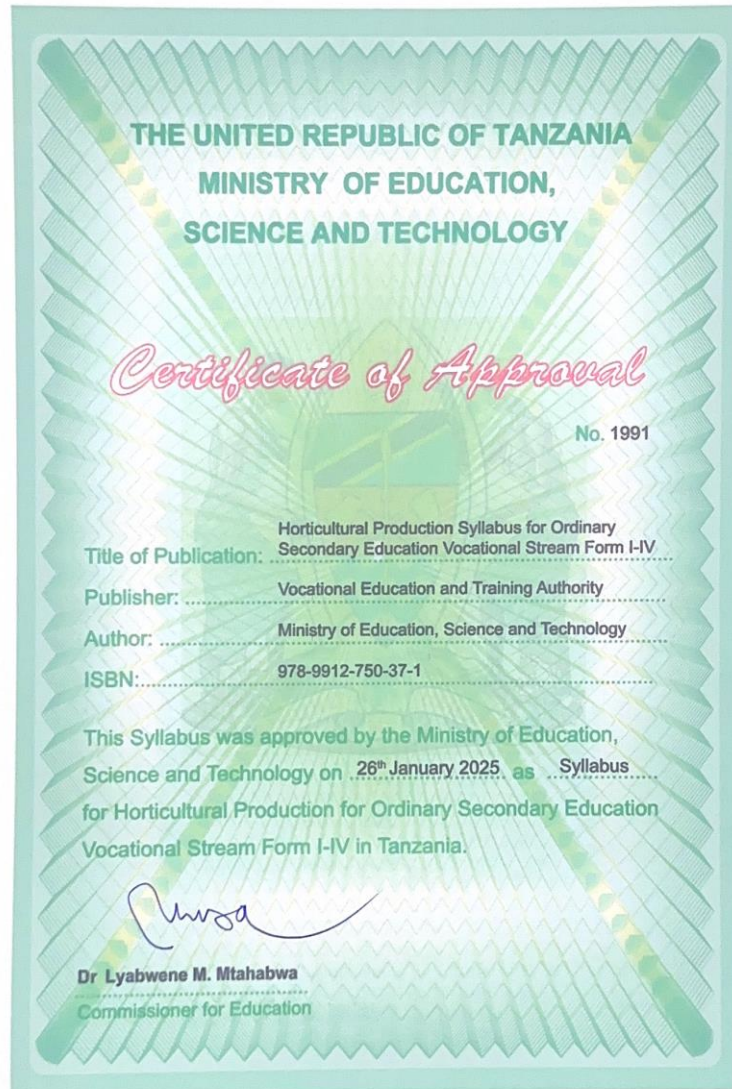


**THE UNITED REPUBLIC OF TANZANIA**  
**MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY**



**HORTICULTURAL PRODUCTION SYLLABUS FOR ORDINARY SECONDARY**  
**EDUCATION VOCATIONAL STREAM FORM I-IV**

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Revised

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## **Abbreviations and Acronyms**

|      |   |
|------|---|
| CA   | Conservation Agriculture                    |
| CBET | Competence-Based Education and Teaching     |
| FYM  | Farm Yard Manure                            |
| IPM  | Integrated Pest Management method           |
| OSHA | Occupational Safety and Health Authority    |
| PPE  | Personal Protective Equipment               |
| TIE  | Tanzania Institute of Education             |
| VETA | Vocational Education and Training Authority |

## **Definition of Key Terms**

**Assessment:** The process of collecting evidence and making judgments on whether competency has been achieved, or whether specific skills and knowledge have been achieved that will lead to the attainment of competency.

**Circumstantial knowledge:** Detailed knowledge, which allows the decision-making in regard to different circumstances and cross cutting issues.

**Competence:** The ability to use knowledge, understanding, practical and thinking skills to perform effectively to the workplace standards required in employment.

**Element:** A sub- unit (step), which reflects learning sequence with the aim of achieving broad learning objectives of a unit.

**Performance criteria:** indicate the expected end results or outcome in form of evaluative statements.

**Standard:** A set of statements, which if proved true under working conditions, means that an individual is meeting an expected level and type of performance.

**Underpinning Knowledge:** This is essential knowledge needed in order to demonstrate competences that are associated in performing a given task.

**Unit:** A statement of broad learning objectives, which prescribe the requirements of a standard in form of practical skills, knowledge and appropriate attitudes.

## **Acknowledgements**

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For and on behalf of:

**Vocational Education and Training Authority**

CPA. Antony M. Kasore

**Director General**

## **1.0. Introduction**

Horticultural Production is a key occupation offered in the Ordinary Secondary Education Vocational Stream. Learning Horticultural Production is vital because Tanzania has diverse agro-ecological zones and abundant natural resources that can support a thriving horticulture industry. By teaching Horticultural Production, students acquire practical skills in growing, harvesting, and processing various crops, such as fruits, vegetables, spices and flowers. This knowledge enables them to enhance food security, promote local agricultural industries, and reduce dependency on imported produce. In turn, this contributes to economic growth, job creation, environmental sustainability, and the preservation of traditional farming practices, fostering long-term community development.

Upon completion of the programme, students will acquire both theoretical and practical knowledge of horticultural production, from plant cultivation to advanced processing techniques. They will be capable of managing agricultural practices, operating farming equipment, and implementing sustainable practices in horticultural production, all while adhering to environmental and safety standards. Additionally, students will gain business skills essential for managing a horticultural enterprise, ensuring high-quality standards, efficient production methods, and innovation across all areas of horticulture, from planting to market distribution.

A graduate in horticultural production can find employment in various sectors. Graduates may be employed in both government and private sectors, including Ministries, Agricultural departments, Research institutions, Agricultural agencies, NGOs, and community projects. They may also explore self-employment opportunities in farming, horticulture production, nurseries, and agribusiness ventures, ranging from small-scale to large-scale horticultural enterprises.

The Horticultural Production Syllabus is designed to guide the teaching and learning of horticultural practices at the Ordinary Secondary Education Form I-IV Vocational Stream in the United Republic of Tanzania. The syllabus outlines the competences that students need to develop while learning Horticultural Production. It provides essential information that helps teachers to plan their lessons effectively and enables student to acquire the skills and knowledge necessary for success in the horticultural industry.

## **2.0. Main Objectives of Education in Tanzania**

The main objectives of education in Tanzania are to enable every Tanzanian to:



- (a) Develop and improve his or her personality so that he or she values himself or herself and develops self-confidence;
- (b) Respect the culture, traditions, norms and customs of Tanzania; cultural differences; dignity; human rights; attitudes and inclusive actions;
- (c) Advance knowledge and apply science and technology, creativity, critical thinking, innovation, cooperation, communication and positive attitudes for his or her own development and the sustainable development of the nation and the world at large;
- (d) Understand and protect national values, including dignity, patriotism, integrity, unity, transparency, honesty, accountability and the national language;
- (e) Develop life and work-related skills to increase efficiency in everyday life;
- (f) Develop a habit of loving and valuing work to increase productivity and efficiency in production and service provision;
- (g) Identify and consider cross-cutting issues, including the health and well-being of the society, gender equality, as well as the management and sustainable conservation of the environment; and
- (h) Develop national and international cooperation, peace and justice per the Constitution of the United Republic of Tanzania and international conventions.

### **3.0. General Competences for Ordinary Secondary Education Vocational Stream**

The general competences for Ordinary Secondary Education, Form 1–IV, Vocational Education stream are to:

- (a) Apply the knowledge, skills and attitudes the student developed in the primary school stage to increase his/her understanding of technical skills;
- (b) Apply technical skills in designing, inventing and making various things to cope with life and solve challenges in society;
- (c) Appreciate citizenship and national virtues;

- (d) Use language skills;
- (e) Demonstrate self-confidence in learning in various fields, including science and technology, technical knowledge and technical skills;
- (f) Apply technical knowledge and skills in designing, discovering and making various things to solve challenges in society, including cross cutting issues;
- (g) Appreciate procedures and safety rules in using technical tools correctly; and
- (h) Apply the technical knowledge and skills acquired to develop oneself with vocational and technical education and join the workforce.

#### 4.0. General Competences of the Occupation

Upon completion of this occupation, students are expected to have ability to:

- (a) Maintain farm safety, tools, equipment and machines;
- (b) Establish and manage horticultural crops;
- (c) Establish ornamental gardens;
- (d) Establish fertilizer use rate and apply fertilizer;
- (e) Manage horticultural crop pests;
- (f) Construct and maintain irrigation facilities;
- (g) Perform harvest and post-harvest techniques for horticultural crops;
- (h) Manage farm resources;
- (i) Establish market opportunities for horticultural crops

#### 5.0. Main and Specific Competences

The main and specific competences to be developed are presented in Table 1

**Table 1:** *Main and Specific Competences for Form I-IV*

| Modules (Main Competence)  | Units (Specific competences)   |
|--|--|
| 1.0 Maintaining safety of workshop and surroundings                    | 1.1 Maintaining workshop safety<br>1.2 Handling accidents and incidents<br>1.3 Handling fire accidents<br>1.4 Performing First Aid       |
| 2.0 Performing preventive maintenance of tools, machines and equipment | 2.1 Conducting preventive maintenance of farm tools<br>2.2 Conducting preventive maintenance of farm machines and equipment              |
| 3.0 Performing land preparation  | 3.1 Conducting investigation for new farm<br>3.2 Conducting soil analysis<br>3.3 Performing land clearing<br>3.4 Performing land tillage |

| Modules (Main Competence)                        | Units (Specific competences)   |
|--|--|
| 4.0 Sowing, planting and transplanting           | 4.1 Selecting good quality seeds<br>4.2 Selecting good quality planting materials<br>4.3 Performing seed sowing<br>4.4 Performing planting of vegetative materials |
| 5.0 Managing ornamental gardens                  | 5.1 Designing landscape<br>5.2 Establishing ornamental garden  |
| 6.0 Managing soil fertility                      | 6.1 Preparing organic fertilizers<br>6.2 Applying the fertilizer   |
| 7.0 Harvesting of horticultural crops            | 7.1 Estimating yield of given crop<br>7.2 Performing harvesting of horticultural crops   |
| 8.0 Managing water for horticultural crops       | 8.1 Harvesting water for irrigation<br>8.2 Performing irrigation   |
| 9.0 Transplanting seedling                       | 9.1 Performing transplanting of seedlings<br>9.2 Performing pruning and training   |
| 10.0 Controlling pests                           | 10.1 Controlling weeds<br>10.2 Controlling insect pests<br>10.3 Controlling crop diseases<br>10.4 Controlling vertebrate (vermin) pest                             |
| 11.0 Managing farm inputs                        | 11.1 Preparing farm input<br>11.2 Managing storage of farm inputs  |
| 12.0 Performing post-harvest activities          | 12.1 Handling harvested horticultural crops<br>12.2 Performing post-harvest treatments<br>12.3 Storing different horticultural crops                               |
| 13.0 Performing processing of horticulture crops | 13.1 Processing different horticultural crops<br>13.2 Performing packaging of horticultural products<br>13.3 Marketing of horticultural products                   |
| 14.0 Managing farm activities                    | 14.1 Managing farm practices<br>14.2 Managing various farm records<br>14.3 Managing farm business  |
| 15.0 Managing farm resources                     | 15.1 Managing human resources<br>15.2 Managing physical resources<br>15.3 Managing financial resources   |
| 16.0 Managing farm environment                   | 16.1 Managing soil erosion<br>16.2 Conserving soil water<br>16.3 Handling waste  |

## 6.0. The Roles of Teachers, Students and Parents in Teaching and Learning

A good relationship between a teacher, student and parent, or guardian is fundamental to ensure successful learning. This section outlines the roles of each participant in facilitating effective teaching and learning of Horticultural Production.

### 6.1. The teacher

The teacher is expected to:

- (a) Help the student to learn and develop the intended competences in Horticultural

Production;

- (b) Use teaching and learning approaches that will allow students with different needs and abilities to:
  - (i) Develop the competences needed in the 21<sup>st</sup> Century; and
  - (ii) Actively participate in the teaching and learning process.
- (c) Use student centered instructional strategies that make the student a centre of learning which allow them to think, reflect and search for information from various sources;
- (d) Create a friendly teaching and learning environment;
- (e) Prepare and improvise teaching and learning resources;
- (f) Conduct formative assessment regularly by using tools and methods which assess theory and practice;
- (g) Treat all the students according to their learning needs and abilities;
- (h) Protect the student from the risky environment while he or she is at school;
- (i) Keep track of the student's daily progress;
- (j) Identify individual student's needs and provide the proper intervention;
- (k) Involve parents/guardians and the society at large in the student's learning process; and
- (l) Integrate cross-cutting issues and ICT in the teaching and learning process.

## **6.2. The student**

The student is expected to:

- (a) Develop the intended competences by participating actively in various learning activities inside and outside the classroom; and
- (b) Participate in the search for knowledge from various sources, including textbooks, reference books and other publications in online libraries.

## **6.3. The parent/guardian**

The Parents/Guardian is expected to:

- (a) Monitor the child's academic progress in school;
- (b) Where possible, provide a child with the needed academic support;
- (c) Provide a child with a safe and friendly home environment which is conducive for

- learning;
- (d) Keep track of a child's progress in behaviour;
  - (e) Provide the child with any necessary materials required in the learning process; and
  - (f) Instill in a child a sense of commitment and positive value towards education and work.

## **7.0. Teaching and Learning Methods**

The teaching and learning methods are instrumental in developing student's competences. This Syllabus suggests teaching and learning methods for each activity which includes but not limited to demonstration, practical/hands-on activities, observations, role play, simulation, group works, peer teaching/learning, discussions, research, presentations, data collection and analysis, field visits, field trips/village outreach, buzz group, quiz, guest speaker, collaborative groups, questions and answers, video clip/visual learning and project works. However, a teacher is advised to plan and use other appropriate methods based on the environment or context. All the teaching and learning methods should be integrated with the everyday lives of students. The focus is expected to be on practical application and developing cognitive, affective, and psychomotor skills through learner-centred methods. Vocational teachers act as facilitators, incorporating both school base teaching and project work supervision.

## **8.0. Teaching and Learning Resources**

The process of teaching and learning requires different resources. In that regard, both a teacher and students should work together to collect or improvise alternative resources available in the school and home environment when needed. Teachers and students are expected to constantly seek for information from various sources to effectively facilitate the teaching and learning process. The list of approved textbooks and reference books shall be provided by the TIE.

## **9.0. Assessment**

Assessment is important in teaching and learning of Horticultural Production occupation. It is divided into formative and summative assessments. Formative assessment informs both the teacher and students on the progress of teaching and learning, and in making decisions on improving the teaching and learning process. Teachers are therefore, expected to apply a wide range of formative assessment methods which include but not limited to demonstration, discussions, presentations, oral questions, experiments,

observations, practical assignments and projects.

Summative assessment, on the other hand, will focus on determining student's achievement of learning. Teachers are expected to use a variety of summative assessments including Form Two National Assessment, terminal examination, annual examination, mock examination and project. The scores obtained from these assessments will be used as Continuous Assessment (CA). Therefore, the continuous assessments shall contribute 60% and the National Form IV Examination shall contribute 40% as indicated in Table 2.

### 9.1. Project work

Project work is a carefully planned and clearly defined task or problem that a student undertakes, either alone or in a group to enhance and apply the skills and knowledge gained in the classroom, workshop, kitchen, or laboratory. It is based on the principles of "Learning by Doing" and "Learning by Living." In this context, the implementation of Project Work in secondary schools' vocational streams is essential. Projects in the vocational stream should be conducted in the core subject (occupation). To ensure its success, the supervision and assessment of student project work must be consistent with the established guidelines provided by National Examinations Council of Tanzania (NECTA).

**Table 2:** *Contribution of Continuous Assessment and National Examination in the final score*

| Assessment Category                 | Weight (%) | National Examination |
|-------------------------------------|------------|----------------------|
| Form Two National Assessment (FTNA) | 6.0        | 40                   |
| Form Three Terminal Examination     | 5.0        |                      |
| Form Three Annual Examination       | 5.0        |                      |
| Form Four Mock Examination          | 7.0        |                      |
| Project                             | 7.0        |                      |
| Form Two Practical                  | 10.0       |                      |
| Form Three Practical                | 10.0       |                      |
| Form Four Practical                 | 10.0       |                      |
| <b>Total</b>                        | <b>60</b>  |                      |

### 10.0. Number of Periods

The Horticultural Production Syllabus for Ordinary Secondary Education Vocational Stream Form I-IV provides time estimates for teaching and learning each specific competence. The estimates consider the complexity of the specific competences and the learning activities. Eight (08) periods of 40 minutes each have been allocated per week, whereby two (02) periods will be used for theory and 6 for practical sessions which may require double periods (i.e., 80 minutes). Double periods allow sufficient time for hands-on activities.

## **11.0. Teaching and Learning Contents**

The contents of the Syllabus are organised into a matrix with seven (07) columns which are main competences, specific competences, learning activities, suggested teaching and learning methods, assessment criteria which is divided into (process assessment, products/service assessment and knowledge assessment), suggested teaching and learning resources and number of periods as presented in Table 3 to 6.

