable sources of grass seeds
4	Obtain seeds	Obtaining seeds
5	Break dormancy of seeds	Techniques of breaking dormancy of seeds
6	Prepare lawn bed	Preparation of lawn bed
7	Apply fertilizer	Fertilizer application
8	Sow seeds	Sowing seeds, distance and depth
9	Perform raking	Why ,when and how of raking
10	Irrigate / drain the lawn	Why ,when and how of lawn irrigation and drainage
11	Perform weeding	Why ,when and how of weeding the lawn
12	Perform top dressing	Why ,when and how of top dressing
13	Perform rolling	Why ,when and how of rolling
14	Control disease / pests	Why ,when and how of disease / pest control
15	Mow the lawn	Why ,when and how of mowing the lawn
16	Maintain height of the grass	Why ,when and how of maintaining height of the grass in a lawn

### 21.15. Hanging garden / gardening

S. N.	Tasks	Related technical knowledge
1	Define hanging garden / gardening	Hanging garden: <ul style="list-style-type: none"> <li>• Concept and definition</li> <li>• Importance</li> <li>• Scope</li> </ul>
2	List characteristics of hanging garden	Characteristics of hanging garden
3	List suitable plants / pots for hanging garden	Introduction to the suitable plants and pots for hanging garden
4	List types of hanging garden	Types of hanging garden: <ul style="list-style-type: none"> <li>• Foliage hanging garden ( concept, characteristics,&amp; importance )</li> <li>• Flowering hanging garden( concept, characteristics,&amp; importance )</li> <li>• Shady hanging garden( concept, characteristics,&amp; importance )</li> <li>• Sandy hanging garden( concept, characteristics,&amp; importance )</li> </ul>
5	Plan / design / layout hanging gardens	Why, when and how to plan / design / layout hanging gardens
6	Acquire skills to plan / establish / grow / maintain foliage hanging garden	Why, when and how of planning, establishing, growing, and maintaining foliage hanging garden
7	Acquire skills to plan / establish / grow / maintain flowering hanging garden	Why, when and how of planning, establishing, growing, and maintaining flowering hanging garden
8	Acquire skills to plan / establish / grow / maintain shady hanging garden	Why, when and how of planning, establishing, growing, and maintaining shady hanging garden
9	Acquire skills to plan / establish / grow / maintain sandy hanging garden	Why, when and how of planning, establishing, growing, and maintaining sandy hanging garden
10	Manage hanging gardens	Management of hanging gardens
11	Market the acquired skills	Concept of skill selling
12	Keep records	Records keeping

## 21.16. Cactus garden / gardening

S. N.	Tasks	Related technical knowledge
1	Define cactus garden / gardening	Cactus garden: <ul style="list-style-type: none"> <li>• Concept and definition</li> <li>• Importance</li> <li>• Scope</li> </ul>
2	List characteristics of cactus garden	Characteristics of cactus garden Climatic requirements
3	List suitable varieties of cactus for gardening	Introduction to the suitable varieties of cactus for gardening
	Plan for cactus garden / gardening	Planning for cactus garden / gardening
5	Design / layout cactus gardens	Why, when and how to design / layout cactus gardens
6	Acquire skills to establish cactus garden	Why, when and how of establishment of cactus garden
7	Acquire skills to grow garden	Why, when and how of growing cactus garden
8	Acquire skills to maintain garden	Why, when and how of maintaining cactus garden
9	Manage cactus gardens	Management of cactus gardens
10	Follow precautions	Precautions to be followed
11	Market the acquired skills	Concept of skill selling
12	Keep records	Records keeping



### 21.17. Orchid garden / gardening

S. N.	Tasks	Related technical knowledge
1	Define orchid garden / gardening	orchid garden / gardening: <ul style="list-style-type: none"> <li>• Concept and definition</li> <li>• Importance</li> <li>• Scope</li> <li>• Climatic requirement</li> </ul>
2	List types of orchid	Types of orchids: <ul style="list-style-type: none"> <li>• Nepalese / indigenous</li> <li>• Exotic</li> </ul>
3	Identify varieties of orchids	Varieties of orchids: <ul style="list-style-type: none"> <li>• Characteristics</li> <li>• Identification</li> <li>• Uses</li> </ul>
4	Plan orchid garden	Why, when, and how to plan orchid garden
5	Design orchid garden	Why, when, and how to design orchid garden
6	Lay out orchid garden	Why, when, and how to lay out orchid garden
7	Select containers for orchid garden	Why, when, and how to select containers for orchid garden
8	Grow orchid garden	Why, when, and how to grow orchid garden
9	Manure / water orchid garden	Why, when, and how to manure / water orchid garden
10	Produce cut flowers	Why, when, and how to produce cut flowers
11	Maintain orchid garden	Why, when, and how to maintain orchid garden, Types of Nepalese orchid and their maintenance
12	Follow precautions	Follow precautions
13	Sell product / skills /services	Sell product / skills /services
14	Keep records	Record keeping