## **12.0.**

## Form One

**Table 3: Detailed contents for Form One**

| Module Title<br>(Main Competence)                        | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities)          | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|--|--------------------------------------|--|---|--|---|---|---|----------------------------|
|  |                                      |  |   | Process Assessment   | Product/Services Assessment   | Knowledge assessment  |   |                            |
| 1.0 Maintaining safety of farm workshop and surroundings | 1.1 Maintaining farm workshop safety | (a) Maintaining farm workshop safety rules | <p><b>Questions and answer:</b><br/>Guide the students to: define, identify, list, mention farm workshop safety rules</p> <p><b>Demonstration:</b><br/>Demonstrate to the students how to maintain farm workshop safety rules</p> <p><b>Practical work:</b><br/>Organize the students in manageable groups to practice workshop safety rules in school premises</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Organise working tools, equipment and safety gear</li> <li>•List workshop rules and regulations</li> <li>•Maintain label of tools and equipment</li> <li>•Observe safety precautions</li> </ul> | Farm workshop safety rules maintained as per stipulated rules and regulations | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to maintain safety at the farm workshop area.<br/><b>Principles:</b> The student should explain the principles of:<br/>•Handling different hazards according to OSHA standards<br/>•Maintaining general cleanliness.<br/><b>Theories:</b> The student should</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overalls/overcoat</li> <li>• Gum boots</li> <li>• Leather gloves</li> <li>• Dust bins</li> <li>• Warning signs</li> <li>• Masks</li> <li>• Safety boot</li> </ul> | 63                         |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods | Assessment Criteria |                             |   | Training Requirements/<br>Suggested Resources | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|---------------------|-----------------------------|---|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment  | Product/Services Assessment | Knowledge assessment  |   |                            |
|                                   |                                      |                                   |   |                     |                             | explain:<br>•Importance of observing safety rules and regulations<br>•Importance of using safety gears<br>•Important safety tools and equipment in a farm workshop<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Safety precautions in dismantling and assembling tools and equipment.<br>•Observing farm workshop rules and regulations |   |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities)                 | Suggested Teaching and Learning Methods  | Assessment Criteria  |  |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|---|--|--|--|--|---|----------------------------|
|                                   |                                      |   |  | Process Assessment   | Product/Services Assessment  | Knowledge assessment   |   |                            |
|                                   |                                      | (b) Maintaining farm workshop working environment | <p><b>Brainstorming:</b><br/>Lead the student to:<br/>define, list, mention and identify farm workshop working environment</p> <p><b>Group work:</b><br/>Organize students in teams to practice how to maintain farm workshop environment safely</p> | <p><b>The student should be able to:</b><br/>Operate firefighting equipment<br/>•Maintain cleanliness of workshop area<br/>•Identify possible accidents and incidents<br/>•Clean tools and equipment<br/>-Store tools and equipment properly</p> | Farm workshop working environment maintained as per stipulated rules and regulations | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should be able to explain how to:<br/>• Maintain safety at the farm workshop working environment<br/><b>Principles:</b> The student should explain the principles of maintaining general cleanliness.<br/><b>Theories:</b> The student should explain:<br/>•Essence of managing hazards procedures<br/>•Different firefighting methods</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• First aid kit</li> <li>• Firefighting equipment</li> <li>• Overalls</li> <li>• Gum boots</li> <li>• Gloves</li> <li>• Dust bins</li> <li>• Brushes</li> <li>• Soft bloom</li> <li>• Hard bloom</li> <li>• Mopper</li> <li>• Soap</li> <li>• Buckets</li> <li>• Hoe</li> <li>• Slasher</li> <li>• Wheel barrow</li> <li>• Spade</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |  |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|---|--|---|--|----------------------------|
|                                   |                                      |                                   |  | Process Assessment  | Product/Services Assessment  | Knowledge assessment  |  |                            |
|                                   |                                      |                                   |  |   |  | <b>Circumstantial knowledge:</b><br>Detailed knowledge about safety precautions in dismantling and assembling equipment   |  |                            |
|                                   |                                      | (c) Maintaining personal safety   | <p><b>Discussion:</b><br/>Guide the students to: define, identify, list, mention personal safety</p> <p><b>Demonstration:</b><br/>Demonstrate to the students how to maintain personal safety</p> <p><b>Practical work:</b><br/>Organise students in manageable groups to maintain labels of tools and equipment</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Maintain cleanliness of workshop area</li> <li>•Maintain label of tools and equipment</li> <li>•List workshop rules and regulations</li> <li>•Identify possible accidents and incidents</li> <li>•Observe safety precautions</li> <li>•Store tools and equipment properly</li> <li>•Clean tools and equipment</li> </ul> | Personal safety maintained as per stipulated rules and regulations | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to: Maintain personal safety.<br/><b>Principles:</b> The student should explain the principles of:<br/>•Handling different hazards<br/><b>Theories:</b> The student should explain:<br/>•General</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• First aid kit</li> <li>• Firefighting equipment</li> <li>• Overalls/overcoat</li> <li>• Gum boots</li> <li>• Gloves</li> <li>• Dust bins</li> <li>• Protective glass</li> <li>• Apron</li> <li>• Helmet</li> <li>• Mask</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities)     | Suggested Teaching and Learning Methods  | Assessment Criteria  |  |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|---------------------------------------|--|--|--|--|---|----------------------------|
|                                   |                                      |                                       |  | Process Assessment   | Product/Services Assessment  | Knowledge assessment   |   |                            |
|                                   |                                      |                                       |  |  |  | concepts of occupational health and safety<br>• Essence of managing hazards procedures<br><br><b>Circumstantial knowledge:</b><br>Detailed knowledge about Occupational health and safety policy                 |   |                            |
|                                   | 1.2 Handle accidents and incidents   | (a) Handling farms mechanical hazards | <b>Brainstorm:</b><br>Lead the student to:<br>define, identify, list farm mechanical hazards<br><br><b>ICT Based learning:</b><br>Using a video clip allow the student to explore how to handle farm | <b>The student should be able to:</b><br>Carry out first aid to person involved in accidents related to mechanical hazards<br>• Use service manual<br>• Interpret workshop rules and regulations<br>• React correctly and safely when faced with an emergency<br>• Identify and apply all emergency equipment and supplies | Farms mechanical hazards handled as per stipulated rules and regulations | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b><br>The student should explain how to:<br>• Handle hazardous materials<br>• Handle an accident victim<br>• Carry out first aid | The following tools, equipments and safety gears are to be available:<br>• Tool kit<br>• Air compressor<br>• Fire extinguishers<br>• Power Machines<br>• Overalls<br>• Rubber gloves<br>• Safety boots<br>• Safety clear glasses<br>• First aid kit<br>• Helmet<br>• Ear plugs<br>• Masks | 69                         |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |                             |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|---|-----------------------------|---|---|----------------------------|
|                                   |                                      |                                   |  | Process Assessment  | Product/Services Assessment | Knowledge assessment  |   |                            |
|                                   |                                      |                                   | mechanical hazards<br><br><b>Group Discussion:</b> organise the students in small groups to discuss and present findings on different ways of handling farm mechanical hazards | Locate first aid kit<br>•Carry out artificial respiration<br>•Report to superiors<br>•Handle mechanical and electrical equipment<br>•Handle machines<br>•Use safety gears |                             | <b>Principles:</b> The student should explain principles of:<br>•Handling hazardous materials<br><br>•Identifying hazardous materials<br>•Emergency life support<br><b>Theories:</b> The student should explain: -<br>•Effect of mechanical<br>•Treatment for burns and fractures<br>•Treatment for unconscious person<br>•Importance of using safety gears<br>•Classification of hazards<br>•Advantages of accidents preventions | <ul style="list-style-type: none"> <li>Gloves</li> <li>Water hose pipes</li> <li>Blanket</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities)  | Suggested Teaching and Learning Methods   | Assessment Criteria  |  |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|------------------------------------|---|--|--|--|--|----------------------------|
|                                   |                                      |                                    |   | Process Assessment   | Product/Services Assessment  | Knowledge assessment   |  |                            |
|                                   |                                      |                                    |   |  |  | •Usage of colour code and safety signs<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Safety precautions while handling accidents and incidents<br>•Safe handling of tools, equipment and machines |  |                            |
|                                   |                                      | (b) Handling farm physical hazards | <b>Discussion:</b><br>Lead the students to define, and identify farm physical hazards<br><br><b>ICT Based learning:</b><br>Using a video clip allow students to explore how to handle farm physical hazards | <b>The student should be able to:</b><br>•Locate first aid kit<br>•Report to superiors<br>•Record accidents<br>•Identify hazardous material<br>•Handle hazard material<br>•Follow good environmental practices | Farm physical hazards handled per stipulated rules and regulations | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b><br>The student should explain how to:<br>•Handle hazardous materials<br>•Handle an accident victim<br>•Carry out first aid            | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Tool kit</li> <li>• Fire extinguishers</li> <li>• Overalls</li> <li>• Rubber gloves</li> <li>• Safety boots</li> <li>• Safety clear glasses</li> <li>• First aid kit</li> <li>• Helmet</li> <li>• Ear plugs</li> <li>• Masks</li> <li>• Gloves</li> <li>• Water hose pipes</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria |                             |  | Training Requirements/<br>Suggested Resources               | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|---------------------|-----------------------------|--|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment  | Product/Services Assessment | Knowledge assessment   |   |                            |
|                                   |                                      |                                   | <b>Group Discussion:</b><br>organise the students in small groups to discuss and present findings on different ways of handling farm physical hazards |                     |                             | <b>Principles:</b> The student should explain principles of: <ul style="list-style-type: none"> <li>•Handling hazardous materials</li> <li>•Identifying hazardous materials</li> </ul> <b>Theories:</b> The student should explain: - <ul style="list-style-type: none"> <li>•Effect of physical hazards.</li> <li>•Emergency life support</li> <li>•Treatment for electric shock</li> <li>•Treatment for burns</li> <li>•Treatment for fractures</li> </ul> <b>Circumstantial knowledge:</b> Detailed knowledge about: <ul style="list-style-type: none"> <li>•Safety precautions while handling</li> </ul> | <ul style="list-style-type: none"> <li>• Blanket</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities)  | Suggested Teaching and Learning Methods   | Assessment Criteria   |  |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|------------------------------------|---|---|--|---|--|----------------------------|
|                                   |                                      |                                    |   | Process Assessment  | Product/Services Assessment  | Knowledge assessment  |  |                            |
|                                   |                                      |                                    |   |   |  | accidents and incidents<br>•Safe handling of tools, equipment and machines<br>•Safe waste disposal methods  |  |                            |
|                                   |                                      | (c) Handling Agro-chemical hazards | <b>Brainstorm:</b><br>Guide the students to: define, identify, list types of Agro-chemical hazards<br><br><b>ICT Based learning:</b><br>Using a video clip allow student to explore how to handle farm Agro- chemical hazards<br><br><b>Group Discussion:</b> | <b>The student should be able to:</b><br>•Carry out first aid to person involved in accidents related to chemical<br>•Use service manual<br>•Interpret workshop rules and regulations<br>•React correctly and safely when faced with an emergency<br>•Locate first aid kit<br>•Carry out artificial respiration<br>•Report to superiors<br>•Record accidents<br>•Identify hazardous<br>•Follow good environmental practices | Agro-chemical hazards handled per stipulated rules and regulations | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b><br>The student should explain how to:<br>•Handle hazardous materials<br>•Handle an accident victim<br>•Carry out first aid<br><b>Principles:</b> The student should explain principles of:<br>• Handling | The following tools, equipments and safety gears are to be available:<br>• Tool kit<br>• Air compressor<br>• Fire extinguishers<br>• Power Machines<br>• Overalls<br>• Rubber gloves<br>• Safety boots<br>• Safety clear glasses<br>• First aid kit<br>• Helmet<br>• Ear plugs<br>• Masks<br>• Gloves<br>• Water hose pipes<br>• Blanket |                            |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |                             |  | Training Requirements/<br>Suggested Resources | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|---|-----------------------------|--|---|----------------------------|
|                                   |                                      |                                   |  | Process Assessment  | Product/Services Assessment | Knowledge assessment   |   |                            |
|                                   |                                      |                                   | Organize the students in small groups to discuss and present findings on different ways of handling farm Agro-chemical hazards | <ul style="list-style-type: none"> <li>•Use safety gear</li> <li>•Clean tools, equipment and workplace</li> <li>•Store tools and equipment</li> </ul> |                             | hazardous materials<br>•Identifying hazardous materials<br>•Emergency life support<br><b>Theories:</b> The student should explain:<br>•Effect of chemicals hazards<br>•Treatment for burns<br>•Treatment for unconscious person<br>•Importance of using safety gear<br>-safety signs<br>•Safe handling of tools, equipment and machines<br><b>Circumstantial knowledge:</b><br>Detailed Knowledge about<br>•Safety |   |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities)                      | Suggested Teaching and Learning Methods   | Assessment Criteria   |  |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--|---|---|--|---|---|----------------------------|
|                                   |                                      |  |   | Process Assessment  | Product/Services Assessment  | Knowledge assessment  |   |                            |
|                                   |                                      |  |   |   |  | precautions while handling accidents and incidents  |   |                            |
|                                   | 1.3 Handle farm fire accidents       | (a) Handling firefighting farm equipment and materials | <b>Answer and question:</b><br>Lead the students to: define, identify firefighting farm equipment and materials<br><br><b>Demonstration:</b><br>Demonstrate to the student how to handle tools and equipment for firefighting | <b>The student should be able to:</b><br>•Select tools, equipment and safety gear<br>•Identify common classes of fire<br>•Use first aid kit<br>•React correctly and safely when faced with different types of fire<br>•Apply right class of fire extinguisher<br>•Apply right class of firefighting materials<br>•Check and test fire extinguishers | Firefighting farm equipment and materials handled per stipulated rules and regulations | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b><br>The student should explain how to handle firefighting farm equipment and materials<br><b>Principles:</b> The student should explain the principles of:<br>•Checking and | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Firefighting rules and regulations</li> <li>• Workshop rules and regulations</li> <li>• Fire extinguishers</li> <li>• Firefighting materials</li> <li>• First aid kit</li> <li>• Leather gloves</li> <li>• Safety boots</li> <li>• Overall/overcoat</li> <li>• Safety clear glasses</li> <li>• Helmet</li> <li>• Fire resistance suit</li> </ul> | 92                         |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |                             |   | Training Requirements/<br>Suggested Resources | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|---|-----------------------------|---|---|----------------------------|
|                                   |                                      |                                   |  | Process Assessment  | Product/Services Assessment | Knowledge assessment  |   |                            |
|                                   |                                      |                                   | <b>Practical activity:</b><br>Organise the students in manageable groups to identify farm equipment and materials of firefighting in school premises | <ul style="list-style-type: none"> <li>•Observe safety Precautions</li> <li>•Clean up tools, equipment and working place</li> <li>•Store tools</li> </ul> |                             | testing fire extinguishers<br><ul style="list-style-type: none"> <li>•Applying right class of fire extinguishers</li> </ul> <b>Theories:</b> The student should explain: -<br><ul style="list-style-type: none"> <li>•Importance of handling fire accidents</li> <li>•Importance of checking and servicing fire extinguishers</li> <li>•Importance of differentiating firefighting materials</li> </ul> <b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br><ul style="list-style-type: none"> <li>•Safety precautions while handling fire accidents</li> <li>•Safe handling of tools and equipment</li> </ul> |   |                            |
|                                   |                                      | (b) Handling                      | <b>Group work:</b>   | <b>The student should be</b>  | Different of                | <b>Knowledge</b>  | The following tools,                          |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |  |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|--|--|--|--|----------------------------|
|                                   |                                      |                                   |  | Process Assessment   | Product/Services Assessment                            | Knowledge assessment   |  |                            |
|                                   |                                      | different types of farm fire      | <p>Instruct the student to: define, list, identify different types of farm fire</p> <p><b>Guest speaker:</b> Invite the fire authority technicians to demonstrate to the student how to handle different types of farm fire.</p> <p><b>Activity:</b> Organise the students in manageable groups to identify farm equipment and materials of different farm fire in school workshop</p> | <p><b>able to:</b></p> <ul style="list-style-type: none"> <li>•Select tools, equipment and safety gear</li> <li>•Identify common classes of fire</li> <li>•Use first aid kit</li> <li>•React correctly and safely when faced with different types of fire extinguisher</li> <li>•Check and test fire extinguishers</li> <li>•Observe safety precautions</li> <li>•Clean up tools, equipment and working place</li> <li>•Store tools, equipment and safety gears</li> </ul> | farm fire handled per stipulated rules and regulations | <p><b>evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to handle fire accidents<br/><b>Principles:</b> The student should explain the principles of:</p> <ul style="list-style-type: none"> <li>•Checking and testing fire extinguishers</li> <li>•Applying right class of fire extinguishers</li> </ul> <p><b>Theories:</b> The student should explain: -</p> <ul style="list-style-type: none"> <li>•Importance of handling fire accidents</li> <li>•Types and common classes of fire</li> </ul> <p>Handle different types of fire</p> <p><b>Circumstantial knowledge:</b></p> | <p>equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Firefighting rules and regulations</li> <li>• Workshop rules and regulations</li> <li>• Fire extinguishers</li> <li>• Firefighting materials</li> <li>• First aid kit</li> <li>• Leather gloves</li> <li>• Safety boots</li> <li>• Overall/overcoat</li> <li>• Safety clear glasses</li> <li>• Fire resistance suit</li> <li>• Helmet</li> <li>• Water</li> <li>• Sand</li> <li>• Bucket</li> <li>• Hoe</li> <li>• Slasher</li> <li>• Bush knife</li> <li>• Powder</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities)     | Suggested Teaching and Learning Methods  | Assessment Criteria  |  |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|---------------------------------------|--|--|--|--|--|----------------------------|
|                                   |                                      |                                       |  | Process Assessment   | Product/Services Assessment                                  | Knowledge assessment   |  |                            |
|                                   |                                      |                                       |  |  |  | Detailed knowledge about:<br>•Safety precautions while handling fire accidents<br>•Safe handling of tools and equipment  |  |                            |
|                                   | 1.4 Perform first aid                | (a) Performing artificial respiration | <p><b>Discussion:</b><br/>Lead the student to define, illustrate procedures for artificial respiration by using models</p> <p><b>ICT Based learning:</b><br/>Using video clip allow the student to explore different ways of performing artificial respiration</p> <p><b>Group Discussion:</b></p> | <p><b>The student should be able to:</b><br/>•Select tools and equipment.<br/>•Perform artificial respiration.<br/>•Sterilize first aid tools.<br/>•Observe safety precautions.<br/>•Store first aid tools and equipment</p> | Artificial respiration performed as per medical requirements | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to perform first aid<br/><b>Principles:</b> The student should explain principles of:<br/>•Performing artificial respiration.<br/>•Providing first aid<br/><b>Theories:</b> The student should explain: -<br/>•Types of</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• First aid Kit</li> <li>• Stretcher</li> <li>• Light blankets</li> <li>• Sterilizer</li> <li>• Towels</li> <li>• Overalls/overcoat</li> <li>• Medical gloves</li> <li>• Safety boots</li> <li>• Oxygen cylinder</li> <li>• Mask ventilator</li> </ul> | 72                         |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities)                         | Suggested Teaching and Learning Methods  | Assessment Criteria  |  |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|---|--|--|--|--|--|----------------------------|
|                                   |                                      |   |  | Process Assessment   | Product/Services Assessment  | Knowledge assessment   |  |                            |
|                                   |                                      |   | Organize the students in small groups to discuss and present findings on different ways of performing artificial respiration |  |  | artificial respiration<br>•The use of accessories in a first aid kit<br><br>•Importance of first aid<br><br>Procedures of artificial respiration<br><br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Safety precautions to be observed while performing first aid.<br>•Safe handling of first aid kit |  |                            |
|                                   |                                      | (b) Performing first aid to minor scalpel injuries/wounds | <b>Brainstorming:</b><br>Lead the students to define minor scalpel injuries/wounds,  | <b>The student should be able to:</b><br>•Select tools and equipment<br>•Identify types of injuries<br>•Attend minor wounds. | First aid to minor scalpel injuries/wounds offered conforms to medical | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b><br>The student  | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• First aid Kit</li> <li>• Stretcher</li> <li>• Light blankets</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |                             |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|--|-----------------------------|---|---|----------------------------|
|                                   |                                      |                                   |  | Process Assessment   | Product/Services Assessment | Knowledge assessment  |   |                            |
|                                   |                                      |                                   | <p>list tools of first aid to minor scalpel injuries/wounds</p> <p><b>Simulation:</b><br/>Using a video clip allow the student to explore how to perform first aid to minor scalpel injuries/wounds</p> <p><b>Group Discussion:</b><br/>Organize students in small groups to discuss and present findings on different ways of performing first aid to minor scalpel injuries/wounds</p> | <ul style="list-style-type: none"> <li>•Sterilize first aid tools</li> <li>•Observe safety precautions.</li> <li>•Store first aid tools and equipment</li> </ul> | requirements                | <p>should explain how to perform first aid to minor scalpel injuries/wounds</p> <p><b>Principles:</b> The student should explain principles of:</p> <ul style="list-style-type: none"> <li>•Attending minor wounds.</li> <li>•Providing first aid</li> </ul> <p><b>Theories:</b> The student should explain: -</p> <ul style="list-style-type: none"> <li>•Different types of wounds</li> <li>•Different types of accidents</li> <li>•The use of accessories in a first aid kit</li> <li>•Importance of first aid</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about:</p> <ul style="list-style-type: none"> <li>•Safety precautions to</li> </ul> | <ul style="list-style-type: none"> <li>• Sterilizer</li> <li>• Towels</li> <li>• Overalls</li> <li>• Medical gloves.</li> <li>• Safety boots</li> </ul> |                            |

| Module Title<br>(Main Competence)   | Unit Title<br>(Specific Competences)                | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|---|---|-----------------------------------|---|--|---|---|--|----------------------------|
|   |   |                                   |   | Process Assessment   | Product/Services Assessment                     | Knowledge assessment  |  |                            |
|   |   |                                   |   |  |   | be observed while performing first aid<br>•Safe handling of first aid kit   |  |                            |
| 2.0 Performing preventive maintenance of farm tools, machines and equipment | 2.1 Conducting preventive maintenance of farm tools | (a) Maintaining farm safety gears | <p><b>Discussion:</b><br/>Guide students in groups to:<br/>Define farm tools, list farm tools, mention important farm tools, and identify farm safety gear</p> <p><b>Practical demonstration:</b><br/>Demonstrate to students how to maintain farm safety gear</p> <p><b>Practical activity:</b><br/>Organise students in manageable groups to identify</p> | <p><b>The student should be able to:</b><br/>•Use service manual<br/>•Select tools, equipment and materials<br/>•Observe safety<br/>•Clean safety gear<br/>-Store farm safety gear in proper place</p> | Farm safety maintained as per required standard | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to:<br/>•Service basic farm safety gear<br/><b>Principles:</b> The student should explain the principles of:<br/>•Performing preventive maintenance of basic farm safety gear<br/>•Storing farm safety gear<br/><b>Theories:</b> The student should explain:<br/>•Functions of</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Service manual</li> <li>• Preventive maintenance schedule</li> <li>• Plastic gloves</li> <li>• Safety boots</li> <li>• Safety clear glasses</li> <li>• Water</li> <li>• Bucket</li> <li>• Basin</li> <li>• Soap</li> <li>• Overall/overcoat</li> <li>• Helmet</li> </ul> | 52                         |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods                   | Assessment Criteria |                             |   | Training Requirements/<br>Suggested Resources | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|---------------------|-----------------------------|---|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment  | Product/Services Assessment | Knowledge assessment  |   |                            |
|                                   |                                      |                                   | equipment and materials used to maintain farm safety gear |                     |                             | different types of basic farm safety gear<br>•Importance of preventive maintenance of farm safety gear<br>•Importance of farm workshop safety precautions.<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Safety precautions while handling basic farm safety gear<br>•Waste disposal procedures. |   |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |  |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|--|--|---|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment   | Product/Services Assessment                    | Knowledge assessment  |   |                            |
|                                   |                                      | (b) Maintaining farm tools        | <p><b>Role -playing:</b><br/>Organise the students for role play how to maintain farm tools</p> <p><b>Practical activity:</b><br/>Coordinate the students in manageable groups to identify tools and materials for maintaining farm tools</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Use service manual</li> <li>•Select tools, equipment and materials Interpret manuals for different tools</li> <li>•Check functionality of basic tools</li> <li>•Identify fault tools</li> <li>•Perform greasing</li> <li>•Observe safety</li> <li>•Replace oil</li> <li>•Clean tools, equipment and work place</li> <li>•Store tools</li> </ul> | Farm tools maintained as per required standard | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to:</p> <ul style="list-style-type: none"> <li>•Service basic farm tools</li> </ul> <p><b>Principles:</b><br/>The student should explain the principles of:</p> <ul style="list-style-type: none"> <li>•Performing preventive maintenance of basic farm tools</li> <li>•Storing basic farm tools</li> </ul> <p><b>Theories:</b> The student should explain: -</p> <ul style="list-style-type: none"> <li>•Functions of different types of basic farm tools</li> <li>•Importance of preventive maintenance of farm tools</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Basic tools</li> <li>• Oil cans</li> <li>• Service manual</li> <li>• Preventive maintenance schedule</li> <li>• Gloves</li> <li>• Safety boots</li> <li>• Safety clear glasses</li> <li>• Air compressor</li> <li>• Grease guns</li> <li>• Grease</li> <li>• Oil</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods | Assessment Criteria |                             |   | Training Requirements/<br>Suggested Resources | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|---------------------|-----------------------------|---|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment  | Product/Services Assessment | Knowledge assessment  |   |                            |
|                                   |                                      |                                   |   |                     |                             | <ul style="list-style-type: none"> <li>•Importance of farm workshop safety precautions.</li> <li>•Importance of service manuals in preventive maintenance of farm tools</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about:</p> <ul style="list-style-type: none"> <li>•Safety precautions while handling basic farm tools</li> <li>•Safe handling of farm tools</li> <li>•Waste disposal procedure</li> </ul> |   |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences)                                    | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |  |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|---|-----------------------------------|--|---|--|--|---|----------------------------|
|                                   |   |                                   |  | Process Assessment  | Product/Services Assessment                        | Knowledge assessment   |   |                            |
|                                   |   |                                   |  |   |  |  |   |                            |
|                                   | 2.2<br>Conducting preventive maintenance of farm machines and equipment | (a) Maintaining farm equipment    | <p><b>Group work:</b><br/>Guide students in manageable groups to identify equipment, and illustrate procedures of maintaining farm equipment</p> <p><b>Practical demonstration:</b><br/>Demonstrate to the student how to maintain farm equipment</p> <p><b>Practical work:</b><br/>Organise the students in manageable groups to identify equipment and materials used to maintain farm equipment</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Use service manual</li> <li>•Select equipment</li> <li>•Interpret service manuals for different equipment</li> <li>•Check functionality of basic farm equipment</li> <li>•Identify fault of farm equipment</li> <li>•Replace the damaged parts</li> <li>•Tighten the loose nuts and bolts</li> <li>•Perform greasing</li> <li>•Perform oiling</li> <li>•Observe safety</li> <li>•Clean farm equipment at the farm workshop</li> <li>•Store farm equipment</li> </ul> | Farm equipment maintained as per required standard | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to:</p> <ul style="list-style-type: none"> <li>•Service equipment</li> <li>•Perform preventive maintenance of farm equipment</li> </ul> <p><b>Principles:</b><br/>The student should explain the principles of maintaining equipment.<br/><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>•Function of different types of farms equipment</li> <li>•Importance of routine preventive</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Basic farm equipment</li> <li>• Oil cans</li> <li>• Grease guns</li> <li>• Service manual</li> <li>• Preventive maintenance schedule</li> <li>• Leather gloves</li> <li>• Safety boots</li> <li>• Safety clear glasses</li> <li>• Air compressor</li> <li>• Electrode</li> <li>• Grease</li> <li>• Oil</li> <li>• Wire brush</li> <li>• Painter brush</li> <li>• Colour paint</li> <li>• Helmet</li> <li>• Hammer</li> <li>• Spanner</li> </ul> | 84                         |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |   |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|--|---|--|---|----------------------------|
|                                   |                                      |                                   |  | Process Assessment   | Product/Services Assessment                       | Knowledge assessment   |   |                            |
|                                   |                                      |                                   |  |  |   | maintenance of farm equipment<br>•Importance of farm workshop safety precautions.<br>•Importance of service manuals in preventive maintenance of farm equipment<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Safety precautions while handling farm equipment<br>•Safe handling of farm equipment<br>•Safe waste disposal procedures |   |                            |
|                                   |                                      | (b) Maintaining farm machines     | <b>Brainstorming:</b><br>Lead the student to define, and list farm machines, identify farm | <b>The student should be able to:</b><br>•Use service manual<br>•Select machine<br>•Interpret service manuals for different machines | Farm machines maintained as per required standard | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b><br>The student  | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Basic farm equipment and machines</li> <li>• Oil cans</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |                             |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|--|-----------------------------|---|--|----------------------------|
|                                   |                                      |                                   |  | Process Assessment   | Product/Services Assessment | Knowledge assessment  |  |                            |
|                                   |                                      |                                   | <p>machines and illustrate procedures of maintaining farm machine</p> <p><b>Practical demonstration:</b><br/>Demonstrate to the student how to maintain farm machine</p> <p><b>Practical work:</b><br/>Organise students in manageable groups to identify equipment and materials used to maintain farm machines</p> | <ul style="list-style-type: none"> <li>•Check functionality of basic farm machines</li> <li>•Identify fault of farm machines</li> <li>•Replace the damaged parts</li> <li>•Tighten the loose nuts and bolts</li> <li>•Perform greasing</li> <li>•Perform oiling</li> <li>•Observe safety</li> <li>•Clean farm machines at the farm workshop</li> <li>•Store farm machines</li> </ul> |                             | <p>should explain how to:</p> <ul style="list-style-type: none"> <li>•Service machines</li> <li>•Perform preventive maintenance of farm machines</li> </ul> <p><b>Principles:</b><br/>The student should explain the principles of maintaining machines.</p> <p><b>Theories:</b><br/>The student should explain:</p> <ul style="list-style-type: none"> <li>•Function of different types of farm machines</li> <li>•Importance of routine preventive maintenance of farm machine</li> <li>•Importance of farm workshop safety precautions.</li> <li>•Importance of service manuals</li> </ul> | <ul style="list-style-type: none"> <li>• Grease guns</li> <li>• Service manual</li> <li>• Preventive maintenance schedule</li> <li>• Leather gloves</li> <li>• Safety boots</li> <li>• Safety clear glasses</li> <li>• Air compressor</li> <li>• Soap</li> <li>• Water</li> <li>• Bucket</li> <li>• Overall/overcoat</li> <li>• Oil</li> <li>• Grease</li> <li>• Waste cotton</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences)      | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods                     | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|---|-----------------------------------|---|--|---|---|---|----------------------------|
|                                   |   |                                   |   | Process Assessment   | Product/Services Assessment                       | Knowledge assessment  |   |                            |
|                                   |   |                                   |   |  |   | in preventive maintenance of farm machines<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Safety precautions while handling farm machines<br>•Safe handling of farm machines<br>•Safe waste disposal procedures |   |                            |
| 3.0 Performing land preparation   | 3.1 Conducting investigation for new farm | (a) Identifying landscape         | <b>Discussion:</b><br>Lead the student to define, list, and | <b>The student should be able to:</b><br>•Walk around the field<br>•Locate physical features | Landscape farm identified for horticultural crops | <b>Knowledge Evidence</b><br><b>Detailed knowledge of:</b>  | The following tools, equipments and safety gears are to be available:<br>• Field Area | 72                         |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria   |   |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|---|---|--|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment  | Product/Services Assessment                             | Knowledge assessment   |   |                            |
|                                   |                                      |                                   | <p>identify landscape</p> <p><b>Field visit:</b><br/>Guide the student to identify landscape by observing around the school farm</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to identify equipment and materials to be used in the landscape</p> | <p>found in the field</p> <ul style="list-style-type: none"> <li>•Identify landscape</li> <li>•Identify water Sources</li> <li>•Identifying natural vegetation</li> <li>•Make a decision on the suitability of the place</li> <li>•Clean tools and equipment</li> <li>•Store tools and equipment</li> </ul> | <p>establishment at suitable area for relevant crop</p> | <p><b>Method used:</b><br/>The student should explain how to conduct investigation on new farm</p> <p><b>Principles:</b> The student should explain the principles of conducting farm investigation</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>•Importance of locating various physical features in relation to site selection</li> <li>•General concepts of selecting site in horticulture crop production</li> <li>•Relationship between soil types of a given area and</li> </ul> | <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Overalls/overcoat</li> <li>• Caps</li> <li>• Bush knives</li> <li>• Note books</li> <li>• Pens</li> <li>• Calculator</li> <li>• Binocular</li> <li>• Umbrella</li> <li>• Slasher</li> </ul> |                            |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods | Assessment Criteria |                             |   | Training Requirements/<br>Suggested Resources | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|---------------------|-----------------------------|---|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment  | Product/Services Assessment | Knowledge assessment  |   |                            |
|                                   |                                      |                                   |   |                     |                             | vegetation which grows<br>•Relationship between the natural vegetation and the crop to be grown.<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Factors to consider when selecting site for crop establishment<br>•Horticulture crop requirement. |   |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |  |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|--|--|---|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment   | Product/Services Assessment  | Knowledge assessment  |   |                            |
|                                   |                                      | (b) Identifying water Sources     | <p><b>Brainstorming:</b><br/>Lead the student to define, list, and identify water sources</p> <p><b>Field visit:</b><br/>Lead the students to visit around the school farm to identify water sources</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to identify equipment and materials for water sources</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Walk around the field</li> <li>•Locate physical features found in the field</li> <li>•Identify water sources</li> <li>•Identify natural vegetation</li> <li>•Make decision of the suitability of the place</li> <li>•Clean tools and equipment</li> <li>•Store tools and equipment</li> </ul> | Water source identified for horticultural established at suitable area for relevant crop | <p><b>Knowledge Evidence Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to conduct an investigation on new farm<br/><b>Principles:</b><br/>The student should explain the principles of conducting farm investigation<br/><b>Theories:</b><br/>The student should explain:<br/>•Importance of locating various physical features in relation to site selection<br/>•General concepts of selecting site in horticulture crop production</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Field Area</li> <li>• Gum boots</li> <li>• Overalls</li> <li>• Caps</li> <li>• Bush knives</li> <li>• Note books</li> <li>• Pens</li> <li>• Pegs</li> <li>• Water detector</li> <li>• Water level meter</li> <li>• slasher</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities)  | Suggested Teaching and Learning Methods  | Assessment Criteria   |  |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|------------------------------------|--|---|--|--|--|----------------------------|
|                                   |                                      |                                    |  | Process Assessment  | Product/Services Assessment  | Knowledge assessment   |  |                            |
|                                   |                                      |                                    |  |   |  | •Effect of available water and fertility status on the development of intended crop<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Factors to consider when selecting site for crop establishment<br>•Horticulture crop requirement. |  |                            |
|                                   |                                      | (c) Identifying natural vegetation | <b>Brainstorm:</b><br>Guide the students to define, list, and identify natural vegetation<br><br><b>Field visit:</b><br>Lead the students to visit around the school farm to | <b>The student should be able to:</b><br>•Walk around the field<br>•Locate physical features found in the field<br>•Identify landscape<br>•Identifying natural vegetation<br>•Make decision of the suitability of the place<br>•Clean tools and equipment<br>•Store tools and | Natural vegetation identified for horticultural established at suitable area for relevant crop | <b>Knowledge Evidence Detailed knowledge of: Method used:</b><br>The student should explain how to identify natural vegetation<br><b>Principles:</b> The student should explain the  | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Field Area</li> <li>• Gum boots</li> <li>• Overalls/overcoat</li> <li>• Caps</li> <li>• Bush knives</li> <li>• Note books</li> <li>• Pens</li> <li>• Rain coat</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria |                             |  | Training Requirements/<br>Suggested Resources | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|---------------------|-----------------------------|--|---|----------------------------|
|                                   |                                      |                                   |  | Process Assessment  | Product/Services Assessment | Knowledge assessment   |   |                            |
|                                   |                                      |                                   | identify natural vegetation<br><br><b>Activity:</b><br>Organise the student in manageable group to identify equipment and materials used in natural vegetation | equipment           |                             | principles of conducting investigation of new farm<br><b>Theories:</b> The student should explain:<br>•Importance of locating various physical features in relation to site selection<br>•General concepts of selecting site in horticulture production<br>•Relationship between soil types of a given area and vegetation which grows<br>•Relationship between the natural vegetation and the crop to be grown<br>horticulture crop |   |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |   |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|---|---|--|--|----------------------------|
|                                   |                                      |                                   |  | Process Assessment  | Product/Services Assessment                           | Knowledge assessment   |  |                            |
|                                   |                                      |                                   |  |   |   | <b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Factors to consider when selecting site for crop establishment<br>•Horticulture crop requirement   |  |                            |
|                                   | 3.2 Conducting soil analysis         | (a) Collecting soil samples       | <b>Group work:</b><br>Lead the students to define, identify soil sample<br><br><b>Demonstration:</b><br>Demonstrate to the student how to collect soil samples<br><br><b>Activity:</b><br>Organise the student in manageable group to identify equipment and materials for | <b>The student should be able to:</b><br>•Select tools, equipment and protective gear<br>•Collect soil sample for analysis<br>•Perform physical analysis<br>•Perform local soil testing<br>•Identify different soil colours<br>•Observe safety precaution<br>•Clean tools, equipment, and<br>•Store tools and equipment | Soil sample collected conforms to lay down standards. | <b>Knowledge Evidence Detailed knowledge of: Method used:</b><br>The student should explain how to Collect soil samples in the field.<br><b>Principles:</b> The student should explain the principles of:<br>•Taking soil samples<br>•Conducting soil analysis | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Overalls</li> <li>• Soil kits</li> <li>• Marker pens</li> <li>• Pegs</li> <li>• Hand hoes</li> <li>• Caps</li> <li>• Soil augers</li> <li>• Plastic bags</li> <li>• Shovels</li> <li>• Plastic buckets</li> <li>• Soil samples</li> <li>• Containers</li> <li>• Water</li> <li>• Spade</li> <li>• Note book</li> </ul> | 106                        |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods | Assessment Criteria |                             |  | Training Requirements/<br>Suggested Resources            | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|---------------------|-----------------------------|--|--|----------------------------|