## 21.18. Rose garden / gardening

S. N.	Tasks	Related technical knowledge
1	Define rose garden / gardening	Rose garden / gardening: <ul style="list-style-type: none"> <li>• Concept and definition</li> <li>• Importance and uses</li> <li>• Scope</li> <li>• Topography, whether, and climatic requirement</li> <li>• Morphology of rose</li> </ul>
2	Identify varieties of roses	Varieties of roses, their characteristics, and identification
3	Identify soil / PH requirement for roses	Soil / PH requirement for roses
4	Plan / design rose gardens	Why, when, and how to plan / design rose gardens
5	Layout rose garden	Why, when, and how to layout rose garden
6	Prepare field	Why, when, and how to prepare field
7	Dig trenches	Why, when, and how to dig trenches
8	Maintain distance /space /depth	Why, when, and how to maintain distance /space /depth
9	Prepare soil	Why, when, and how to prepare soil
10	Fill trenches with soil /fertilizer / manure	Why, when, and how to fill trenches with soil /fertilizer / manure
11	Select color of rose	Why, when, and how to select color of rose
12	Select grafted rose of the chosen color	Why, when, and how to select grafted rose
13	Plant rose in trenches	Why, when, and how to plant rose in trenches
14	Provide supports	Why, when, and how to provide supports to the planted rose
15	Water the plants	Why, when, and how to water the rose plants
16	Weed the rose crop	Why, when, and how to weed the rose crop
17	Perform top dressing / fertilizing / maturing	Why, when, and how to perform top dressing / fertilizing / maturing
18	Protect rose garden	Why, when, and how to protect rose garden / plants from insects / pests / animals / diseases /other environmental factors
19	Perform deadheading	Why, when, and how to perform deadheading
20	Perform disbudding	Why, when, and how to perform disbudding
21	Perform heavy pruning technique	Why, when, and how to perform heavy pruning technique
22	Perform medium pruning technique	Why, when, and how to perform medium pruning technique
23	Perform light pruning technique	Why, when, and how to perform light pruning technique
24	Maintain rose garden	Maintaining rose garden
25	Produce roses	Roses production technology
26	Market roses	Market of rose
27	Market rose gardening skills	How to market rose gardening skills
28	Follow precautions	Precautions to be followed
29	Keep records	Keeping records

## 21.19 Bonsai preparation

S. N.	Tasks	Related technical knowledge
1	Define bonsai	Bonsai: <ul style="list-style-type: none"> <li>• Concept and definition</li> <li>• Importance</li> <li>• Scope</li> <li>• Uses</li> </ul>
2	Identify plants used for preparing bonsai	Plants used for preparing bonsai
3	Collect	Demand collection and bonsai designing technology
4	Obtain tools / materials to prepare bonsai	Identification of tools / materials needed for bonsai preparation
5	Prepare bonsai of different plants	Bonsai preparation technology
6	Store / display the product	Why, when, and how of storing and displaying bonsai
7	Deliver the product	Why, when, and how to deliver the product
8	Follow precautions	Why, when, and how to follow precautions
9	Market skills	Why, when, and how to market skills
10	Keep records	Why, when, and how to keeping records