|                                   |                                      |                                   |   | Process Assessment  | Product/Services Assessment | Knowledge assessment   |  |                            |
|                                   |                                      |                                   | collecting soil samples                 |                     |                             | <ul style="list-style-type: none"> <li>• Procedure for soil analysis</li> </ul> <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Importance of soil analysis</li> <li>• Types of soil</li> <li>• Identify different soil colours</li> <li>• Methods of soil sampling</li> <li>• Types of soil sampling</li> <li>• Steps in taking soil sampling</li> <li>• Procedure for collecting soil samples</li> </ul> <b>Circumstantial knowledge:</b> Detailed knowledge about: <ul style="list-style-type: none"> <li>• Occupational health and safety policy</li> <li>• Safe precautions in using soil kit.</li> </ul> | <ul style="list-style-type: none"> <li>• bags</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |   |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|--|---|--|---|----------------------------|
|                                   |                                      |                                   |  | Process Assessment   | Product/Services Assessment                         | Knowledge assessment   |   |                            |
|                                   |                                      |                                   |  |  |   |  |   |                            |
|                                   |                                      | (b) Preparing soil samples        | <p><b>Discussion:</b><br/>Lead the students to define, list, identify, illustrate procedures of soil sampling</p> <p><b>Demonstration:</b><br/>Demonstrate to the student how to prepare soil samples</p> <p><b>Practical work:</b><br/>Organise the student in manageable groups to identify equipment and materials for preparing soil samples</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>• Select tools, equipment and protective gear</li> <li>• prepare soil samples for analysis</li> <li>• Identify different soil colours</li> <li>-prepare composite soil sample</li> </ul> | Soil sample prepared conforms to lay down standards | <p><b>Knowledge Evidence Detailed knowledge of: Method used:</b><br/>The student should explain how to prepare soil samples</p> <p><b>Principles:</b> The student should explain the principles of preparing soil samples</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Importance of soil analysis</li> <li>• Types of soil</li> <li>• Interpretation of the results according to lay down standards</li> </ul> <p><b>Circumstantial</b></p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Overalls</li> <li>• Soil kits</li> <li>• Marker pens</li> <li>• Pegs</li> <li>• Hand hoes</li> <li>• Caps</li> <li>• Soil augers</li> <li>• Plastic bags</li> <li>• Shovels</li> <li>• Plastic buckets</li> <li>• Soil sample</li> <li>• Containers</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |  |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|--|--|--|---|----------------------------|
|                                   |                                      |                                   |  | Process Assessment   | Product/Services Assessment                        | Knowledge assessment   |   |                            |
|                                   |                                      |                                   |  |  |  | <b>knowledge:</b><br>Detailed knowledge about:<br>•Occupational health and safety policy<br>•Safe precautions in using soil kit.   |   |                            |
|                                   |                                      | (c) Conducting soil test          | <b>Brainstorming:</b><br>Lead the students to define, identify, and illustrate procedure of soil test<br><br><b>Field visit:</b><br>Arrange field visit to the Research institution around the school in order student to learn how to conduct soil test<br><br><b>Activity:</b><br>Organise the students in | <b>The student should be able to:</b><br>•Select tools, equipment and protective gear<br>•Perform chemical analysis<br>•Perform physical analysis<br>•Perform local soil testing<br>•Identify different soil colours<br>•Identify available micro elements in soil<br>•Interpret analysis of the result<br>•Determine soil texture<br>•Determine soil texture<br>•Observe safety precaution pertaining the use of agro- chemicals<br>•Clean tool, equipment and work place | Conducted soil test conforms to lay down standards | <b>Knowledge Evidence Detailed knowledge of:</b><br><b>Method used:</b><br>The student should explain how to conduct soil test<br><b>Principles:</b> The student should explain:<br>of:<br>• The principles of conducting soil analysis<br>•Procedures for soil analysis<br><b>Theories:</b> The student should explain: | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• safety boots</li> <li>• laboratory coat</li> <li>• Marker pens</li> <li>• Head caps</li> <li>• Plastic bags</li> <li>• Plastic buckets</li> <li>• Soil sample</li> <li>• Containers</li> <li>• Soil colour meter</li> <li>• soil laboratory chemicals</li> <li>• medical gloves</li> <li>• note book</li> <li>• pen</li> <li>• distilled water</li> <li>• machine test</li> <li>• test tube</li> <li>• shaker</li> </ul> |                            |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods                                  | Assessment Criteria        |                             |   | Training Requirements/<br>Suggested Resources | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|----------------------------|-----------------------------|---|---|----------------------------|
|                                   |                                      |                                   |  | Process Assessment         | Product/Services Assessment | Knowledge assessment  |   |                            |
|                                   |                                      |                                   | manageable groups to identify equipment and materials used for soil test | •Store tools and equipment |                             | <ul style="list-style-type: none"> <li>•Importance of soil analysis</li> <li>•Types of soil</li> <li>•Identify different soil colours</li> <li>•Methods of soil sampling</li> <li>•Types of soil sampling</li> <li>•Explain process of soil testing</li> <li>•Relationship between soil colour and texture</li> <li>•Importance of soil pH in soil analysis</li> <li>•Procedure for soil testing</li> <li>•Interpretation of the results according to lay down standards</li> </ul> <b>Circumstantial knowledge:</b><br>Detailed knowledge about: |   |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|--|---|--|--|----------------------------|
|                                   |                                      |                                   |   | Process Assessment   | Product/Services Assessment                             | Knowledge assessment   |  |                            |
|                                   |                                      |                                   |   |  |   | <ul style="list-style-type: none"> <li>•Occupational health and safety policy</li> <li>•Safe precautions in using soil kit.</li> </ul>   |  |                            |
|                                   | 3.3 Performing land clearing         | (a) Performing hand land clearing | <p><b>Discussion:</b><br/>Lead the students to define, list, identify, and illustrate procedures of hand land clearing</p> <p><b>Practical demonstration:</b><br/>Demonstrate to the student how to perform hand land clearing</p> <p><b>Practical work:</b><br/>Organise the students in</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select farm tools</li> <li>•Cut trees</li> <li>•Remove stumps</li> <li>•Remove grasses</li> <li>•Burn the removed stumps and grasses</li> <li>•Refill the holes</li> <li>•Level the land</li> <li>•Observe safety precautions pertaining the use of implements</li> <li>•Clean all tools</li> <li>•Store all tools</li> </ul> | Hand land cleared according to crop husbandry practices | <p><b>Knowledge Evidence Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to clear the land<br/><b>Principles:</b> The student should explain the principles of land clearing the land<br/><b>Theories:</b> The student should explain:<br/>•Importance of clearing the</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Slasher</li> <li>• Hand hoes</li> <li>• Machete (panga)</li> <li>• Gum boots</li> <li>• Overalls</li> <li>• Leather gloves</li> <li>• Helmet</li> <li>• Fork hoe</li> <li>• Mattock</li> <li>• Match box</li> <li>• Rake</li> <li>• Spade</li> <li>• Wheel barrow</li> <li>• Axes</li> </ul> | 118                        |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria |                             |   | Training Requirements/<br>Suggested Resources | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|---------------------|-----------------------------|---|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment  | Product/Services Assessment | Knowledge assessment  |   |                            |
|                                   |                                      |                                   | manageable groups to identify equipment and materials used during land clearing |                     |                             | land<br>•Objective of land preparation<br>•Advantages of land clearing<br>•Characteristics of soils<br>•Steps in land clearing  |   |                            |
|                                   |                                      |                                   |   |                     |                             | •Rules and regulations for land preparation<br>•Types of tools, in hand land clearing.<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Occupational health and safety policy.<br>•Observe land clearing safety |   |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities)       | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|---|---|--|---|---|---|----------------------------|
|                                   |                                      |   |   | Process Assessment   | Product/Services Assessment                                   | Knowledge assessment  |   |                            |
|                                   |                                      |   |   |  |   | rules and regulations   |   |                            |
|                                   |                                      | (b) Performing mechanical land clearing | <p><b>Brainstorm:</b><br/>Guide the student to define, list, identify, and illustrate procedures for mechanical land clearing</p> <p><b>Demonstration:</b><br/>Demonstrate to the student how to perform mechanical land clearing</p> <p><b>Activity:</b><br/>Organise the students in manageable groups to identify equipment and materials used to perform mechanical land clearing</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select farm tools, equipment and machines</li> <li>•Cut trees</li> <li>•Remove stumps</li> <li>•Remove grasses</li> <li>•Burn the removed stumps and grasses</li> <li>•Refill the holes</li> <li>•Level the land</li> <li>•Observe safety precautions pertaining the use of implements</li> <li>•Clean tools, equipment and machine</li> <li>•Store tools, equipment and machines.</li> </ul> | Mechanical land cleared according to crop husbandry practices | <p><b>Knowledge Evidence Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to clear the land mechanically<br/><b>Principles:</b><br/>The student should explain the principles of land clearing<br/><b>Theories:</b><br/>The student should explain:</p> <ul style="list-style-type: none"> <li>•Importance of clearing the land mechanically</li> <li>•Objective of land preparation</li> <li>•Advantages of land clearing</li> <li>•Characteristics of soils</li> <li>•Steps in land</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Tractor</li> <li>• Chisel</li> <li>• Gum boots</li> <li>• Overalls</li> <li>• Leather gloves</li> <li>• Caterpillar</li> <li>• Mower</li> <li>• Rotavator</li> <li>• Chain saws</li> <li>• Distemper remover</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |   |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|--|---|--|---|----------------------------|
|                                   |                                      |                                   |  | Process Assessment   | Product/Services Assessment                               | Knowledge assessment   |   |                            |
|                                   |                                      |                                   |  |  |   | clearing<br>•Rules and regulations of land preparation<br>•Implements used in land clearing<br>•Types of tools, equipment and machines used in land clearing.<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Occupational health and safety policy.<br>•Observe land clearing safety rules and regulations |   |                            |
|                                   | 3.4 Performing land tillage          | (a) Conducting ploughing          | <b>Discussion:</b><br>Lead the student to define, list, identify, and illustrate procedures of | <b>The student should be able to:</b><br>•Select farm tools, equipment and machine<br>•Identify machineries and equipment for ploughing<br>•Till by using hand hoe | Ploughing conducted according to crop husbandry practices | <b>Knowledge Evidence Detailed knowledge of:</b><br><b>Method used:</b><br>The student should explain  | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Tractor</li> <li>• Moldboard Plough</li> <li>• Disc Plough</li> <li>• Chisel Plough</li> </ul> | 147                        |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |                             |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|--|-----------------------------|--|--|----------------------------|
|                                   |                                      |                                   |  | Process Assessment   | Product/Services Assessment | Knowledge assessment   |  |                            |
|                                   |                                      |                                   | ploughing<br><br><b>Demonstration:</b><br>Demonstrate to the student how to conduct ploughing<br><br><b>Practical work:</b><br>Organise the students in manageable groups to identify equipment and materials for conducting ploughing | •Plough by using tractor<br>•Observe safety precautions pertaining the use of implements and machines<br>•Clean tools, equipment and machine<br>•Store tools, equipment and machines |                             | how to Conduct ploughing<br><b>Principles:</b> The student should explain the principles of Land tillage<br><b>Theories:</b> The student should explain:<br>•Importance of land tillage<br>•Types of land tillage<br>•Implements used in land tillage<br>•Machineries used for land tillage<br>•Types of tools, equipment and machines used in land tillage<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Occupational health and | <ul style="list-style-type: none"> <li>• Cultivator</li> <li>• Harrows</li> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Spades</li> <li>• Animal drawn mould old plough</li> <li>• Animal drawn ridge</li> <li>• Subsoiler</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |   |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|---|---|---|---|----------------------------|
|                                   |                                      |                                   |  | Process Assessment  | Product/Services Assessment                               | Knowledge assessment  |   |                            |
|                                   |                                      |                                   |  |   |   | safety policy.<br>•Observe land clearing safety rules and regulations   |   |                            |
|                                   |                                      | (b) Conducting harrowing          | <p><b>Question and answer:</b><br/>Lead the students to define, list, identify, and illustrate procedures of conducting harrowing</p> <p><b>Demonstration:</b><br/>Demonstrate to the student how to conduct harrowing</p> <p><b>Activity:</b><br/>Organise the students in manageable groups to identify equipment and materials to conduct</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select farm tools, equipment and machine</li> <li>•Identify machines and equipment for harrowing</li> <li>•Harrowing by using tractor</li> <li>•Observe safety precautions pertaining the use of implements and</li> <li>•Clean tools, equipment and machine</li> <li>•Store tools, equipment and machines</li> <li>•Clean tools, equipment and machine</li> <li>•Store tools, equipment and machines</li> </ul> | Harrowing conducted according to crop husbandry practices | <p><b>Knowledge Evidence Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to conduct harrowing<br/><b>Principles:</b> The student should explain the principles of Land tillage<br/><b>Theories:</b> The student should explain:<br/>•Importance of conducting harrowing<br/>•Implements used in harrowing<br/>•Machineries used for harrowing•<br/>•Types of tools,</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Tractor</li> <li>• Disc harrow</li> <li>• Rotavator</li> <li>• Cultivator</li> <li>• Tine harrow</li> <li>• Tandem harrow</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Ox- cultivator</li> <li>• Ox-tine</li> <li>• Gum boot</li> <li>• Power tiller</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|--|---|---|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment   | Product/Services Assessment                             | Knowledge assessment  |   |                            |
|                                   |                                      |                                   | harrowing   |  |   | equipment and machines used in harrowing<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Occupational health and safety policy.<br>•Observe land clearing safety rules and regulations             |   |                            |
|                                   |                                      | (c) Preparing seedbeds            | <b>Buzz group:</b><br>Lead the students to define, list, identify, and illustrate procedures for preparation of seedbeds<br><br><b>Demonstration:</b><br>Demonstrate to the student how to prepare seedbeds | <b>The student should be able to:</b><br>•Select farm tools, equipment and machine<br>•Identify machineries and equipment for making seedbeds<br>•Observe safety precautions pertaining the use of implements and Machines<br>•Clean tools, equipment and machine<br>•Store tools, equipment and machines. | Seedbeds prepared according to crop husbandry practices | <b>Knowledge Evidence Detailed knowledge of: Method used:</b><br>The student should explain how to prepare seedbeds<br><b>Principles:</b> The student should explain the principles of seedbeds<br><b>Theories:</b> The | The following tools, equipments and safety gears are to be available:<br><ul style="list-style-type: none"> <li>• Tractor</li> <li>• Moldboard Plough</li> <li>• Ridger</li> <li>• Gumboot</li> <li>• Overall/overcoat</li> <li>• Leather gloves</li> <li>• Caps</li> <li>• Spade</li> <li>• Rope</li> <li>• Rake</li> <li>• Pegs</li> <li>• Tap measure</li> <li>• Bush knife</li> </ul> |                            |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|--|---|---|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment   | Product/Services Assessment                 | Knowledge assessment  |   |                            |
|                                   |                                      |                                   | <b>Activity:</b><br>Organise the student in manageable group to identify equipment and materials for preparing seedbeds |  |   | student should explain:<br>•Importance of seedbed<br>•Types of seedbeds<br>•Implements used to prepare seedbed<br>•Machineries used for ridge<br>• Types of tools, equipment and machines used in prepare seedbed.<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Occupational health and safety policy.<br>•Observe land clearing safety rules and regulations | <ul style="list-style-type: none"> <li>• Watering can</li> <li>• Manure fertilizer</li> </ul> |                            |
|                                   |                                      | (d) Preparing ridges              | <b>Discussion:</b><br>Instruct the students to  | <b>The student should be able to:</b><br>•Select farm tools, | Ridges prepared according to crop husbandry | <b>Knowledge Evidence Detailed</b>  | The following tools, equipments and safety gears are to be available:                         |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria   |                             |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|---|-----------------------------|---|--|----------------------------|
|                                   |                                      |                                   |   | Process Assessment  | Product/Services Assessment | Knowledge assessment  |  |                            |
|                                   |                                      |                                   | define, list, identify, illustrate procedures of preparing ridges<br><br><b>Demonstration:</b><br>Demonstrate to the student how to prepare ridges<br><br><b>Practical work:</b><br>Organise the students in manageable groups to identify equipment and materials used to prepare ridges | equipment and machine<br>•Identify machineries and equipment for making ridges<br>•Observe safety precautions pertaining the use of implements and machines | practices                   | <b>knowledge of:</b><br><b>Method used:</b><br>The student should explain how to prepare ridges<br><b>Principles:</b> The student should explain the principles of ridges<br><b>Theories:</b> The student should explain:<br>•Importance of ridges<br>•Types of ridges<br>•Implements used in making ridges<br>•Machineries used for land tillage | <ul style="list-style-type: none"> <li>• Tractor</li> <li>• Mouldboard Plough</li> <li>• Ridger</li> <li>• Gum boot</li> <li>• Overall/overcoat</li> <li>• Plastic gloves</li> <li>• Caps</li> <li>• Spade</li> <li>• Rake</li> <li>• Ox-drawing ridger</li> </ul> |                            |
|                                   |                                      |                                   |   | •Clean tools, equipment   |                             | •Types of tools,  |  |                            |

| Module Title<br>(Main Competence)       | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|---|--------------------------------------|-----------------------------------|---|--|---|--|--|----------------------------|
|   |                                      |                                   |   | Process Assessment   | Product/Services Assessment                         | Knowledge assessment   |  |                            |
|   |                                      |                                   |   | and machine<br>•Store tools, equipment and machines.   |   | equipment and machines used in land tillage.<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Occupational health and safety policy.<br>•Observe land clearing safety rules and regulations                        |  |                            |
| 4.0 Sowing, Planting, and transplanting | 4.1 Selecting good quality seeds     | (a) Performing germination test   | <b>Brainstorming:</b><br>Lead the students to Define germination, and illustrate steps of germination test<br><br><b>Practical demonstration:</b><br>Demonstrate to the student how to perform germination test<br><br><b>Activity:</b> | <b>The student should be able to:</b><br>•Select tools, equipment and safety gear<br>•Select seed variety<br>•Clean the seeds<br>•Remove unwanted materials (foreign)<br>•Select good quality seeds<br>•Put selected seeds into a container<br>•Perform seed germination test<br>•Observe safety precautions<br>•Clean tools and equipment | Germination test performed as per quality standards | <b>Knowledge Evidence Detailed knowledge of: Method used:</b><br>The student should explain how to perform germination test<br><b>Principles:</b> The student should explain the principles of seed selection.<br><b>Theories:</b> The | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Overalls</li> <li>• Gloves</li> <li>• Gum boots</li> <li>• Caps</li> <li>• Plastic bags</li> <li>• Gunny bags</li> <li>• Containers</li> <li>• Trays</li> <li>• Traditional trays (ungo)</li> <li>• Seeds</li> <li>• Tissue paper</li> <li>• Water</li> </ul> | 108                        |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria   |  |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|---|--|---|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment  | Product/Services Assessment                  | Knowledge assessment  |   |                            |
|                                   |                                      |                                   | Organise the students in manageable groups to identify equipment and materials used for germination test  | •Store tools and equipment  |  | student should explain:<br>•Characteristic of good quality seeds<br>•Importance of seed selection<br>•Similar to that under methods)<br>•Types of seeds for horticultural crops<br>•Selection of quality seeds<br>•Uses of tools<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>safe precautions in selecting good quality seeds |   |                            |
|                                   |                                      | (b) Performing soaking seed test  | <b>Buzz group:</b><br>Assign the students to define, identify tools and illustrate procedure soaking seed | <b>The student should be able to:</b><br>•Select tools, equipment and safety gear<br>•Select seed variety<br>•Clean the seeds<br>•Remove unwanted materials (foreign) | Soaking seed test as per required procedures | <b>Knowledge Evidence Detailed knowledge of:</b><br><b>Method used:</b><br>The student should explain how to  | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Overalls</li> <li>• Gloves</li> <li>• Gum boots</li> <li>• Caps</li> <li>• Plastic bags</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |                             |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|--|-----------------------------|---|--|----------------------------|
|                                   |                                      |                                   |   | Process Assessment   | Product/Services Assessment | Knowledge assessment  |  |                            |
|                                   |                                      |                                   | test<br><br><b>Group work:</b><br>Organise the students in manageable groups to discuss how to perform soaking seed test<br><br><b>Activity:</b><br>Organise the students in manageable group to identify equipment and materials used to perform soaking seed test | <ul style="list-style-type: none"> <li>•Select good quality seeds</li> <li>•Put selected seeds into a container</li> <li>•Perform seed germination</li> <li>•Observe safety precautions</li> <li>•Clean tools and equipment</li> <li>•Store tools and equipment</li> </ul> |                             | perform soaking seed test<br><b>Principles:</b> The student should explain the principles of Seed selection.<br><b>Theories:</b> The student should explain:<br><ul style="list-style-type: none"> <li>•Characteristic of good quality seeds</li> <li>•Importance of seed selection</li> <li>•Similar to that under methods)</li> <li>•Types of seeds for horticultural crops</li> <li>•Selection of quality seeds</li> <li>•Uses of tools</li> </ul> <b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>safe precautions in selecting good | <ul style="list-style-type: none"> <li>• Gunny bags</li> <li>• Containers</li> <li>• Trays</li> <li>• Traditional trays (ungo)</li> <li>• Quality seeds</li> <li>• Water</li> <li>• Buckets</li> <li>• Seed</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |  |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|--|--|--|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment   | Product/Services Assessment                  | Knowledge assessment   |   |                            |
|                                   |                                      |                                   |   |  |  | quality seeds  |   |                            |
|                                   |                                      | (c) Performing winnowing          | <p><b>Brainstorm:</b><br/>Lead the students to Define winnowing, and illustrate procedures of winnowing</p> <p><b>Peer teaching:</b><br/>Demonstrate to the student how to perform winnowing</p> <p><b>Practical work:</b><br/>Assign the students in manageable groups to identify equipment and materials used to perform winnowing</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select tools, equipment and safety gear</li> <li>•Sort seed variety</li> <li>•Clean the seeds</li> <li>•Remove unwanted materials (foreign)</li> <li>•Put seed into the sieve</li> <li>•Observe safety precautions</li> <li>•Clean tools and equipment</li> <li>•Store tools and equipment</li> </ul> | Winnowing performed as per quality standards | <p><b>Knowledge Evidence Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to select good quality seeds.<br/><b>Principles:</b> The student should explain the principles of seed selection.<br/><b>Theories:</b> The student should explain:<br/>•Importance of seed selection<br/>•Types of seeds for horticultural crops<br/>-Important of winnowing</p> <p>•Selection of quality seeds<br/>•Uses of tools<br/><b>Circumstantial knowledge:</b></p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overalls</li> <li>• Gloves</li> <li>• Gum boots</li> <li>• Caps</li> <li>• Plastic bags</li> <li>• Gunny bags</li> <li>• Containers</li> <li>• Trays</li> <li>• Traditional trays (ungu)</li> <li>• Quality seeds</li> <li>• Sieve</li> <li>• Tarpaulin</li> <li>• Winnowing sieve</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |  |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|--|--|---|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment   | Product/Services Assessment  | Knowledge assessment  |   |                            |
|                                   |                                      |                                   |   |  |  | Detailed knowledge about safe precautions in selecting good quality seeds   |   |                            |
|                                   |                                      | (d) Selecting suitable seeds      | <p><b>Discussion:</b><br/>Lead the students in manageable groups to identify characteristics of suitable seeds</p> <p><b>Field visit:</b><br/>Make a visit with students to the near Agro dealers shop to learn how to select suitable seeds</p> <p><b>Practical work:</b><br/>Organise the students in manageable group to identify suitable seeds</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select tools, equipment and safety gear</li> <li>•Select seed variety</li> <li>•Select good quality seeds</li> <li>•Put selected seeds into a container</li> <li>•Observe safety precautions</li> <li>•Clean tools and equipment</li> <li>•Store tools and equipment</li> </ul> | Select suitable seeds as per quality standards and geographical location | <p><b>Knowledge Evidence</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to Select good quality seeds<br/><b>Principles:</b> The student should explain the principles of seed selection.<br/><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>•Characteristic of good quality seeds</li> <li>•Importance of seed selection</li> <li>•Types of seeds</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overalls</li> <li>• Gloves</li> <li>• Gum boots</li> <li>• Caps</li> <li>• Plastic bags</li> <li>• Gunny bags</li> <li>• Containers</li> <li>• Trays</li> <li>• Traditional trays</li> <li>• Quality seeds</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences)          | Elements<br>(Learning Activities)              | Suggested Teaching and Learning Methods   | Assessment Criteria  |  |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|---|--|---|--|--|---|---|----------------------------|
|                                   |   |  |   | Process Assessment   | Product/Services Assessment  | Knowledge assessment  |   |                            |
|                                   |   |  |   |  |  | for horticultural crops<br>•Selection of quality seeds<br>•Uses of tools<br><br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>safe precautions in selecting good quality seeds                   |   |                            |
|                                   | 4.2 Selecting good quality planting materials | (a) Identifying features of good quality vines | <b>Question and answer:</b><br>Lead the student to define, list tools and identify features of good quality vines<br><br><b>Demonstration:</b><br>Demonstrate to the student how to identify features of good quality vines<br><br><b>Activity:</b> | <b>The student should be able to:</b><br>•Select farm tools, equipment and machines<br>•Select good quality vines<br>•Determine recommended length of planting materials.<br>•Determine spacing<br>•Determine planting depth<br>•Determine planting method<br>•Plant the selected plant materials<br>•Clean the tools and equipment<br>Store the tools and equipment | Features of good quality vine identified according to crop husbandry practices | <b>Knowledge Evidence Detailed knowledge of: Method used:</b><br>The student should explain how to identify features of good quality vines<br><b>Principles:</b> The student should explain principles of selecting | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Hand hoes</li> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Containers</li> <li>• Tape measures/rulers</li> <li>• Ropes</li> <li>• knives</li> <li>• Digging shovel</li> <li>• Net bag</li> <li>• Water</li> <li>• Disinfectant</li> </ul> | 128                        |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria |                             |   | Training Requirements/<br>Suggested Resources                  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|---------------------|-----------------------------|---|--|----------------------------|
|                                   |                                      |                                   |  | Process Assessment  | Product/Services Assessment | Knowledge assessment  |  |                            |
|                                   |                                      |                                   | Organise the student in manageable group to identify equipment and materials used to identify good quality vines |                     |                             | relevant quality planting materials for each variety or type of crop<br><b>Theories:</b> The student should explain:<br>•Types of planting materials<br>•Planting methods<br>•Identify tools, equipment and machines used for planting materials<br>•Plant population determination<br>•Determination of spacing<br>•Determination of planting depth<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about Planting | <ul style="list-style-type: none"> <li>Root hormone</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities)               | Suggested Teaching and Learning Methods  | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|---|--|--|---|---|--|----------------------------|
|                                   |                                      |   |  | Process Assessment   | Product/Services Assessment   | Knowledge assessment  |  |                            |
|                                   |                                      |   |  |  |   | materials requirements for various horticultural crops  |  |                            |
|                                   |                                      | (b) Identifying features of good quality tubers | <p><b>Brainstorm:</b><br/>Guide the student to define, list and identify features of good quality tubers</p> <p><b>Field visit:</b><br/>Make a visit with student to the nearby farm around the school to learn how to identify features of good quality tubers</p> <p><b>Activity:</b><br/>Lead the students in manageable groups to identify good quality tubers</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select farm tools, equipment and machines</li> <li>•Select good quality tubers</li> <li>•Determine recommended length of planting materials.</li> <li>•Determine spacing</li> <li>•Determine planting depth</li> <li>•Determine planting method</li> <li>•Plant the selected plant material</li> <li>•Clean the tools and equipment</li> <li>Store the tools and equipment</li> </ul> | Features of good quality tuber identified according to crop husbandry practices | <p><b>Knowledge Evidence Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to identify features of good quality tubers</p> <p><b>Principles:</b> The student should explain principles of:</p> <ul style="list-style-type: none"> <li>•Select relevant quality planting materials for each variety or type of crop</li> </ul> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>•Types of planting materials</li> <li>•Planting</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Hand hoes</li> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Containers</li> <li>• Tape measures/rulers</li> <li>• Ropes</li> <li>• knives</li> <li>• Digging shovel</li> <li>• Net bags</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities)                | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--|---|--|---|---|--|----------------------------|
|                                   |                                      |  |   | Process Assessment   | Product/Services Assessment   | Knowledge assessment  |  |                            |
|                                   |                                      |  |   |  |   | methods<br>•Identify tools, equipment and machines used for planting materials<br>•Plant population determination<br>•Determination of spacing<br>•Determination of planting depth<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•planting material requirements of various horticultural crops |  |                            |
|                                   |                                      | (c) Identifying features of good quality suckers | <b>Buzz group:</b><br>Lead the students in small groups to define, list and identify features of good | <b>The student should be able to:</b><br>•Select farm tools, equipment and machines<br>•Select good quality vines<br>•Determine recommended length of planting | Features of good quality suckers identified according to crop husbandry practices | <b>Knowledge Evidence Detailed knowledge of:</b><br><b>Method used:</b><br>The student should explain   | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Hand hoes</li> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |                             |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|---|-----------------------------|---|--|----------------------------|
|                                   |                                      |                                   |  | Process Assessment  | Product/Services Assessment | Knowledge assessment  |  |                            |
|                                   |                                      |                                   | <p>quality suckers</p> <p><b>Demonstration:</b><br/>Demonstrate to the student how to identify good quality suckers</p> <p><b>Activity:</b><br/>Guide the students in manageable groups to identify equipment and materials for identifying good quality suckers</p> | <p>materials.</p> <ul style="list-style-type: none"> <li>•Determine spacing</li> <li>•Determine planting depth</li> <li>•Determine planting method</li> <li>•Plant the selected plant material</li> <li>•Clean the tools and equipment</li> <li>•Store the tools and equipment</li> </ul> |                             | <p>how to Identify features of good quality suckers</p> <p><b>Principles:</b> The student should explain principles of selecting relevant quality planting materials for each variety or type of crop</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>•Types of planting materials</li> <li>•Planting methods</li> <li>•Identify tools, equipment and machines used for planting materials</li> <li>•Plant population determination</li> <li>•Determination</li> </ul> | <ul style="list-style-type: none"> <li>• Caps</li> <li>• Containers</li> <li>• Tape measures/rulers</li> <li>• Ropes</li> <li>• knives</li> <li>• Digging shovel</li> <li>• Bags</li> <li>• Water</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities)                 | Suggested Teaching and Learning Methods  | Assessment Criteria   |   |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|---|--|---|---|---|--|----------------------------|
|                                   |                                      |   |  | Process Assessment  | Product/Services Assessment   | Knowledge assessment  |  |                            |
|                                   |                                      |   |  |   |   | of spacing<br>•Determination of planting depth<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about planting material requirements of various horticultural crops  |  |                            |
|                                   |                                      | (d) Identifying features of good quality cuttings | <p><b>Discussion:</b><br/>Lead the students to define, list, and identify features of quality cuttings</p> <p><b>Role play:</b><br/>Guide the student how to identify features of good quality cuttings</p> <p><b>Activity:</b><br/>Organise the</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select farm tools, equipment and machines</li> <li>•Select good quality vines</li> <li>•Determine recommended length of planting materials.</li> <li>•Determine spacing</li> <li>•Determine planting depth</li> <li>•Determine planting method</li> <li>•Plant the selected plant material</li> <li>•Clean the tools and equipment</li> <li>Store the tools and</li> </ul> | Features of good quality cutting identified according to crop husbandry practices | <p><b>Knowledge Evidence Detailed knowledge of: Method used:</b><br/>The student should explain how to identify features of good quality cuttings</p> <p><b>Principles:</b> The student should explain principles of:<br/>•Select relevant quality planting</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Hand hoes</li> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Containers</li> <li>• Tape measures/rulers</li> <li>• Ropes</li> <li>• knives</li> <li>• Digging shovel</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria |                             |  | Training Requirements/<br>Suggested Resources | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|---------------------|-----------------------------|--|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment  | Product/Services Assessment | Knowledge assessment   |   |                            |
|                                   |                                      |                                   | students in manageable groups to identify equipment and materials used in sorting good quality cuttings | equipment           |                             | materials for each variety or type of crop<br><b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>•Types of planting materials</li> <li>•Planting methods</li> <li>•Identify tools, equipment and machines used for planting materials</li> <li>•Plant population determination</li> <li>•Determination of spacing</li> <li>•Determination of planting depth</li> </ul> <b>Circumstantial knowledge:</b><br>Detailed knowledge about planting material requirements of |   |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities)                        | Suggested Teaching and Learning Methods   | Assessment Criteria   |   |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--|---|---|---|--|---|----------------------------|
|                                   |                                      |  |   | Process Assessment  | Product/Services Assessment   | Knowledge assessment   |   |                            |
|                                   |                                      |  |   |   |   | various horticultural crops  |   |                            |
|                                   |                                      | (e) Identifying features of good quality mushroom spawns | <p><b>Brainstorm:</b><br/>Guide the students to define, list, and identify features of good quality mushroom spawns</p> <p><b>Demonstration:</b><br/>Demonstrate to the student how to identify features of good quality mushroom spawns</p> <p><b>Activity:</b><br/>Organise the students in manageable groups to identify equipment and materials used for identification of good quality</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select farm tools, equipment and machines</li> <li>•Select good quality vines</li> <li>•Determine recommended length of planting materials.</li> <li>•Determine spacing</li> <li>•Determine planting depth</li> <li>•Determine planting method</li> <li>•Plant the selected plant material</li> <li>•Clean the tools and equipment</li> </ul> <p>Store the tools and equipment</p> | Features of good quality mushroom spawns identified according to crop husbandry practices | <p><b>Knowledge Evidence Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to identify features of good quality mushroom spawns<br/><b>Principles:</b> The student should explain principles of:<br/>•Selecting relevant quality planting materials for each variety or type of crop<br/><b>Theories:</b> The student should explain:<br/>•Types of planting materials</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Hand hoes</li> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Containers</li> <li>• Tape measures/rulers</li> <li>• Ropes</li> <li>• knives</li> <li>• Digging shovel</li> <li>• Net bags</li> <li>• trays</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |  |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|--|--|---|---|----------------------------|
|                                   |                                      |                                   |  | Process Assessment   | Product/Services Assessment                                  | Knowledge assessment  |   |                            |
|                                   |                                      |                                   | mushroom spawns  |  |  | <ul style="list-style-type: none"> <li>•Planting methods</li> <li>•Identify tools, equipment and machines used for planting materials</li> <li>•Plant population determination</li> <li>•Determination of spacing</li> <li>•Determination of planting depth</li> </ul> <b>Circumstantial knowledge:</b><br>Detailed knowledge about planting material requirements of various horticultural crops |   |                            |
|                                   | 4.3 Performing seed sowing           | (a) Performing broadcasting       | <b>Group work:</b><br>Lead the students to define, list, and identify broadcasting | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>•Select farm tools, equipment and machines</li> <li>•Calculate seed rate of different vegetables</li> </ul> | Broadcasting performed according to crop husbandry practices | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b><br>The student   | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> </ul> | 78                         |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |                             |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|---|-----------------------------|---|--|----------------------------|
|                                   |                                      |                                   |  | Process Assessment  | Product/Services Assessment | Knowledge assessment  |  |                            |
|                                   |                                      |                                   | <b>Demonstration:</b><br>Demonstrate to the student how to perform broadcasting<br><br><b>Practical work:</b><br>Organise the students in manageable groups to identify equipment and materials used on perming broadcasting | <ul style="list-style-type: none"> <li>• Calculate seed rate of different spices</li> <li>• Calculate seed rate of different ornamental</li> <li>• Determine planting method (direct seeding, hill, and drilling)</li> <li>• Sow the selected seed</li> <li>• Observe safety precautions when handling tools and equipment</li> <li>• Clean tools and equipment</li> <li>• Store tools and equipment</li> </ul> |                             | should explain how to:<br><ul style="list-style-type: none"> <li>• Perform broadcasting</li> </ul> <b>Principles:</b><br>The student should explain the principles of<br><ul style="list-style-type: none"> <li>• determining the seeding rate of different crops</li> </ul> <b>Theories:</b><br>The student should explain :<br><ul style="list-style-type: none"> <li>• Importance of broadcast</li> <li>• Sowing methods for vegetables</li> <li>• Sowing methods for spices</li> <li>• Sowing methods for ornamental plants</li> <li>• Tools, machines and equipment used for sowing</li> </ul> | <ul style="list-style-type: none"> <li>• Caps</li> <li>• Containers</li> <li>• Tractor</li> <li>• Bags</li> <li>• Seed drill planter</li> <li>• Seed spreader</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |  |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|--|--|---|---|----------------------------|
|                                   |                                      |                                   |  | Process Assessment   | Product/Services Assessment                              | Knowledge assessment  |   |                            |
|                                   |                                      |                                   |  |  |  | •Seed rate and plant population determination<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about seed sowing requirements of different seeds   |   |                            |
|                                   |                                      | (b) Performing drilling           | <b>Question and answer:</b><br>Guide the students to define drilling, list and illustrate procedures to perform drilling<br><br><b>Demonstration:</b><br>Demonstrate to the student how to perform drilling<br><br><b>Practical work:</b><br>Organise the students in manageable group to identify | <b>The student should be able to:</b><br>•Select farm tools, equipment and machines<br>•Calculate seed rate of different vegetables<br>•Calculate seed rate of different spices<br>•Calculate seed rate of different ornamentals<br>•Determine spacing<br>•Determine planting depth<br>•Determine planting method (direct seeding, hill planting, and drilling)<br>•Sow the selected seed<br>•Observe safety precautions when handling tools and equipment | Drilling performed according to crop husbandry practices | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b><br>The student should explain how to perform drilling<br><b>Principles:</b> The student should explain the principles of<br>•determining the seeding rate of different crops<br><b>Theories:</b> | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Hand hoes</li> <li>• pegs</li> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Containers</li> <li>• Seed driller</li> <li>• Knives</li> <li>• Tractor</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods     | Assessment Criteria  |                             |  | Training Requirements/<br>Suggested Resources | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|--|-----------------------------|--|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment   | Product/Services Assessment | Knowledge assessment   |   |                            |
|                                   |                                      |                                   | equipment and materials to perform drilling | <ul style="list-style-type: none"> <li>•Clean tools and equipment</li> <li>•Store tools and equipment</li> </ul> |                             | <p>The student should explain:</p> <ul style="list-style-type: none"> <li>•Importance of seed sowing</li> <li>•Sowing methods for vegetables</li> <li>•Sowing methods for spices</li> <li>•Sowing methods for ornamental plants</li> <li>•Tools, machines and equipment used for sowing</li> <li>•Seed rate and plant population determination</li> <li>•Determination of spacing</li> <li>•Determination of planting depth</li> </ul> <p><b>Circumstantial knowledge:</b><br/><b>Detailed knowledge</b> about</p> |   |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria   |  |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|---|--|--|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment  | Product/Services Assessment                              | Knowledge assessment   |   |                            |
|                                   |                                      |                                   |   |   |  | seed sowing requirements of different seeds  |   |                            |
|                                   |                                      | (c) Performing dibbling           | <p><b>Discussion:</b><br/>Lead the student to define dibbling</p> <p><b>Demonstration:</b><br/>Demonstrate to the student how to perform dibbling</p> <p><b>Activity:</b><br/>Guide the student in manageable groups to identify equipment and materials used to perform dibbling</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select farm tools, equipment and machines</li> <li>•Calculate seed rate of different vegetables</li> <li>•Calculate seed rate of different fruits</li> <li>•Calculate seed rate of different spices</li> <li>•Calculate seed rate of different ornamentals</li> <li>•Determine spacing</li> <li>•Determine planting depth</li> <li>•Determine planting method (direct seeding, hill, and drilling)</li> <li>•Sow the selected seed</li> <li>•Observe safety precautions when handling tools and equipment</li> <li>•Clean tools and equipment</li> <li>•Store tools and equipment</li> </ul> | Dibbling performed according to crop husbandry practices | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to perform dibbling<br/><b>Principles:</b> The student should explain the principles of<br/>•determining the seeding rate of different crops<br/><b>Theories:</b><br/>Student should explain:<br/>•Importance of seed sowing<br/>•Sowing methods for vegetables<br/>• Sowing methods for fruits</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Hand hoes</li> <li>• Dibblers</li> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Containers</li> <li>• Digging shovels</li> <li>• Tractor</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences)  | Elements<br>(Learning Activities)  | Suggested Teaching and Learning Methods              | Assessment Criteria   |  |   | Training Requirements/<br>Suggested Resources                         | Number of Periods per Unit |
|-----------------------------------|---------------------------------------|------------------------------------|--|---|--|---|---|----------------------------|
|                                   |                                       |                                    |  | Process Assessment  | Product/Services Assessment                    | Knowledge assessment  |   |                            |
|                                   |                                       |                                    |  |   |  | <ul style="list-style-type: none"> <li>•Sowing methods for spices</li> <li>•Sowing methods for ornamental plants</li> <li>•Tools, machines and equipment used for sowing</li> <li>•Seed rate and plant population determination</li> <li>•Determination of spacing</li> <li>•Determination of planting depth</li> </ul> <b>Circumstantial knowledge</b><br>Detailed knowledge about seed sowing requirements of different seeds |   |                            |
|                                   | 4.4 Performing planting of vegetative | (a) Performing planting of suckers | <b>Question and answer:</b><br>Guide the students to | <b>The student should be able to:</b><br>•Select farm tools, equipment and machines | Planting of suckers are performed according to | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b> <ul style="list-style-type: none"> <li>• Hand hoes</li> </ul>   | The following tools, equipments and safety gears are to be available: | 120                        |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |                             |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|---|-----------------------------|---|--|----------------------------|
|                                   |                                      |                                   |  | Process Assessment  | Product/Services Assessment | Knowledge assessment  |  |                            |
|                                   | materials                            |                                   | <p>identify, list, and illustrate procedures of planting suckers</p> <p><b>Field visit:</b><br/>Organise a trip to visit the field in order to learn how to perform planting of suckers</p> <p><b>Practical work:</b><br/>Guide the students in manageable groups to identify equipment and materials used on planting suckers</p> | <ul style="list-style-type: none"> <li>•Select the quality vegetative materials</li> <li>•Prepare suitable suckers</li> <li>•Prepare suitable bulbs</li> <li>•Prepare recommended planting holes</li> <li>•Plant vegetative materials</li> <li>•Observe safety precautions when handling tools and equipment</li> <li>•Clean the tools and equipment</li> <li>•Store the tools and equipment</li> </ul> | crop husbandry practices    | <p>Method used:<br/>The student should explain how to perform planting of suckers</p> <p><b>Principles:</b> The student should explain the principles of planting different vegetative materials of varieties/crops.</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• different types of planting materials</li> <li>•Characteristics of rootstock for fruit crop</li> <li>•Characteristics of scion for fruit crop</li> <li>•Characteristics of bud for fruit crop</li> <li>•Advantages of grafting and</li> </ul> | <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Containers</li> <li>• Tape measures/rulers</li> <li>• Ropes</li> <li>• knives</li> <li>• Digging shovel</li> <li>• Secateurs</li> <li>• Forks</li> <li>• Spades</li> <li>• Dibblers</li> <li>• Garden trowel/shovel</li> <li>• Garden hand rake</li> <li>• Garden trowel/shovel</li> <li>• Pegs</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities)           | Suggested Teaching and Learning Methods   | Assessment Criteria  |  |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|---|---|--|--|---|---|----------------------------|
|                                   |                                      |   |   | Process Assessment   | Product/Services Assessment  | Knowledge assessment  |   |                            |
|                                   |                                      |   |   |  |  | budding<br>•Budding techniques<br>•Procedure of making a grafting cut<br>•Effects of plant spacing<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about transplanting seedlings as requirements of various horticultural crops |   |                            |
|                                   |                                      | (b) Performing planting of roots and tubers | <b>Buzz group:</b><br>Lead the students in small groups to define root, tuber, and identify and illustrate procedures of planting roots and tubers<br><br><b>Demonstration:</b> | <b>The student should be able to:</b><br>•Select farm tools, equipment and machines<br>•Select the quality vegetative materials<br>•Prepare suitable tubers<br>•Prepare recommended planting hole<br>•Plant vegetative materials<br>•Observe safety precautions when | Planting of root and tuber performed according to crop husbandry practices | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b><br>The student should explain how to perform planting of root and tuber<br><b>Principles:</b> The student should                                       | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Hand hoes</li> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Containers</li> <li>• Ropes</li> <li>• knives</li> <li>• Digging shovel</li> <li>• Hand forks</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |                             |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|--|-----------------------------|---|--|----------------------------|
|                                   |                                      |                                   |  | Process Assessment   | Product/Services Assessment | Knowledge assessment  |  |                            |
|                                   |                                      |                                   | <p>Demonstrate to the student how to perform planting of roots and tubers</p> <p><b>Activity:</b><br/>Guide the students in manageable groups to identify equipment and materials for planting of roots and tubers crops</p> | <p>handling tools and equipment</p> <ul style="list-style-type: none"> <li>•Clean the tools and equipment</li> <li>•Store the tools and equipment</li> </ul> |                             | <p>explain the principles of planting different vegetative materials of varieties/crops.</p> <p><b>Theories:</b> The student should identify:</p> <ul style="list-style-type: none"> <li>•different types of planting materials</li> <li>•Characteristics of rootstock for root and tuber crop</li> <li>•Effects of plant spacing</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about</p> <ul style="list-style-type: none"> <li>•transplanting seedlings as requirements of various horticultural crops</li> </ul> | <ul style="list-style-type: none"> <li>• Spades</li> <li>• Dibblers</li> <li>• Garden trowel/shovel</li> <li>• Garden hand rake</li> <li>• Garden trowel/shovel</li> <li>• Pegs</li> </ul> |                            |
|                                   |                                      | (c) Performing                    | <b>Brainstorm:</b>   | <b>The student should be</b>   | Planting of                 | <b>Knowledge</b>  | The following tools,   |                            |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |  |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|---|--|--|--|----------------------------|
|                                   |                                      |                                   |  | Process Assessment  | Product/Services Assessment                              | Knowledge assessment   |  |                            |
|                                   |                                      | planting of cuttings              | <p>Guide the student to identify and illustrate procedures of planting cuttings</p> <p><b>Practical work:</b><br/>Guide the student to participate on planting of cuttings</p> <p><b>Activity:</b><br/>Organise the students in manageable groups to identify equipment and materials used during planting of cuttings</p> | <p><b>able to:</b></p> <ul style="list-style-type: none"> <li>•Select farm tools, equipment and machines</li> <li>•Select the quality vegetative materials</li> <li>•Prepare suitable cuttings</li> <li>•Prepare recommended planting hole</li> <li>•Plant vegetative materials</li> <li>•Observe safety precautions when handling tools and equipment</li> <li>•Clean the tools and equipment</li> <li>•Store the tools and equipment</li> </ul> | cuttings performed according to crop husbandry practices | <p><b>evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to perform planting of cuttings<br/><b>Principles:</b> The student should explain the principles of planting different vegetative materials of varieties/crops.<br/><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>•Identify different type of planting materials</li> <li>•Characteristics of rootstock for cutting crop</li> <li>•Characteristics of bud for fruit crop</li> </ul> | <p>equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Hand hoes</li> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Containers</li> <li>• Tape measures/rulers</li> <li>• Ropes</li> <li>• knives</li> <li>• Digging shovel</li> <li>• Secateurs</li> <li>• Hand forks</li> <li>• Spades</li> <li>• Dibblers</li> <li>• Garden trowel/shovel</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |  |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|--|--|---|---|----------------------------|
|                                   |                                      |                                   |  | Process Assessment   | Product/Services Assessment  | Knowledge assessment  |   |                            |
|                                   |                                      |                                   |  |  |  | <ul style="list-style-type: none"> <li>•Advantages of grafting and budding</li> <li>•Budding techniques</li> <li>•Procedure of making a grafting cut</li> <li>•Effects of planting spacing</li> </ul> <b>Circumstantial knowledge:</b><br>Detailed knowledge about: <ul style="list-style-type: none"> <li>•Transplanting seedlings as requirements of various horticultural crops</li> </ul> |   |                            |
|                                   |                                      | (d) Performing planting of vines  | <b>Discussion:</b><br>Assign the students to Define vines, list tools, identify, and illustrate the procedures of planting vines | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>•Select farm tools, equipment and machines</li> <li>•Select the quality vegetative materials</li> <li>•Prepare suitable vines</li> <li>•Prepare recommended planting hole</li> <li>•Plant vegetative</li> </ul> | Planting of vine are performed according to crop husbandry practices | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b><br>The student should explain how to: perform planting of  | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Hand hoes</li> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Containers</li> <li>• Ropes</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |                             |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|--|-----------------------------|--|--|----------------------------|
|                                   |                                      |                                   |  | Process Assessment   | Product/Services Assessment | Knowledge assessment   |  |                            |
|                                   |                                      |                                   | <b>Demonstration:</b><br>Demonstrate to the student how to perform planting of vines<br><br><b>Practical work:</b><br>Organise the students in manageable groups to identify equipment and materials of planting vines | materials<br>•Observe safety precautions when handling tools and equipment<br>•Clean the tools and equipment<br>•Store the tools and equipment |                             | vines<br><b>Principles:</b> The student should explain the principles of planting different vegetative materials of varieties/crops.<br><b>Theories:</b> The student should explain:<br>•Identify different types of planting material<br>•Characteristics of scion for fruit crop<br>•Effects of planting spacing<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Transplanting seedlings as requirements of various | <ul style="list-style-type: none"> <li>• knives</li> <li>• Digging shovel</li> <li>• Hand forks</li> <li>• Spades</li> <li>• Garden trowel/shovel</li> <li>• Garden hand rake</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities) | Suggested Teaching and Learning Methods | Assessment Criteria |                             |                      | Training Requirements/<br>Suggested Resources | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|---|---------------------|-----------------------------|----------------------|---|----------------------------|
|                                   |                                      |                                   |   | Process Assessment  | Product/Services Assessment | Knowledge assessment |   |                            |
|                                   |                                      |                                   |   |                     |                             | horticultural crops  |   |                            |