## 22. List of Tools, Materials & equipment

Trays (wooden)	Saws	Net
Trays (Plastic)	Secature	Hammer
Pots (Plastic)	Wheel barrow	Strings
Pots (soil)	Sieve	Khukuri
PGR (NAA, IBA, GA3, ethylene)	Gloves	Rubber belt
Seed/planting materials	Boots	Digger
Insecticide/pesticide/fungicide	Bucket	Hook
Organic	Seed boxes	Silpolyne sheet
fertilizer/manires/compost	Paper (full screen/rolling)	Polythene sheet
Chemical fertilizer	Transparencies	Fork
Plastic sheet	Transparencies marker	Spade
Cotton	Board maker	Scoop
Media	Permanent marker	Spoon
Poly bag	Loose print/ drawing paper or sheet/paper sheet	Scissors
Card board	Sign pen	Hedge shears
Thermocol board	Pencil	Ladder
Bomboo	Pilot pen	Wire
Silver paper	Dot pen	Wire cutter
PH meter/soil testing kit box	Scale	Supporting stick
Balance	Glue stick	Shovel/showel
First Aid kit box	Sharpener/eraser	Spirit level
Kuto	Color plastic sheet	Trowel
Kodalo	Hand outs	Brush/wire brush
Rake	Other teaching learning materials	Wooden plank
Khurpi/Sickle	Nails	Broom
Clod breaker	Pruning saw	Hoe
Watering can	Funnel	Chaphi
Pipes	Ruler	Lawn mower
Insect collecting box	Clip board	Stirring rod
Insect catching net	Drawing pen	Adhesive tape
Basket	Poster color	Collecting bucket
Sacks/dokos	Register	Oasis
Duster/sprayer	Note book	Jari
Measuring cylinder	Designs	Cello tape
Pegs	H.D.pipe	Pin-holder
Measuring tapes	TS bends	Sand
Cutting knife	Taps	Shade net
Ropes	Stove	Sieve
Thatching materials		

### **23. Facilities:**

Land for the cultivation of ornamental plants  
Well equipped class rooms  
Necessary buildings  
Nursery  
Garden  
Poly house  
Mist house  
Callus house  
Meteorological station  
Shade house  
Green house  
Well equipped library  
Store  
Hostel (optimal)  
Canteen  
Vehicle  
Water supply  
Electricity supply

### **24. Reading Materials**

Plant propagation, principles and practices  
- Hudson T. Hartmann  
- Dale E. Kester  
- Fred T. Davies, JR  
Fundamentals of horticulture  
- Dmond-Senn-Andrews-Halfacre  
Nepalma Ban Beeyu Tatha Nursery Avayash Pravidhi-I.Nepair &M.Robins  
Bagbani – part three  
- Ram Bahadur Shah  
- Birendra Bir Singh Basnet  
Management of Forest Nurseries, part-III  
- Adam Harrison  
Hand book of Agriculture  
- ICAR, New Delhi  
Garden flowers  
- Dr. Vishnu Swarup, NBT, India  
Common Trees  
- Dr. H. Santapau, National Book Trust (NBT), India  
Growing Dahlias  
- S.C. Dey  
The 1996 Good gardens Guide  
- Edite by G.R. & Parker king Vernilion, London  
Flowering Trees  
- M.S. Randhawa, NBT, India  
Roses  
- Amitabha Mukhopadhyay, NBT, India  
Gardens  
- Laeeq Futehelly, NBT, INDIA  
Basic book of natural gardening  
-W.E. Shewell Cooper  
Principles of horticulture

- C.R. Adams  
- K.m. Bamford  
- M.P. Early  
Publications of floriculture Association-Nepal  
Puspa Kheti  
-Bashudev karmacharya  
Floriculture and Landscaping  
-ed. Bose, Maiti, Dhua, Das  
Commercial flowers  
- Bose & Yadav  
Flowers in Nepal  
-Teiji Hayahawa  
Orchid in Nepal

***Appendices:***

i ) Task analysis sheet: A format.

Task analysis sheet

Task:	Theory (hrs):	Practical (hrs):	Total (hrs):
Task steps	Terminal performance objectives		Related technical knowledge
	<u>Condition(Given):</u>		
	<u>Task(What):</u>		
	<u>Standard(How well):</u>		

Tools/materials/equipment:

Safety:





iii ) Certificate: A format.

संस्थाको नाम

संस्थाको ठेगाना

(प्राविधिक शिक्षा तथा व्यावसायिक तालीम परिषद्बाट सम्बन्धन प्राप्त)

(Affiliated to council for technical education and vocational training (CTEVT))

(संस्थाको लोगो)

प्रमाण - पत्र

**CERTIFICATE**

श्री/श्रमिती/सुश्री ..... निवासी श्री ..... का छोरी/छोराले ..... विषय लिई वि.सं. २० .....  
देखि वि.सं. २० ..... सम्म जम्मा ..... घण्टाको तालिम सफलतापूर्वक सम्पन्न गरेको प्रमाणित गरिन्छ ।

This is to certify that Mr. / Mrs. / Miss.....son/daughter of Mr.....resident  
of.....has successfully completed the training entitled.....from 200.....to  
200.....with total.....hours.

Date of issue.....

.....  
Principal

.....  
Managing director