## Form Two

**Table 4:** Detailed Contents for Form Two

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)      | Suggested Teaching and Learning Methods  | Assessment Criteria   |   |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-------------------------------------|--|---|---|--|--|----------------------------|
|                                   |                                      |                                     |  | Process Assessment  | Product/Services Assessment   | Knowledge Assessment   |  |                            |
| 1.0 Managing ornamental gardens   | 1.1 Designing landscape              | (a) Preparing sketch map of an area | <p><b>Discussion:</b><br/>Lead the students in manageable groups to illustrate on procedures to draw a sketch map of the landscapes of ornamental gardens</p> <p><b>Demonstration:</b><br/>Demonstrate to the student how to use tools and equipment to prepare a sketch map of the ornamental gardens.</p> <p><b>Practical work:</b><br/>Organise the</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>• Select tools, equipment and instruments</li> <li>• Prepare the sketch map of the school area</li> <li>• Draw the sketch maps of different garden styles</li> <li>• Use landscape design manuals to prepare different sketch maps</li> <li>• Clean the working area</li> </ul> | Sketch maps are prepared according to required rules and regulations. | <p><b>Knowledge evidence:</b></p> <p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b> The student should explain how to prepare different types of sketch maps of landscapes</p> <p><b>Principles:</b> The student should explain the principles:</p> <ul style="list-style-type: none"> <li>• Drawing sketch maps of garden landscapes</li> </ul> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Types of sketch maps</li> <li>• Uses of sketch map in landscape design</li> <li>• Advantages of</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Pens</li> <li>• Pencils</li> <li>• Drawing papers</li> <li>• Ropes</li> <li>• Rulers</li> <li>• Compass</li> <li>• Flip chart</li> <li>• Marker pens</li> <li>• Colour pencils</li> <li>• Pencil sharpener</li> <li>• Drawing compass set</li> <li>• Eraser</li> </ul> | 150                        |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|--|---|---|--|----------------------------|
|                                   |                                      |                                |   | Process Assessment   | Product/Services Assessment                                 | Knowledge Assessment  |  |                            |
|                                   |                                      |                                | students in manageable group to prepare different types of the sketch maps of ornamental gardens  | <ul style="list-style-type: none"> <li>Store tools and equipment</li> </ul>  |   | preparing a sketch map  |  |                            |
|                                   |                                      | (b) Performing map drawing     | <p><b>Discussion:</b><br/>Lead the students to discuss on procedures of drawing map</p> <p><b>Demonstration:</b><br/>Illustrate to the students how to draw garden maps</p> <p><b>Practical work:</b><br/>Guide the students to draw different types of the garden maps</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>Select tools, equipment and instruments</li> <li>Draw the actual map of the landscape plan of a garden</li> <li>Draw the map of layout of different garden styles with variety of ornamental plants</li> <li>Draw maps of gardens</li> </ul> | Maps are drawn according to required rules and regulations. | <p><b>Knowledge evidence:</b></p> <p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b> The student should explain how to draw different types of maps of gardens</p> <p><b>Principles:</b> The student should explain the principles of:</p> <ul style="list-style-type: none"> <li>Drawing maps of landscapes</li> </ul> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>Types of landscapes maps</li> <li>Uses of map in designing gardens</li> <li>Importance of</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>Pens</li> <li>Pencils</li> <li>Drawing papers</li> <li>Ropes</li> <li>Rulers</li> <li>Compass</li> <li>Flip chart</li> <li>Marker pens</li> <li>Colour pencils</li> <li>Pencil sharpener</li> <li>Drawing compass set</li> <li>Eraser</li> <li>Angle protractor</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)  | Suggested Teaching and Learning Methods  | Assessment Criteria   |  |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|---------------------------------|--|---|--|---|--|----------------------------|
|                                   |                                      |                                 |  | Process Assessment  | Product/Services Assessment  | Knowledge Assessment  |  |                            |
|                                   |                                      |                                 |  | surrounding the school premises <ul style="list-style-type: none"> <li>• Draw the gardens of the community residential or town areas</li> <li>• Clean the working area</li> <li>• Store tools and equipment</li> </ul>  |  | garden maps   |  |                            |
|                                   |                                      | (c) Making different landscapes | <b>Questions and Answers:</b><br>Guide the student to define, exemplify and list types of landscapes<br><br><b>Demonstration:</b><br>Demonstrate to the students how to make different landscapes<br><br><b>Field visit:</b><br>Lead students to | <ul style="list-style-type: none"> <li>• Select tools, equipment and instruments</li> <li>• Plan and utilize different types of plants in designing landscapes</li> <li>• Estimate the cost for landscape projects</li> <li>• Prepare the landscape plan</li> </ul> | Prepare different landscapes according to required standards, rules and regulations. | <b>Knowledge evidence:</b><br><br><b>Detailed knowledge of:</b><br><br><b>Method used:</b> The student should explain how to design different types of landscapes<br><br><b>Principles:</b> The student should explain the principles <ul style="list-style-type: none"> <li>• Landscape designs</li> </ul> <b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Types of</li> </ul> | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Pens</li> <li>• Pencils</li> <li>• Drawing paper</li> <li>• Spades</li> <li>• Ropes</li> <li>• Shovels</li> <li>• Pots</li> <li>• Wheelbarrow</li> <li>• Mattocks</li> <li>• Pruning saws</li> <li>• Machetes</li> <li>• Pruning shears</li> <li>• Ropes</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods                            | Assessment Criteria  |   |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|--|--|---|--|--|----------------------------|
|                                   |                                      |                                |  | Process Assessment   | Product/Services Assessment                         | Knowledge Assessment   |  |                            |
|                                   |                                      |                                | visit nearby farms to observe different land landscapes            | <ul style="list-style-type: none"> <li>Layout of different landscapes for garden styles</li> <li>Select suitable plants for landscaping</li> <li>Carry out different designs of landscapes</li> <li>Use landscape design manual</li> <li>Handle machines</li> <li>Use safety gear</li> <li>Clean tools, equipment and work</li> <li>Store tools and equipment</li> </ul> |   | landscapes <ul style="list-style-type: none"> <li>Site analysis in landscaping</li> <li>Advantages of landscaping gardens</li> <li>Usage of natural features in landscaping</li> <li>Usage of different species of plants for landscaping</li> <li>Essence of hard landscaping and soft landscape</li> </ul> <b>Circumstantial knowledge:</b><br><br>Detailed knowledge about designing landscapes and maintaining natural features in landscapes. | <ul style="list-style-type: none"> <li>Rakes</li> <li>Carts</li> <li>Garden knife</li> <li>Overalls</li> <li>Rubber gloves</li> <li>Safety boots</li> <li>Safety clear glasses</li> <li>Helmet</li> <li>Gloves</li> <li>Masks</li> </ul> |                            |
|                                   |                                      | (d) Planting ornamental plants | <b>Group work:</b><br>Lead the students' discussion on identifying | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select tools,</li> </ul>  | Ornamental plants are planted according to required | <b>Knowledge evidence:</b><br><br><b>Detailed knowledge of:</b>  | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>Spades</li> </ul>   |                            |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |                             |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|--|---|-----------------------------|---|--|----------------------------|
|                                   |                                      |                                |  | Process Assessment  | Product/Services Assessment | Knowledge Assessment  |  |                            |
|                                   |                                      |                                | <p>types of ornamental plants, planting methods, and how to prepare ornamental planting materials for planting</p> <p><b>Practical work:</b> Demonstrate to the student how to use tools, equipment and machines to plant different ornamental plants</p> <p><b>Activity:</b> Organise the students in manageable groups to plant different ornamental crops in the garden</p> | <p>equipment and instruments</p> <ul style="list-style-type: none"> <li>Plan and utilize different types of ornamental plants</li> <li>Design layout of different garden styles and plant ornamental plants</li> <li>Select suitable plants planting</li> <li>Handle machines</li> <li>Use safety gear</li> <li>Clean tools, equipment and work</li> <li>Store tools and equipment</li> </ul> | standards and procedures    | <p><b>Method used:</b> The student should explain how to plant different types of ornamental plants</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>Usage of different species of plants for decorating gardens</li> </ul> | <ul style="list-style-type: none"> <li>Ropes</li> <li>Pegs</li> <li>Tape measure</li> <li>Shovels</li> <li>Pots</li> <li>Wheelbarrow</li> <li>Mattocks</li> <li>Pruning saws</li> <li>Machetes</li> <li>Pruning shears</li> <li>Ropes</li> <li>Rakes</li> <li>Carts</li> <li>Garden knife</li> <li>Overalls</li> <li>Rubber gloves</li> <li>Safety boots</li> <li>Safety clear glasses</li> <li>Helmet</li> <li>Leather clothes</li> <li>Manure</li> <li>Secateurs</li> <li>Masks</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)           | Suggested Teaching and Learning Methods   | Assessment Criteria   |  |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--|---|---|--|---|---|----------------------------|
|                                   |                                      |  |   | Process Assessment  | Product/Services Assessment  | Knowledge Assessment  |   |                            |
|                                   | 1.2 Establishing ornamental garden   | (a) Designing different types of gardens | <p><b>Group works:</b><br/>Demonstrate the students to design different types of gardens</p> <p><b>Practical work:</b><br/>Guide student how to use tools, equipment and machines to establish different types of flower gardens</p> <p><b>Activity:</b><br/>Organise the students in manageable groups to prepare different ornamental gardens</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>• Select working tools, equipment and safety gear</li> <li>• Design different types of gardens for decorating premises</li> <li>• Arranging different plants in ornamental gardens</li> <li>• Maintain structure of ornamental gardens</li> <li>• Observe safety precautions in handling garden tools</li> <li>• Clean tools and</li> </ul> | Different ornamental gardens are designed according to required standards, rules and regulations | <p><b>Knowledge evidence:</b></p> <p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b> The student should explain how to design an ornamental garden</p> <p><b>Principles:</b> The student should explain the principles of:</p> <ul style="list-style-type: none"> <li>• Ornamental garden design</li> </ul> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Different types of ornamental gardens</li> <li>• Importance of ornamental gardens</li> <li>• Different designs of gardens</li> </ul> <p><b>Circumstantial knowledge:</b></p> <p>Detailed knowledge about:</p> <ul style="list-style-type: none"> <li>• Designing</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overalls</li> <li>• Overcoats</li> <li>• Masks</li> <li>• Hoes</li> <li>• Pegs</li> <li>• Ropes</li> <li>• Rakes</li> <li>• Hand slasher</li> <li>• Mowers</li> <li>• Secateurs</li> <li>• Watering cans</li> <li>• Secateurs</li> <li>• Pruning shear</li> <li>• Garden hose pipes</li> <li>• Sprinkler</li> <li>• Hand hoes</li> <li>• Forked hoes</li> <li>• Spades</li> <li>• Wheelbarrows</li> </ul> | 156                        |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)     | Suggested Teaching and Learning Methods   | Assessment Criteria   |  |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|------------------------------------|---|---|--|--|--|----------------------------|
|                                   |                                      |                                    |   | Process Assessment  | Product/Services Assessment  | Knowledge Assessment   |  |                            |
|                                   |                                      |                                    |   | <ul style="list-style-type: none"> <li>equipment</li> <li>Store tools and equipment</li> </ul>  |  | landscapes <ul style="list-style-type: none"> <li>Planting residential and recreational gardens</li> </ul>   |  |                            |
|                                   |                                      | (b) Maintaining ornamental gardens | <p><b>Questions and Answers:</b><br/>Guide the student to explain how to maintain ornamental plants in the garden</p> <p><b>Demonstration:</b><br/>Guide the students to maintain different ornamental gardens at school environment</p> <p><b>Practical:</b><br/>Guide the student to practice how to maintain different</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>Select tools, equipment and instruments</li> <li>Prune different types of ornamental plants</li> <li>Control insect pests in garden crops</li> <li>Control garden crops diseases</li> <li>Control weeds in garden crops</li> <li>Arranging different plants in</li> </ul> | Maintain different ornamental gardens according to required standards, rules and regulations | <p><b>Knowledge evidence:</b></p> <p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b> The student should explain how to maintain an ornamental garden</p> <p><b>Principles:</b> The student should explain the principles how to:</p> <ul style="list-style-type: none"> <li>Maintain ornamental gardens</li> </ul> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>Importance of maintaining ornamental gardens</li> <li>Important tools in managing ornamental gardens</li> </ul> | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>Overalls</li> <li>Overcoats</li> <li>Masks</li> <li>Hoes</li> <li>Manure</li> <li>Water</li> <li>Rakes</li> <li>Hand slasher</li> <li>Mowers</li> <li>Secateurs</li> <li>Watering cans</li> <li>Pruning shear</li> <li>Garden hose</li> <li>Sprinkler</li> <li>Hand hoes</li> <li>Forked hoes</li> <li>Spades</li> <li>Shears</li> <li>Knapsack sprayers</li> <li>Watering can</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)       | Suggested Teaching and Learning Methods   | Assessment Criteria  |  |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------------|---|--|--|---|---|----------------------------|
|                                   |                                      |                                      |   | Process Assessment   | Product/Services Assessment                  | Knowledge Assessment  |   |                            |
|                                   |                                      |                                      | ornamental gardens at school environment  | ornamental gardens <ul style="list-style-type: none"> <li>• Maintain ornamental gardens by applying manures and fertilizers</li> <li>• Irrigating gardens</li> <li>• Handle machines</li> <li>• Use safety gear</li> <li>• Clean tools, equipment and work</li> <li>• Store tools and equipment</li> </ul> |  | <b>Circumstantial knowledge:</b><br><br>Detailed knowledge about: Designing landscapes<br><br>Proper ways of maintaining residential and recreational gardens | <ul style="list-style-type: none"> <li>• Pesticides</li> </ul>  |                            |
| 2.0 Managing soil fertility       | 2.1 Preparing organic fertilizers    | (a) Preparing farm yard manure (FYM) | <b>Discussion:</b><br>Guide the students in manageable groups to define, identify types of farm yard manure, and list | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Select working tools, equipment and safety</li> </ul>   | Prepare FYM according to required procedures | <b>Knowledge evidence:</b><br><br><b>Detailed knowledge of:</b><br><br><b>Method used:</b> The student should explain how to prepare Farm Yard Manure (FYM)   | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Dry grass</li> <li>• Farm yard manure</li> <li>• Hoes</li> <li>• Pegs</li> </ul> | 145                        |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |                             |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|--|--|-----------------------------|--|--|----------------------------|
|                                   |                                      |                                |  | Process Assessment   | Product/Services Assessment | Knowledge Assessment   |  |                            |
|                                   |                                      |                                | <p>procedures to prepare farm yard manure (FYM) in the farm</p> <p><b>Demonstration:</b><br/>Guide the student to use tools and equipment to prepare farm yard manure (FYM) at school environment</p> <p><b>Activity:</b><br/>Organise the students in manageable groups to prepare, preserve, and apply farm yard manure in the field at school environment</p> | <p>gear</p> <ul style="list-style-type: none"> <li>Select materials required for preparing FYM</li> <li>Prepare different types farm yard manure (FYM)</li> <li>Observe safety precautions when making organic manure</li> <li>Preserve the collected boma manure</li> <li>Clean the tools and equipment</li> <li>Store the tools and equipment</li> </ul> |                             | <p><b>Principles:</b> The student should explain the principles of preparation of FYM</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>Types of Farm Yard Manure</li> <li>Procedure of preparing different types of Farm Yard Manure</li> <li>Advantages of organic manure over inorganic manure on horticultural production</li> <li>Importance of using FYM fertilizers to horticultural crops</li> <li>Materials used for making farm yard manure</li> <li>Procedure used to prepare FYM</li> <li>Reasons for preserving farm yard manures</li> </ul> | <ul style="list-style-type: none"> <li>Tarpaulin sheets</li> <li>Net bags/hessian cloths</li> <li>Sulphate bags</li> <li>Garbage bins</li> <li>Water</li> <li>Overalls</li> <li>Garden fork</li> <li>Forked hoe</li> <li>Gum boots</li> <li>Spades</li> <li>Watering can</li> <li>Pruning shears</li> <li>Water</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria   |   |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|---|---|--|--|----------------------------|
|                                   |                                      |                                |   | Process Assessment  | Product/Services Assessment                             | Knowledge Assessment   |  |                            |
|                                   |                                      |                                |   |   |   | <b>Circumstantial knowledge: Detailed knowledge</b> about: safe ways of handling and use of organic fertilizers  |  |                            |
|                                   |                                      | (b) Preparing compost manure   | <b>Brainstorming:</b> Guide the students to define Compost manure, list materials and procedures used to make compost manure<br><br><b>Practical demonstration:</b> Demonstrate to the student how to use tools and equipment to prepare compost Manure<br><br><b>Group work:</b> Organise the students in manageable groups to prepare compost | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Select working tools, equipment and safety gear</li> <li>• Select materials required for making compost</li> <li>• Prepare compost manure</li> <li>• Observe safety precautions when making compost manure.</li> <li>• Preserve the</li> </ul> | Prepare compost manure according to required procedures | <b>Knowledge evidence:</b><br><br><b>Detailed knowledge of:</b><br><br><b>Method used:</b> The students should explain how to prepare compost manure<br><br><b>Principles:</b> The student should explain the principles of preparing compost manure<br><br><b>Theories:</b> The students should explain: <ul style="list-style-type: none"> <li>• Procedure of preparing compost Manure</li> <li>• Advantages of compost manure over inorganic manure on horticultural production.</li> </ul> | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Ashes</li> <li>• Dry grass</li> <li>• Farm yard manure</li> <li>• Soil</li> <li>• Hoes</li> <li>• Pegs</li> <li>• Net bags/hessian cloths</li> <li>• Straws of crop remains</li> <li>• Garbage bins</li> <li>• Overalls</li> <li>• Gum boots</li> <li>• Spades</li> <li>• Watering can</li> <li>• Pruning shears</li> <li>• Water</li> <li>• Forked hoe</li> <li>• Spade</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria   |   |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|---|---|---|--|----------------------------|
|                                   |                                      |                                |   | Process Assessment  | Product/Services Assessment   | Knowledge Assessment  |  |                            |
|                                   |                                      |                                | manure  | collected compost manure <ul style="list-style-type: none"> <li>• Clean the tools and equipment</li> <li>• Store the tools and equipment</li> </ul>                   |   | <ul style="list-style-type: none"> <li>• Importance of using compost manure to horticultural crops</li> <li>• Materials used for making compost manure</li> <li>• Procedure used to prepare compost manure</li> <li>• Reasons for preserving farm yard manures.</li> </ul> <b>Circumstantial knowledge Detailed knowledge</b> about safe ways of handling a compost manure pit to reserve nutrients |  |                            |
|                                   |                                      | (c) Incorporating green manure | <b>Discussion:</b> Define, list and illustrate procedures to prepare green manure<br><b>Practical demonstration:</b> Demonstrate to the student how to prepare green manure | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Select working tools, equipment and safety gear</li> <li>• Select materials</li> </ul> | Green manure is prepared according to required procedures and standards | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The student should explain how to prepare green manure<br><b>Principles:</b> The student should explain the principles of  | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Hoes</li> <li>• Pegs</li> <li>• Straws of crop remains</li> <li>• Overalls</li> <li>• Gum boots</li> <li>• Leather clothes</li> <li>• Leguminous</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |                             |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|--|---|-----------------------------|---|---|----------------------------|
|                                   |                                      |                                |  | Process Assessment  | Product/Services Assessment | Knowledge Assessment  |   |                            |
|                                   |                                      |                                | <b>Practical work:</b><br>Organise the students in manageable groups to prepare green manure | required for making of green manure <ul style="list-style-type: none"> <li>• Prepare a green manure</li> <li>• Prepare green manure</li> <li>• Incorporating the green manure by ploughing under</li> <li>• Observe safety precautions when making green manure</li> <li>• Clean the tools and equipment</li> </ul> Store the tools and equipment |                             | preparation of green manure<br><br><b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Types of green Manure plant species</li> <li>• Procedure of preparing different types of green manure</li> <li>• Advantages of green manure in horticultural crop production.</li> <li>• Importance of using green manure to horticultural crops</li> <li>• Materials used for making green manure</li> <li>• Procedure used to prepare green manure</li> <li>• Reasons for including green manures in horticultural farms.</li> </ul> <b>Circumstantial</b> | crops (vetches, pigeon peas, cow peas) seeds <ul style="list-style-type: none"> <li>• Spades</li> <li>• Watering can</li> <li>• Pruning shears</li> <li>• Water</li> <li>• Ox plough</li> <li>• Tractor</li> <li>• Disc plough</li> <li>• Racks</li> <li>• Chisel plough</li> </ul> |                            |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria   |  |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|---|--|--|---|----------------------------|
|                                   |                                      |                                |   | Process Assessment  | Product/Services Assessment                                  | Knowledge Assessment   |   |                            |
|                                   |                                      |                                |   |   |  | <b>knowledge:</b> Detailed knowledge about safe ways of handling and use of green manure fertilizers   |   |                            |
| 2.0 Managing soil fertility       | 2.1 Preparing organic fertilizers    | (a) Preparing liquid manure    | <p><b>Discussion:</b><br/>Lead the students in manageable groups to define liquid manure, and list types of liquid manure</p> <p><b>Demonstration:</b><br/>Demonstrate to the student how to use tools, equipment to prepare liquid manure</p> <p><b>Activity:</b><br/>Organise the students in manageable groups to prepare liquid manure in the field</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>• Select working tools, equipment and safety gear</li> <li>• Select materials required for making liquid manure</li> <li>• Prepare materials for preparing liquid manure</li> <li>• Prepare different types of liquid manure</li> </ul> | Liquid manures are prepared according to required procedures | <p><b>Knowledge evidence:</b></p> <p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b> The student should explain how to prepare liquid manure</p> <p><b>Principles:</b> The student should explain the principles of Preparation of liquid manure</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Types of liquid manure plant species</li> <li>• Procedure of preparing different types of liquid manure</li> <li>• Advantages of</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Hoes</li> <li>• Pegs</li> <li>• PVC pipes</li> <li>• Buckets</li> <li>• Leguminous plants</li> <li>• Leaves chopper</li> <li>• Rabbit urine</li> <li>• Overalls</li> <li>• Overcoats</li> <li>• Knapsack sprayers</li> <li>• Hand sprayers</li> <li>• Gum boots</li> <li>• Forked hoes</li> <li>• Spades</li> </ul> | 48                         |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)               | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--|---|--|---|--|--|----------------------------|
|                                   |                                      |  |   | Process Assessment   | Product/Services Assessment   | Knowledge Assessment   |  |                            |
|                                   |                                      |  |   | <ul style="list-style-type: none"> <li>Clean the tools and equipment</li> <li>Store the tools and equipment</li> </ul>   |   | liquid manures in horticultural production. <ul style="list-style-type: none"> <li>Procedure used to prepare liquid manure</li> </ul> <b>Circumstantial knowledge:</b> Detailed knowledge about: use of liquid manure in organic agriculture   |  |                            |
|                                   | 2.2 Applying the fertilizer          | (a) Establishing fertilizer application rate | <b>Discussion:</b><br>Lead the student to define and calculate fertilizers application rates<br><br><b>Group work:</b><br>Coordinate the students in manageable groups to calibrate fertilizers use rate<br><br><b>Practical activity:</b><br>Guide the students in | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select tools and equipment</li> <li>Identify different types of fertilizer</li> <li>Select method of fertilizer calibration</li> <li>Determine amount of fertilizer per unit area</li> <li>Observe</li> </ul> | Fertilizer application rate calculations performed according to required procedures | <b>Knowledge evidence:</b><br><br><b>Detailed knowledge of:</b><br><br><b>Method used:</b> The student should explain different ways of fertilizers calibration<br><b>Principles:</b> The student should explain the principles of fertilizers calibrations<br><br><b>Theories:</b> The students should explain: <ul style="list-style-type: none"> <li>Importance of calibration of fertilizers</li> <li>Benefits of fertilizers</li> </ul> | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>Overalls</li> <li>Plastic cloths</li> <li>Gum boots</li> <li>Overcoats</li> <li>Mouth masks</li> <li>Caps</li> <li>Hand hoes</li> <li>Plastic basins</li> <li>Small plastic containers</li> <li>Weighing balance</li> <li>Fertilizer (bag)</li> <li>Hand sprayer</li> <li>Wheel barrow</li> <li>Hand trowels</li> </ul> | 149                        |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)    | Suggested Teaching and Learning Methods  | Assessment Criteria   |  |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-----------------------------------|--|---|--|---|--|----------------------------|
|                                   |                                      |                                   |  | Process Assessment  | Product/Services Assessment  | Knowledge Assessment  |  |                            |
|                                   |                                      |                                   | manageable groups to use the calibrated fertilizers use rate in the horticultural field  | safety precaution. <ul style="list-style-type: none"> <li>• Clean the tools and equipment</li> <li>• Store the tools and equipment</li> </ul>   |  | calibration<br><b>Circumstantial knowledge :</b> Detailed knowledge about the impacts of fertilizers to water sources   | <ul style="list-style-type: none"> <li>• Spades</li> <li>• Watering can</li> <li>• Garden hoes</li> </ul>  |                            |
|                                   |                                      | (b) Performing foliar application | <b>Brainstorming:</b><br>Guide the student to list procedures for performing foliar fertilizer application<br><br><b>Practical work:</b><br>Guide the student in manageable groups how to use tools, equipment and machines to prepare foliar fertilizers<br><br><b>Practical activity:</b><br>Organise the students in manageable groups to | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Select tools and equipment</li> <li>• Identify different types of foliar fertilizer</li> <li>• Select method of foliar fertilizer application</li> <li>• Determine amount of foliar fertilizer per specific crops</li> <li>• Apply foliar</li> </ul> | Foliar application of fertilizers performed according to required procedures | <b>Knowledge evidence:</b><br><br><b>Detailed knowledge of:</b><br><br><b>Method used:</b> The student should explain how to apply fertilizer to the plant by foliar application.<br><br><b>Principles:</b> The students should explain the principles of foliar fertilizer application.<br><br><b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>• Methods of foliar fertilizer application</li> <li>• Procedure of foliar fertilizer application</li> </ul> | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Overalls</li> <li>• Cloves</li> <li>• Gum boots</li> <li>• Caps</li> <li>• Overcoats</li> <li>• Hand hoes</li> <li>• Small containers</li> <li>• Fertilizer (bag)/Bottles</li> <li>• Liquid volume measuring bottles</li> <li>• Weighing</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)   | Suggested Teaching and Learning Methods  | Assessment Criteria  |   |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|----------------------------------|--|--|---|--|---|----------------------------|
|                                   |                                      |                                  |  | Process Assessment   | Product/Services Assessment   | Knowledge Assessment   |   |                            |
|                                   |                                      |                                  | prepare and apply foliar fertilizers at school environment   | fertilizer using different methods <ul style="list-style-type: none"> <li>Observe safety precaution.</li> <li>Clean the tools and equipment</li> </ul> Store the tools and equipment   |   | <b>Circumstantial knowledge:</b> :Detailed knowledge about proper precautions in foliar fertilizers application  | balance <ul style="list-style-type: none"> <li>Hand sprayer</li> <li>Knapsack sprayer</li> <li>Wheel barrow</li> <li>Hand trowels</li> <li>Buckets</li> <li>Spades</li> <li>Water</li> </ul>  |                            |
|                                   |                                      | (c) Performing basal application | <b>Discussion:</b><br>Lead the students in manageable groups to define basal application, and identify methods of basal application<br><b>Practical demonstration:</b><br>Demonstrate to the student how to use tools and equipment to prepare basal | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select tools and equipment</li> <li>Identify different types of basal fertilizers</li> <li>Select method of basal fertilizer application</li> <li>Practice</li> </ul> | Basal fertilizer application performed according to required procedures | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The student should explain how to apply basal fertilizers to the plant.<br><b>Principles:</b> The students should explain the principles of basal fertilizer application.<br><b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>Importance of using basal</li> </ul> | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>Overalls</li> <li>Overcoats</li> <li>Masks</li> <li>Eye glasses</li> <li>Gloves</li> <li>Gum boots</li> <li>Caps</li> <li>Hand hoes</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |  |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|--|--|--|---|----------------------------|
|                                   |                                      |                                |   | Process Assessment   | Product/Services Assessment                                    | Knowledge Assessment   |   |                            |
|                                   |                                      |                                | fertilizers<br><br><b>Practical activity:</b><br>Organise the students in manageable groups to practice basal application to horticultural field at school environment                    | basal application by using different methods <ul style="list-style-type: none"> <li>Observe safety precaution.</li> <li>Clean the tools and equipment\</li> <li>Store the tools and equipment</li> </ul> |  | fertilizers <ul style="list-style-type: none"> <li>Types of basal fertilizers</li> <li>Methods of basal fertilizers application</li> <li>Procedure of applying basal fertilizers</li> <li>Basal fertilizer recommendations to crops</li> </ul> <b>Circumstantial knowledge:</b> Detailed knowledge about precautions to consider in handling basal fertilizers | <ul style="list-style-type: none"> <li>Small containers</li> <li>Fertilizer (bag)</li> <li>Hand sprayer</li> <li>Wheel barrow</li> <li>Hand trowels</li> <li>Spades</li> </ul>                          |                            |
|                                   |                                      | (d) Performing topdressing     | <b>Brainstorming:</b><br>Guide the students to define and list topdressing fertilizers<br><br><b>Field visit:</b><br>Guide the students to visit a nearby field and train them how to use | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select tools and equipment</li> <li>Identify different types of topdressing fertilizer</li> <li>Select</li> </ul>           | Apply topdressing fertilizers according to required procedures | <b>Knowledge evidence:</b><br><br><b>Detailed knowledge of:</b><br><br><b>Method used:</b> The student should explain how to perform topdressing to the plants in the field<br><br><b>Principles:</b> The student should explain the principles of   | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>Overalls</li> <li>Gloves</li> <li>Overcoats</li> <li>Masks</li> <li>Eye glasses</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |                             |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|--|-----------------------------|---|---|----------------------------|
|                                   |                                      |                                |   | Process Assessment   | Product/Services Assessment | Knowledge Assessment  |   |                            |
|                                   |                                      |                                | <p>tools, equipment and machines to perform topdressing.</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to perform topdressing on the vegetable field at school environment</p> | <p>method of topdressing fertilizer application</p> <ul style="list-style-type: none"> <li>• Determine amount of topdressing fertilizer</li> <li>• Apply topdressing fertilizer using different methods</li> <li>• Observe safety precaution.</li> <li>• Clean the tools and equipment</li> <li>• Store the tools and equipment</li> </ul> |                             | <p>topdressing fertilizers application.</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Importance of topdressing fertilizer</li> <li>• Types of topdressing fertilizers</li> <li>• Methods of topdressing fertilizers application</li> <li>• Procedure of applying topdressing fertilizer</li> <li>• Topdressing Fertilizer recommendations to plants</li> <li>• Factors to take into account during topdressing</li> <li>• Advantages of topdressing fertilizers</li> </ul> <p><b>Circumstantial knowledge:</b> Detailed</p> | <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Caps</li> <li>• Small bags</li> <li>• Hand hoes</li> <li>• Small containers</li> <li>• Fertilizers</li> <li>• Hand sprayer</li> <li>• Wheel barrow</li> <li>• Hand trowels</li> <li>• Spades</li> <li>• Fertilizer spreaders</li> <li>• Hand sprayer</li> <li>• Knapsack sprayer</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)       | Suggested Teaching and Learning Methods  | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------------|--|--|---|---|---|----------------------------|
|                                   |                                      |                                      |  | Process Assessment   | Product/Services Assessment   | Knowledge Assessment  |   |                            |
|                                   |                                      |                                      |  |  |   | knowledge proper precautions to consider in handling of topdressing fertilizers   |   |                            |
|                                   |                                      | (e) Performing broadcast application | <p><b>Discussion:</b><br/>Guide the students in manageable groups to define broadcast application</p> <p><b>Demonstration:</b><br/>Demonstrate to the students how to use tools, equipment and machines to perform broadcast application</p> <p><b>Role play:</b><br/>Guide the students in manageable groups to perform broadcast application</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>• Select tools and equipment</li> <li>• Identify different types of broadcast fertilizers</li> <li>• Select method of broadcasting fertilizers</li> <li>• Determine amount of broadcast fertilizer</li> <li>• Apply fertilizer using broadcasting methods</li> <li>• Observe safety</li> </ul> | Perform broadcast fertilizer application according to required procedures | <p><b>Knowledge evidence:</b></p> <p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b> The student should explain how to perform broadcasting of fertilizers to the field</p> <p><b>Principles:</b> The student should explain the principles of broadcasting fertilizers.</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Importance of using broadcasting fertilizer application</li> <li>• Methods of broadcasting fertilizers application</li> <li>• Procedure of applying fertilizers</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overalls</li> <li>• Overcoats</li> <li>• Masks</li> <li>• Eye glasses</li> <li>• Gloves</li> <li>• Gum boots</li> <li>• Caps</li> <li>• Tarpaulin</li> <li>• Hand hoes</li> <li>• Small containers</li> <li>• Fertilizers (bag)</li> <li>• Tractor</li> <li>• Fertilizers spreader</li> </ul> |                            |

| Module Title<br>(Main Competence)     | Unit Title<br>(Specific Competences) | Elements (Learning Activities)   | Suggested Teaching and Learning Methods  | Assessment Criteria  |   |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|---------------------------------------|--------------------------------------|----------------------------------|--|--|---|--|---|----------------------------|
|                                       |                                      |                                  |  | Process Assessment   | Product/Services Assessment   | Knowledge Assessment   |   |                            |
|                                       |                                      |                                  |  | precaution.<br><ul style="list-style-type: none"> <li>• Clean the tools and equipment</li> <li>• Store the tools and equipment</li> </ul>  |   | by broadcasting<br><ul style="list-style-type: none"> <li>• Factors to consider in applying fertilizers by broadcasting method</li> <li>• Advantages of broadcasting application</li> <li>• Broadcasting fertilizer recommendations to plants</li> </ul> <b>Circumstantial knowledge</b> Detailed knowledge about precautions to consider in handling broadcasting fertilizers | <ul style="list-style-type: none"> <li>• Wheel barrow</li> <li>• Hand trowels</li> <li>• Spades</li> </ul>  |                            |
| 3.0 Harvesting of horticultural crops | 3.1 Estimating yield of a given crop | (a) Determining maturity indices | <b>Brainstorming:</b><br>Guide the student to define, list and exemplify the maturity indices of the crops<br><br><b>Observation:</b><br>Guide the student to observe how to | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Select tools and equipment</li> <li>• Identify indicators for maturity signs for horticultural</li> </ul> | Maturity indices for horticultural crops are determined by applying the different techniques according to required procedures | <b>Knowledge evidence:</b><br><br><b>Detailed knowledge of:</b><br><br><b>Method used:</b> The student should determine maturity indices for horticultural crops<br><br><b>Principles:</b> The student should explain the  | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Pens</li> <li>• Note book</li> <li>• Gumboots</li> <li>• Caps</li> <li>• Ladder</li> <li>• Bags</li> <li>• Knife</li> <li>• Overcoats</li> </ul> | 120                        |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |                             |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|--|--|-----------------------------|---|---|----------------------------|
|                                   |                                      |                                |  | Process Assessment   | Product/Services Assessment | Knowledge Assessment  |   |                            |
|                                   |                                      |                                | <p>detect maturity indices of horticultural crops</p> <p><b>Practical work:</b><br/>Organise the students in manageable groups to determine maturity indices of crops in the field</p> | <p>crops</p> <ul style="list-style-type: none"> <li>Identify different plants and check for maturity indices</li> <li>Observe safety precautions</li> <li>Store tools and equipment</li> </ul> |                             | <p>principles of determining maturity signs of a given crop.</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>Importance of identifying the maturity signs of a given crop</li> <li>Identifying maturity signs for fruit crop</li> <li>Identifying maturity signs for vegetables</li> <li>Factors to consider in identifying maturity indices</li> <li>Identifying maturity signs for spices</li> <li>Tools used to identify maturity indices</li> </ul> <p><b>Circumstantial knowledge:</b></p> <p>Detailed knowledge about accurate timing of maturity signs of the</p> | <ul style="list-style-type: none"> <li>Gloves</li> <li>Gum Boots</li> <li>Plastic crates</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)                            | Suggested Teaching and Learning Methods  | Assessment Criteria  |  |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|---|--|--|--|--|---|----------------------------|
|                                   |                                      |   |  | Process Assessment   | Product/Services Assessment  | Knowledge Assessment   |   |                            |
|                                   |                                      |   |  |  |  | fruit crops harvesting.  |   |                            |
|                                   |                                      | (a) Performing yield estimation by random quadrant method | <p><b>Discussion:</b><br/>Guide the students in manageable groups to define yield estimation by quadrant</p> <p><b>Group work:</b><br/>Guide the students in manageable groups how to use tools, equipment and machines to perform yield estimation by quadrant</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to perform yield estimation by quadrant at school</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>• Select tools and equipment</li> <li>• Select an area which is a representative of the farm</li> <li>• Measure an area of 1m<sup>2</sup></li> <li>• Measure the number of plants as per square metre</li> <li>• Calculate average yield of the crop</li> <li>• Convert average yield of 1m<sup>2</sup> to obtain the estimate yield of the whole farm</li> <li>• Randomly selection of</li> </ul> | Yield estimation by random quadrant method is performed according to required procedures | <p><b>Knowledge evidence:</b></p> <p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b> The student should explain how to estimate yield of a given horticultural crop by random quadrant.</p> <p><b>Principles:</b> The student should explain the principles of estimating the yield of a given crop by quadrant</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• The importance of estimating yield of a given crop by quadrant</li> <li>• Estimating yield for fruit crop</li> <li>• Estimating yield for vegetables</li> <li>• Estimating yield for spices</li> <li>• Estimating yield</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Pegs (to make 1m<sup>2</sup> quadrant)</li> <li>• Calculator</li> <li>• Pens</li> <li>• Notebook</li> <li>• Nails</li> <li>• Tape measures</li> <li>• Ropes</li> <li>• Weighing balance</li> <li>• Gumboots</li> <li>• Overcoats</li> <li>• Caps</li> <li>• Tape measures</li> <li>• Gum Boots</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)                 | Suggested Teaching and Learning Methods  | Assessment Criteria   |  |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--|--|---|--|---|--|----------------------------|
|                                   |                                      |  |  | Process Assessment  | Product/Services Assessment  | Knowledge Assessment  |  |                            |
|                                   |                                      |  | environment  | plants and weigh the yield <ul style="list-style-type: none"> <li>Observe safety precautions</li> <li>Store tools and equipment</li> </ul>  |  | for ornamentals <ul style="list-style-type: none"> <li>Procedure for carry out yield estimation</li> <li>The procedures for selection of representative farm area</li> <li>Tools used in yield estimation</li> </ul> <b>Circumstantial knowledge:</b><br>Detailed knowledge about accurate measurement of the yield estimates |  |                            |
|                                   |                                      | (b) Performing yield estimation by observation | <b>Brainstorming:</b><br>Guide the students to define yield estimation by observation<br><b>Field Visit:</b><br>Organise the students to visit nearby horticultural field and guide them how to use tools and equipment to | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select tools and equipment</li> <li>Select an area which is a representative of the farm</li> <li>Count the number of plants that shows</li> </ul> | Perform yield estimation by observation according to required procedures | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The student should explain how to perform yield estimation for a given horticultural crop.<br><b>Principles:</b> The student should explain the principles related to estimating the yield of a given crop by                              | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>Calculator</li> <li>Pens</li> <li>Notebook</li> <li>Tape measures</li> <li>Ropes</li> <li>Weighing balance</li> <li>Gumboots</li> <li>Sulphate bags</li> <li>Caps</li> <li>Tape measures</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences)            | Elements (Learning Activities)            | Suggested Teaching and Learning Methods  | Assessment Criteria   |   |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|---|---|--|---|---|--|--|----------------------------|
|                                   |   |   |  | Process Assessment  | Product/Services Assessment   | Knowledge Assessment   |  |                            |
|                                   |   |   | perform yield estimation by observation<br><br><b>Group work:</b><br>Organise the students in manageable groups to perform yield estimation by observation in a horticultural crop | maturity signs<br>• Observe safety precautions<br>• Store tools and equipment       |   | observation.<br><b>Theories:</b> The student should explain:<br><br>• Importance of estimating yield of a given crop by observation<br>• Estimating yield for flowers<br>• Procedures for selection of representative farm area by observation<br>• Tools used in yield estimation<br><b>Circumstantial knowledge:</b><br><br>Detailed knowledge about accurate measurement of the estimated yield | <ul style="list-style-type: none"> <li>• Weighing scale</li> <li>• Gum Boots</li> </ul>  |                            |
|                                   | 3.2 Performing harvesting of horticulture crops | (a) Harvesting roots and tubers vegetable | <b>Discussion:</b><br>Guide the students in manageable groups to list and illustrate the procedures to harvest root and  | <b>The student should be able to:</b><br><br>• Select tools, equipment and machines | Roots and tuber crops are harvested according to required practices | <b>Knowledge evidence:</b><br><br><b>Detailed knowledge of:</b><br><br><b>Method used:</b> The student should be able to explain how to harvest root and tuber   | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Overalls</li> <li>• Gum boots</li> <li>• Caps</li> <li>• Plastic/gunny</li> </ul> | 150                        |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria   |                             |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|---|-----------------------------|---|---|----------------------------|
|                                   |                                      |                                |   | Process Assessment  | Product/Services Assessment | Knowledge Assessment  |   |                            |
|                                   |                                      |                                | tuber vegetable crops<br><br><b>Practical demonstration:</b> Demonstrate to the student how to use tools, equipment and machines to perform harvesting of root and tuber vegetables<br><b>Group work:</b> Organise the students in manageable groups to perform harvesting of root and tuber vegetables at school environment | <ul style="list-style-type: none"> <li>Identify harvesting methods for roots and tuber crops</li> <li>Harvest vegetables</li> <li>Harvest root and tuber spices</li> <li>Dig the root and tubers</li> <li>Pack the harvested horticultural crop</li> <li>Observe safety precaution</li> <li>Clean the tools and equipment</li> <li>Store the tools and equipment</li> </ul> |                             | vegetable horticultural crops.<br><br><b>Principles:</b> The student should explain principles of harvesting roots and tuber vegetable crops<br><br><b>Theories:</b> The student should explain:<br><br>Describe different methods of harvesting roots and tuber vegetable crops <ul style="list-style-type: none"> <li>Harvesting methods for roots crops</li> <li>Proper handling of roots and tuber crops</li> <li>Factors to consider during harvesting of roots and tuber vegetable crops</li> <li>Importance of harvesting mature tuber crops</li> <li>Harvesting of root vegetable with</li> </ul> | bags <ul style="list-style-type: none"> <li>Sickle/knife</li> <li>Hand hoes</li> <li>Containers</li> <li>Plastic buckets</li> <li>Net bags</li> <li>Diggers</li> <li>Reapers</li> <li>Combine harvester</li> <li>Mats</li> <li>Plastic sheets</li> <li>Baskets</li> <li>Fork hoes</li> <li>Machete</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)      | Suggested Teaching and Learning Methods   | Assessment Criteria   |   |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|-------------------------------------|---|---|---|---|---|----------------------------|
|                                   |                                      |                                     |   | Process Assessment  | Product/Services Assessment                                       | Knowledge Assessment  |   |                            |
|                                   |                                      |                                     |   |   |   | <p>similar maturity</p> <ul style="list-style-type: none"> <li>Effect of harvesting roots and tuber crop under unfavourable conditions</li> </ul> <p><b>Circumstantial knowledge:</b> Detailed knowledge about safe handling of harvested crop</p>  |   |                            |
|                                   |                                      | (b) Harvesting leaf vegetable crops | <p><b>Discussion:</b> Guide the students to harvest leaf vegetable crops</p> <p><b>Demonstration:</b> Guide the students how to use tools, equipment and machines to harvest leaf vegetable crops</p> <p><b>Practical work:</b> Organise the students in manageable</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>Select tools, equipment and machines</li> <li>Identify harvesting methods for leaf vegetables</li> <li>Pick the vegetables</li> <li>Cut the leaves</li> <li>Harvest vegetables</li> </ul> | Leaf vegetable crops is harvested according to required practices | <p><b>Knowledge evidence:</b></p> <p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b> The student should explain how to harvest leaf vegetable crops</p> <p><b>Principles:</b> The students should explain principles of harvesting leaf vegetable crops</p> <p><b>Theories:</b> The students</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>Overalls</li> <li>Gum boots</li> <li>Caps</li> <li>Plastic/gunny bags</li> <li>Sickle/knife</li> <li>Hand hoes</li> <li>Containers</li> <li>Plastic buckets</li> <li>Diggers</li> <li>Reapers</li> <li>Combine harvester</li> <li>Mats</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods        | Assessment Criteria  |                             |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|--|--|-----------------------------|--|---|----------------------------|
|                                   |                                      |                                |  | Process Assessment   | Product/Services Assessment | Knowledge Assessment   |   |                            |
|                                   |                                      |                                | group to harvest and pack leaf vegetable crops | <ul style="list-style-type: none"> <li>• Pack the harvested crop</li> <li>• Observe safety precaution</li> <li>• Clean the tools and equipment</li> <li>• Store the tools and equipment</li> </ul> |                             | <p>should explain:</p> <ul style="list-style-type: none"> <li>• Maturity indices for fruits, leafy vegetable, fruit vegetable crops, spices and ornamental plants</li> <li>• Importance of harvesting mature leaf crop</li> <li>• Describe how to keep the vegetable leaves fresh</li> <li>• Harvesting methods</li> <li>• Harvesting of leafy vegetables that have similar maturity</li> <li>• Harvesting leafy and fruit vegetables which do not mature at the same time.</li> <li>• Effect of harvesting leaf crop under unfavourable conditions</li> </ul> <p><b>Circumstantial knowledge:</b> Detailed knowledge about safe</p> | <ul style="list-style-type: none"> <li>• Plastic sheets</li> <li>• Baskets</li> <li>• Fork hoes</li> <li>• Machete</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)           | Suggested Teaching and Learning Methods  | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--|--|--|---|---|--|----------------------------|
|                                   |                                      |  |  | Process Assessment   | Product/Services Assessment   | Knowledge Assessment  |  |                            |
|                                   |                                      |  |  |  |   | handling of harvested leaves to maintain nutrient   |  |                            |
|                                   |                                      | (c) Harvesting berry horticultural crops | <p><b>Plenary discussion:</b><br/>Guide the students to define and list berry horticultural crops</p> <p><b>Demonstration:</b><br/>Demonstrate to the student how to use tools, equipment and machines to harvest berry horticultural crops</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to practice harvesting of</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>• Select tools, equipment and machines</li> <li>• Identify harvesting methods</li> <li>• Pick the berry fruits</li> <li>• Harvest berry crops</li> <li>• Cut the berry crops</li> <li>• Pack the harvested horticultural crop</li> <li>• Observe safety precaution</li> <li>• Clean the tools and equipment</li> </ul> | Berry horticultural crops are harvested according to required practices | <p><b>Knowledge evidence:</b></p> <p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b> The students should explain how to harvest berry horticultural crops</p> <p><b>Principles:</b> The student should explain principles of harvesting berry horticultural crops</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Techniques of harvesting berry horticultural crops</li> <li>• Importance of harvesting mature berries crop</li> <li>• Harvesting methods for berry crops</li> <li>• Effect of harvesting</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overalls</li> <li>• Gum boots</li> <li>• Caps</li> <li>• Plastic/gunny bags</li> <li>• Sickle/knife</li> <li>• Hand hoes</li> <li>• Containers</li> <li>• Plastic crates</li> <li>• Wooden crates</li> <li>• Paper boxes</li> <li>• Plastic buckets</li> <li>• Diggers</li> <li>• Reapers</li> <li>• Combine harvester</li> <li>• Mats</li> <li>• Plastic sheets</li> <li>• Baskets</li> <li>• Fork hoes</li> <li>• Machete</li> </ul> |                            |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)          | Suggested Teaching and Learning Methods   | Assessment Criteria  |  |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|---|---|--|--|--|--|----------------------------|
|                                   |                                      |   |   | Process Assessment   | Product/Services Assessment  | Knowledge Assessment   |  |                            |
|                                   |                                      |   | berry horticultural crops   | <ul style="list-style-type: none"> <li>Store the tools and equipment</li> </ul>  |  | berry crop under unfavourable conditions<br><br><b>Circumstantial knowledge:</b> Detailed knowledge about safe handling of harvested berry crop  |  |                            |
|                                   |                                      | (d) Harvesting stem horticultural crops | <b>Discussion:</b><br>Guide the students in manageable groups to list procedures of harvesting stem horticultural crops<br><br><b>Practical demonstration:</b><br>Demonstrate to the student how to use tools, equipment and machines to harvest stem horticultural crops | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select tools, equipment and machines</li> <li>Identify harvesting methods for stem vegetables</li> <li>Harvest the stem ornamental crops</li> <li>Cut the stem and flowers</li> <li>Pack the harvested</li> </ul> | The stem horticultural crops are harvested according to required practices | <b>Knowledge evidence:</b><br><br><b>Detailed knowledge of:</b><br><br><b>Method used:</b> The student should explain how to perform harvesting of stem horticultural crops<br><br><b>Principles:</b> The student should explain principles of harvesting stem horticultural crops<br><br><b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>Importance of harvesting mature stem horticultural crop</li> </ul> | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>Overalls</li> <li>Gum boots</li> <li>Caps</li> <li>Plastic/gunny bags</li> <li>Sickle/knife</li> <li>Hand hoes</li> <li>Containers</li> <li>Plastic buckets</li> <li>Diggers</li> <li>Reapers</li> <li>Combine harvester</li> <li>Mats</li> <li>Plastic sheets</li> <li>Baskets</li> <li>Fork hoes</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |  |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|--|--|--|--|----------------------------|
|                                   |                                      |                                |   | Process Assessment   | Product/Services Assessment                                | Knowledge Assessment   |  |                            |
|                                   |                                      |                                | <b>Practical activity:</b><br>Guide the student to harvest stem horticultural crops at school environment   | horticultural crop <ul style="list-style-type: none"> <li>Observe safety precaution</li> <li>Clean the tools and equipment</li> <li>Store the tools and equipment</li> </ul>   |  | <ul style="list-style-type: none"> <li>Factors to take into account during harvesting of stem horticultural crops</li> <li>Effect of harvesting stem horticultural crops under unfavourable conditions</li> </ul> <b>Circumstantial knowledge:</b> Detailed knowledge about safe handling of harvested stem crop | <ul style="list-style-type: none"> <li>Machete</li> </ul>  |                            |
|                                   |                                      | (e) Harvesting flower crops    | <b>Questions and Answers:</b><br>Ask the student to define flower and list flower crops<br><br><b>Practical demonstration:</b><br>Demonstrate to the student how to use tools, equipment and machines to harvest flower crops | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select tools, equipment and machines</li> <li>Identify flower harvesting methods</li> <li>Pick the flowers</li> <li>Cut the stem and flowers</li> <li>Pack the</li> </ul> | Flower crops are harvested according to required practices | <b>Knowledge evidence:</b><br><br><b>Detailed knowledge of:</b><br><br><b>Method used:</b> The student should explain how to harvest flower crops.<br><br><b>Principles:</b> The student should explain principles of harvesting flower crops<br><br><b>Theories:</b> The student should explain:                | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>Overalls</li> <li>Gum boots</li> <li>Caps</li> <li>Plastic/gunny bags</li> <li>Masking tape</li> <li>Polythene sheet</li> <li>Sickle/knife</li> <li>Hand hoes</li> <li>Containers</li> <li>Plastic buckets</li> <li>Mats</li> <li>Plastic sheets</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|--|--|---|---|---|----------------------------|
|                                   |                                      |                                |  | Process Assessment   | Product/Services Assessment                             | Knowledge Assessment  |   |                            |
|                                   |                                      |                                | <b>Practical activity:</b><br>Guide the students in manageable groups to harvest and pack flower crops   | harvested flower crop <ul style="list-style-type: none"> <li>Observe safety precaution</li> <li>Clean the tools and equipment</li> <li>Store the tools and equipment</li> </ul>                        |   | <ul style="list-style-type: none"> <li>Techniques used to keep harvested ornamental plants fresh</li> <li>Importance of harvesting mature flower crop</li> <li>Proper timing of flower harvesting</li> <li>Effect of harvesting crop under unfavourable conditions</li> </ul> <b>Circumstantial knowledge</b> Detailed knowledge about safe handling of harvested flower crop | <ul style="list-style-type: none"> <li>Baskets</li> <li>Fork hoes</li> <li>Machete</li> </ul>   |                            |
|                                   |                                      | (f) Harvesting pod crops       | <b>Peer teaching:</b><br>Guide the student to list procedures of harvesting pod crops<br><br><b>Practical demonstration:</b><br>Demonstrate to the student how to use tools, equipment and | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select tools, equipment and machines</li> <li>Identify harvesting methods for pod crops</li> <li>Pick the pods</li> </ul> | Pod crops are harvested according to required practices | <b>Knowledge evidence:</b><br><br><b>Detailed knowledge of:</b><br><br><b>Method used:</b> The student should explain how to harvest pod crops.<br><br><b>Principles:</b> The students should explain principles of   | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>Overalls</li> <li>Gum boots</li> <li>Caps</li> <li>Plastic/gunny bags</li> <li>Sickle/knife</li> <li>Hand hoes</li> <li>Containers</li> <li>Plastic buckets</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|--|---|--|--|----------------------------|
|                                   |                                      |                                |   | Process Assessment   | Product/Services Assessment                   | Knowledge Assessment   |  |                            |
|                                   |                                      |                                | <p>machines to harvest pod crops</p> <p><b>Practical activity:</b><br/>Organise the students in manageable group to harvest pod crops</p> | <ul style="list-style-type: none"> <li>• Cut the stem and flowers</li> <li>• Pre-cool the harvested pod crops</li> <li>• Pack the harvested horticultural pod crop</li> <li>• Observe safety precaution</li> <li>• Clean the tools and equipment</li> <li>• Store the tools and equipment</li> </ul> |   | <p>harvesting horticultural pod crops</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>• Importance of harvesting mature pod horticultural crop</li> <li>• Proper timing of the harvesting of pod crops</li> <li>• Harvesting methods of pod crop</li> <li>• Factors to consider during harvesting of pod crops</li> <li>• Effect of harvesting pod crop under unfavourable conditions</li> </ul> <p><b>Circumstantial knowledge:</b> Detailed knowledge about safe handling of harvested crop</p> | <ul style="list-style-type: none"> <li>• Diggers</li> <li>• Reapers</li> <li>• Combine harvester</li> <li>• Mats</li> <li>• Plastic sheets</li> <li>• Baskets</li> <li>• Fork hoes</li> <li>• Machete</li> </ul> |                            |
|                                   |                                      | (g) Harvesting fruit crops     | <b>Brainstorming:</b><br>Guide the student to list procedures of  | <b>The student should be able to:</b>  | Harvest the fruit crops according to required | <b>Knowledge evidence:</b><br><b>Detailed knowledge</b>  | The following tools, equipments and safety gears are to be available:  |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria   |                             |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|---|-----------------------------|--|---|----------------------------|
|                                   |                                      |                                |   | Process Assessment  | Product/Services Assessment | Knowledge Assessment   |   |                            |
|                                   |                                      |                                | <p>harvesting fruit crops</p> <p><b>Practical work:</b><br/>Guide the students how to use tools, equipment and machines to harvest fruit crops</p> <p><b>Practical activity:</b><br/>Organise the students in manageable group to harvest fruit crops</p> | <ul style="list-style-type: none"> <li>• Select tools, equipment and machines</li> <li>• Identify harvesting methods for fruit crops</li> <li>• Pick the fruits</li> <li>• Harvest fruit crops</li> <li>• Pack the harvested fruit crop</li> <li>• Observe safety precaution</li> <li>• Clean the tools and equipment</li> <li>• Store the tools and equipment</li> </ul> | practices                   | <p><b>of:</b></p> <p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b> The student should explain how to harvest fruit crops</p> <p><b>Principles:</b> The students should explain principles of harvesting fruit crops</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• Proper timing of harvesting of fruits</li> <li>• Differences of Climacteric and tropical fruits</li> <li>• Importance of harvesting mature fruit crops</li> <li>• Harvesting methods of fruit crops</li> <li>• Factors to consider during fruit harvesting</li> <li>• Ripening of fruits</li> </ul> | <ul style="list-style-type: none"> <li>• Overalls</li> <li>• Gum boots</li> <li>• Caps</li> <li>• Plastic/gunny bags</li> <li>• Sickle/knife</li> <li>• Hand hoes</li> <li>• Containers</li> <li>• Plastic buckets</li> <li>• Diggers</li> <li>• Reapers</li> <li>• Combine harvester</li> <li>• Mats</li> <li>• Plastic sheets</li> <li>• Baskets</li> <li>• Fork hoes</li> <li>• Machete</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |  |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|--|--|--|--|---|----------------------------|
|                                   |                                      |                                |  | Process Assessment   | Product/Services Assessment                              | Knowledge Assessment   |   |                            |
|                                   |                                      |                                |  |  |  | by using hormones <ul style="list-style-type: none"> <li>Effect of harvesting fruit crop under unfavourable conditions</li> </ul><br><b>Circumstantial knowledge Detailed knowledge about Safe handling of harvested crop</b>  |   |                            |
|                                   |                                      | (h) Harvesting nut crops       | <b>Plenary discussion:</b><br>Guide the student to define nut crops and illustrate the procedures to harvest nut crops<br><br><b>Demonstration:</b><br>Demonstrate to the student how to use tools, equipment and machines to harvest nut crops<br><br><b>Group work:</b><br>Guide the | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select tools, equipment and machines</li> <li>Identify harvesting methods for nut crops</li> <li>Harvest nut crops</li> <li>pick the nut crop</li> <li>Pack the nut crop</li> <li>Observe safety</li> </ul> | Nut crops are harvested according to required procedures | <b>Knowledge evidence:</b><br><br><b>Detailed knowledge of:</b><br><br><b>Method used:</b> The student should explain how to harvest nut crops<br><br><b>Principles:</b> The student should explain principles of harvesting nut crops<br><br><b>Theories:</b> The student should explain: <ul style="list-style-type: none"> <li>Importance of harvesting mature horticultural nut crops</li> </ul> | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>Overalls</li> <li>Gum boots</li> <li>Caps</li> <li>Plastic/gunny bags</li> <li>Sickle/knife</li> <li>Hand hoes</li> <li>Containers</li> <li>Plastic buckets</li> <li>Diggers</li> <li>Reapers</li> <li>Combine harvester</li> <li>Mats</li> <li>Plastic sheets</li> <li>Baskets</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods                                  | Assessment Criteria   |                             |  | Training Requirements/<br>Suggested Resources                                    | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|--|---|-----------------------------|--|--|----------------------------|
|                                   |                                      |                                |  | Process Assessment  | Product/Services Assessment | Knowledge Assessment   |  |                            |
|                                   |                                      |                                | students in manageable groups to harvest nut crops at school environment | precaution <ul style="list-style-type: none"> <li>• Clean the tools and equipment</li> <li>• Store the tools and equipment</li> </ul> |                             | <ul style="list-style-type: none"> <li>• Harvesting methods of nut crops</li> <li>• Factors to consider during harvesting nut crops</li> <li>• Effect of harvesting nut crop under unfavourable conditions</li> </ul> <b>Circumstantial knowledge</b> Detailed knowledge about safe handling of harvested nut crop | <ul style="list-style-type: none"> <li>• Fork hoes</li> <li>• Machete</li> </ul> |                            |

### Form Three

**Table 5: Detailed Contents for Form Three**

| Module Title<br>(Main Competence)          | Unit Title<br>(Specific Competences) | Elements<br>(Learning Activities)       | Suggested Teaching and Learning Methods  | Assessment Criteria   |   |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|--|--------------------------------------|---|--|---|---|---|--|----------------------------|
|  |                                      |   |  | Process Assessment  | Product/Service Assessment  | Knowledge Assessment  |  |                            |
| 1.0 Managing water for horticultural crops | 1.1 Harvesting water for irrigation  | (a) Performing surface water harvesting | <p><b>Question and answer:</b><br/>Ask the student to identify and list procedures of harvesting surface water</p> <p><b>Guest speaker:</b><br/>Invite the irrigation technician to demonstrate to the student how to harvest surface water</p> <p><b>Practical activity:</b><br/>Guide the students in manageable groups to identify equipment and materials for harvesting</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select tools and equipment</li> <li>•Determine pH, turbidity and amount salinity</li> <li>•Determine amounts of physical and chemical impurities</li> <li>•Determine the crop to be grown</li> <li>•Determine soil types</li> <li>•Make water storage facilities</li> <li>•Maintain water storage facilities</li> <li>•Estimate quantity of water</li> <li>•Observe safety precaution</li> <li>•Clean the tools and equipment</li> <li>•Store the tools</li> </ul> | Surface water harvested according to water rules and regulations knowledge evidence | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to harvest surface water</p> <p><b>Principles:</b> The student should explain the principles of Harvesting surface water from different sources</p> <p><b>Theories:</b> The student should explain:<br/>•Importance of surface water harvesting<br/>•Sources of harvested water<br/>•Methods of harvesting surface water<br/>•Surface runoff</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Overalls</li> <li>• Plastic gloves</li> <li>• Spades</li> <li>• Hand hoes</li> <li>• Mattocks</li> <li>• pH meter</li> <li>• PVC pipes</li> <li>• Ranging poles</li> <li>• Tape measures</li> <li>• Ropes</li> <li>• Line level</li> <li>• Automatic level</li> <li>• Staff bar</li> <li>• Note book and Pen</li> <li>• Calculator</li> <li>• Spirit level</li> </ul> | 73                         |



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|  |  |   | surface water  | and equipment   |   | water harvesting<br>•Determination of quality harvested surface water<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Suitable methods of harvesting water<br>•Regulations of water bodies and rules for water harvesting   |  |  |
|  |  | (b)<br>Performing underground water harvest | <p><b>Group work:</b><br/>Guide the students in manageable groups to define, list, identify, and illustrate procedures of harvesting underground water</p> <p><b>Field visit:</b><br/>Organise the trip to visit irrigation department in order the student to learn underground water harvest</p> <p><b>Practical activity:</b></p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select tools and equipment</li> <li>•Determine pH, turbidity and salinity levels</li> <li>•Determine amounts of physical and chemical impurities</li> <li>•Determine the crop to be grown</li> <li>•Determine soil types</li> <li>•Make water storage facilities</li> <li>•Maintain water storage facilities</li> <li>•Estimate quantity of water</li> <li>•Observe safety precaution</li> </ul> | Underground water harvest performed according to water rules and regulations knowledge evidence | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should be able to explain how to harvest underground water<br/><b>Principles:</b> The student should explain the principles of harvesting underground water from different sources<br/><b>Theories:</b> The student should explain:<br/>•Importance of underground water<br/>•Sources of harvested water<br/>•Methods of</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Overalls</li> <li>• Plastic gloves</li> <li>• Spades</li> <li>• Hand hoes</li> <li>• Mattocks</li> <li>• pH meter</li> <li>• PVC pipes</li> <li>• Ranging poles</li> <li>• Tape measures</li> <li>• Ropes</li> <li>• Line level</li> <li>• Automatic level</li> <li>• Staff bar</li> <li>• Note book and Pen</li> <li>• Calculator</li> <li>• Spirit level</li> <li>• Pipe range</li> <li>• Screw driver</li> </ul> |  |

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|  |  |  | Organise the students in manageable groups to identify equipment and materials for harvesting underground water | <ul style="list-style-type: none"> <li>•Clean the tools and equipment</li> <li>•Store the tools and equipment</li> </ul> |  | harvesting underground water<br>•Determination of quality of harvested water<br><br><b>Circumstantial knowledge:</b><br>Detailed knowledge about: <ul style="list-style-type: none"> <li>•Suitable methods of harvesting water</li> <li>•Regulations of water bodies and rules for water harvesting</li> </ul> |  |  |
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|  |  | (c) Performing roof tapping | <p><b>Discussion:</b><br/>Lead the students to define roof tapping, identify, list, and illustrate procedures of roof tapping</p> <p><b>Practical demonstration :</b><br/>Demonstrate to the student how to perform roof tapping</p> <p><b>Practical activity:</b><br/>Organise the student in manageable groups to identify equipment and materials for roof tapping</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select tools and equipment</li> <li>•Determine pH, turbidity and amount salinity</li> <li>•Determine amounts of physical and chemical impurities</li> <li>•Determine the crop to be grown</li> <li>•Determine soil types</li> <li>•Make water storage facilities</li> <li>•Maintain water storage facilities</li> <li>•Estimate quantity of water</li> <li>•Observe safety precaution</li> <li>•Clean the tools and equipment</li> <li>•Store the tools and equipment</li> </ul> | Roof tapping performed according to water rules and regulations | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should be able to explain how to: harvest roof tapping water</p> <p><b>Principles:</b> The student should explain the principles of: Harvesting from different sources</p> <p><b>Theories:</b> The student should explain:<br/>•Importance of roof tapping water<br/>•Sources of harvested water<br/>•Types of water harvesting<br/>•Surface runoff water harvesting<br/>•Rooftop rainwater harvesting<br/>•Determination of quality of harvested water</p> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about:<br/>•Suitable methods of harvesting water<br/>•Regulations of</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Overalls</li> <li>• Plastic gloves</li> <li>• Spades</li> <li>• Hand hoes</li> <li>• pH meter</li> <li>• PVC pipes</li> <li>• Ranging poles</li> <li>• Tape measures</li> <li>• Ropes</li> <li>• Line level</li> <li>• Automatic level</li> <li>• Staff bar</li> <li>• Note book and Pen</li> <li>• Calculator</li> <li>• Spirit level</li> </ul> |  |
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|  |                           |  |   |   |   | water bodies and rules for water harvesting   |   |    |
|  | 1.2 Performing irrigation | (a) Performing furrow/surface irrigation | <p><b>Group work:</b><br/>Guide the students in manageable groups to define furrow/surface irrigation, identify, list, and illustrate procedure for conducting furrow/surface irrigation</p> <p><b>Practical work</b><br/>Organise the students in manageable groups to identify equipment and materials for conducting furrow/surface irrigation</p> <p><b>Practical demonstration :</b><br/>Demonstrate to the student how to carry out furrow/surface irrigation</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Organise working tools, equipment and machineries</li> <li>•Perform furrows/surface irrigation</li> <li>•Maintain irrigation tools, equipment and machineries</li> <li>•Maintain water storage facilities</li> <li>•Maintain irrigation canals</li> <li>•Observe safety precautions in handling tools and equipment</li> <li>•Clean irrigation facilities</li> <li>•Store irrigation facilities</li> </ul> | Furrow/surface irrigation are designed according to the required horticultural crop practices | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to carryout furrow/surface irrigation</p> <p><b>Principles:</b> The student should explain the principles of Irrigating field/farms.</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>•Importance of furrow/surface irrigation method</li> <li>•Type of water storage facilities</li> <li>•How to construct irrigation canals</li> </ul> <p><b>Circumstantial knowledge</b><br/>Detailed:<br/>Knowledge about observing farm/field irrigation facilities rules and regulations</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Overalls</li> <li>• Water storage facilities</li> <li>• Hose pipes</li> <li>• Furrow/irrigation canals</li> <li>• Hand hoes</li> <li>• Watering cans</li> <li>• PVC pipes</li> <li>• Screw driver</li> <li>• Filters</li> <li>• Spanner</li> </ul> | 94 |
|  |                           | (b)                                      | <b>Discussion:</b>  | <b>The student</b>  | Sprinkler   | <b>Knowledge</b>  | The following tools,  |    |

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|  |  | Performing sprinkler irrigation | <p>Lead the students in manageable groups to define sprinkler irrigation, identify, and illustrate procedures of conducting sprinkler irrigation</p> <p><b>Guest speaker:</b><br/>Invite the irrigation technician to demonstrate to the student how to carry out sprinkler irrigation</p> <p><b>Activity:</b><br/>Organise the students in manageable groups to identify equipment and materials for sprinkler irrigation</p> | <p><b>should be able to:</b></p> <ul style="list-style-type: none"> <li>•Organise working tools, equipment and machineries</li> <li>•Perform sprinkler irrigation</li> <li>•Maintain irrigation tools, equipment and machineries</li> <li>•Operate and maintain different types of water pumps</li> <li>•Maintain water storage facilities</li> <li>•Maintain sprinklers</li> <li>•Observe safety precautions in handling tools and equipment</li> <li>•Clean irrigation facilities</li> <li>•Store irrigation facilities</li> </ul> | irrigation designed according to the required horticultural crop practices | <p><b>evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to carry out sprinkler irrigation<br/><b>Principles:</b> The student should explain the principles of Irrigating field/farms.<br/><b>Theories:</b> The student should explain:<br/>•Importance of sprinkler irrigation method<br/>•How to conduct sprinkler irrigation<br/>•Advantages of sprinkler irrigation<br/>•How to maintain different types of water pumps.<br/>•Type of water storage facilities<br/>•How to construct irrigation sprinkler irrigation<br/><b>Circumstantial knowledge</b><br/>Detailed:<br/>Knowledge about observing farm/field irrigation facilities rules and</p> | <p>equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Overalls</li> <li>• Water storage facilities</li> <li>• Hose pipes</li> <li>• Water pumps</li> <li>• Sprinkler irrigation kit</li> <li>• Toolbox</li> <li>• Hand hoes</li> <li>• Misters</li> <li>• PVC pipes</li> <li>• Screw driver</li> <li>• Filters</li> <li>• Forks</li> <li>• Spanners</li> </ul> |  |
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|                            |                                 |                                |   |   |  | regulations.   |  |     |
|                            |                                 | (c) Performing drip irrigation | <b>Brainstorming :</b><br>Guide the student to define drip irrigation, identify, and list procedures of drip irrigation<br><br><b>Practical work:</b><br>Demonstrate to the student how to carry out drip irrigation<br><br><b>Practical activity:</b><br>Organise the student in manageable groups to identify equipment and materials for drip irrigation | <b>The student should be able to:</b><br>•Organise working tools, equipment and machineries<br>•Perform drip irrigation<br>•Maintain irrigation tools, equipment and machineries<br>•Operate and maintain different types of water pumps<br>•Maintain water storage facilities<br>•Maintain drippers<br>•Observe safety precautions in handling tools and equipment<br>•Clean irrigation facilities<br>•Store irrigation facilities | Drip irrigation<br>Designed according to the required horticultural crop practices | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b><br>The student should explain how to carry out drip irrigation<br><b>Principles:</b> The student should explain the principles of Irrigating field/farms.<br><b>Theories:</b> The student should explain:<br>•Importance of different irrigation methods<br>•Advantages of drip irrigation<br>•How to maintain different types of water pumps.<br>•Type of water storage facilities<br><b>Circumstantial knowledge</b><br>Detailed knowledge about observing farm/field irrigation facilities rules and regulations | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Overalls</li> <li>• Water storage facilities</li> <li>• Hose pipes</li> <li>• Water pumps</li> <li>• Drip irrigation kit</li> <li>• Toolbox</li> <li>• Hand hoes</li> <li>• PVC pipes</li> <li>• Screw driver</li> <li>• Filters</li> <li>• Pegs</li> <li>• Forks</li> <li>• Spanners</li> </ul> |     |
| 2.0 Transplanting seedling | 2.1 Performing transplanting of | (a) Performing hardening       | <b>Group work:</b><br>Assign the  | <b>The student should be able</b>   | Hardening of the seedling  | <b>Knowledge evidence:</b>   | The following tools, equipments and safety   | 104 |

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|  | seedlings | of the seedling               | <p>students in manageable groups to define hardening of seedling, and illustrate procedures of hardening of seedlings</p> <p><b>Practical work:</b><br/>Demonstrate to the student how to perform hardening of the seedlings</p> <p><b>Practical activity:</b><br/>Guide the students in manageable groups to identify equipment and materials of hardening the seedlings</p> | <p><b>to:</b></p> <ul style="list-style-type: none"> <li>•Select farm tools, equipment and machines</li> <li>•Select good quality seedlings</li> <li>-Hardening of seedlings</li> <li>-Reduction of watering in the seedling</li> <li>-Remove shading in the seedlings</li> <li>•Clean the tools and equipment</li> <li>•Store the tools and equipment</li> </ul> | performed according to horticultural crop practices | <p><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain the process of hardening of the seedlings</p> <p><b>Principles:</b> The student should explain the principles of hardening of seedlings</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>•Importance of hardening seedling</li> <li>•Types of seedlings</li> <li>•Procedure for transplanting seedlings</li> </ul> <p><b>Circumstantial knowledge:</b><br/><b>Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>•Transplanting seedlings requirements of various horticultural crops.</li> <li>•Rules and regulation of transplanting</li> </ul> | <p>gears are to be available:</p> <ul style="list-style-type: none"> <li>• Hand hoes</li> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• knife</li> <li>• Hand forks</li> <li>• Spades</li> <li>• Garden trowel/shovel</li> </ul> |  |
|  |           | (b) Preparing primary nursery | <b>Groupwork:</b><br>Lead the students in manageable  | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select farm</li> </ul>   | Primary nursery prepared according to horticultural | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b></p>   | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Hand hoes</li> </ul>  |  |

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|  |  |                                 | <p>groups to define primary nursery, identify, and illustrate procedures of preparing primary nursery</p> <p><b>Practical work:</b><br/>Demonstrate to the student how to prepare primary nursery</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to identify equipment and materials for preparation of primary nursery</p> | <p>tools, equipment and machines</p> <ul style="list-style-type: none"> <li>•Prepare materials for seedbed preparation</li> <li>•Prepare fruit plant nursery</li> <li>•Prepare vegetable plant nursery</li> <li>•Prepare ornamental plant nursery</li> <li>•Prepare medicinal and aromatic plant nursery</li> <li>•Prepare primary nursery</li> <li>•Clean the tools and equipment</li> <li>•Store the tools and equipment</li> </ul> | crop practices             | <p><b>Method used:</b> The student should explain how to prepare primary nursery</p> <p><b>Principles:</b> The student should explain the principles of nursery management</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>•Importance of primary nursery</li> <li>•Identification of different types of nurseries</li> <li>•Types of seedlings</li> <li>•Procedure for transplanting seedlings</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about:</p> <ul style="list-style-type: none"> <li>•preparing primary nursery requirements of various horticultural crops.</li> <li>•Rules and regulation of nursery</li> </ul> | <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Containers</li> <li>• Tape measure/ruler</li> <li>• Ropes</li> <li>• Hand forks</li> <li>• Spades</li> <li>• Garden trowel/shovel</li> <li>• Garden hand rake</li> <li>• Pegs</li> </ul> |  |
|  |  | (c) Preparing secondary nursery | <b>Discussion:</b><br>Guide the students to   | <b>The student should be able to:</b>   | Secondary nursery prepared | <b>Knowledge evidence:</b><br><b>Detailed</b>   | The following tools, equipments and safety gears are to be available:  |  |



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|  |  |               | <p>define, list, identify, and illustrate procedures of secondary nursery</p> <p><b>Practical work:</b><br/>Demonstrate to the student how to prepare secondary nursery</p> <p><b>Practical activity:</b><br/>Organise the student in manageable groups to identify equipment and materials for secondary nursery</p> | <ul style="list-style-type: none"> <li>•Select farm tools, equipment and machines</li> <li>•Prepare materials for seedbed preparation</li> <li>•Prepare fruit plant nursery</li> <li>•Prepare vegetable plant nursery</li> <li>•Prepare ornamental plant nursery</li> <li>•Prepare medicinal and aromatic plant nursery</li> <li>•Prepare secondary nursery</li> <li>•Select good quality seedlings</li> <li>•Clean the tools and equipment</li> <li>•Store the tools and equipment</li> </ul> | according to horticultural crop practices | <p><b>knowledge of:</b><br/><b>Method used:</b> The student should explain how to prepare secondary nursery</p> <p><b>Principles:</b> The student should explain the principles of nursery management</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>•Importance of nursery</li> <li>•Identification of different types of nurseries</li> <li>•Advantages of secondary nursery</li> <li>•Types of seedlings</li> <li>•Planting spacing</li> <li>•Procedure for transplanting seedlings</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about:</p> <ul style="list-style-type: none"> <li>•Transplanting seedlings requirements of various horticultural crops.</li> <li>•Rules and regulation of transplanting</li> </ul> | <ul style="list-style-type: none"> <li>• Hand hoes</li> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Containers</li> <li>• Tape measure/ruler</li> <li>• Ropes</li> <li>• Digging shovel</li> <li>• Hand forks</li> <li>• Spades</li> <li>• Garden trowel/shovel</li> <li>• Garden hand rake</li> <li>• Pegs</li> </ul> |  |
|  |  | (d) Preparing | <b>Brainstorming</b>  | <b>The student</b>   | Portable                                  | <b>Knowledge</b>  | The following tools,  |  |

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|  |                                  | portable nursery                  | <p><b>:</b> Guide the student to define portable nursery, identify, and illustrate procedures of preparing portable nursery</p> <p><b>Simulation:</b> Guide student to watch Video displaying preparation of portable nursery</p> <p><b>Practical activity:</b> Organise the students in manageable groups to identify equipment and materials for preparation of portable nursery</p> | <p><b>should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select farm tools, equipment and machines</li> <li>•Prepare materials for seedbed preparation</li> <li>•Prepare fruit plant nursery</li> <li>•Prepare vegetable plant nursery</li> <li>•Prepare ornamental plant nursery</li> <li>•Prepare medicinal and aromatic plant nursery</li> <li>•Prepare portable nursery</li> <li>•Select good quality seedlings</li> <li>•Clean the tools and equipment</li> <li>•Store the tools and equipment</li> </ul> | nursery prepared according to horticultural crop practices             | <p><b>evidence:</b></p> <p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b> The student should explain how to prepare portable nursery</p> <p><b>Principles:</b> The student should explain the principles of nursery management</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>•Importance of portable nursery</li> <li>•Identification of different types of nurseries</li> </ul> <p><b>Circumstantial knowledge:</b></p> <p>Detailed knowledge about:</p> <ul style="list-style-type: none"> <li>•Transplanting seedlings requirements of various horticultural crops.</li> <li>•Rules and regulation of transplanting</li> </ul> | <p>equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Hand hoes</li> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Containers</li> <li>• Tape measure/ruler</li> <li>• Ropes</li> <li>• knife</li> <li>• Digging shovel</li> <li>• Hand forks</li> <li>• Spades</li> <li>• Garden trowel/shovel</li> <li>• Hand fork</li> <li>• Garden hand rake</li> <li>• Laptop computer</li> <li>• Projector</li> <li>• Speakers</li> </ul> |     |
|  | 2.2 Perform pruning and training | (a) Conducting fruit tree pruning | <p><b>Peer teaching:</b> Guide the students in manageable groups to define pruning,</p>  | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select farm tools, equipment and machines</li> </ul>  | Fruit tree pruning conducted according to horticultural crop practices | <p><b>Knowledge evidence:</b></p> <p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b> The student should</p>   | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Overalls</li> <li>• Leather gloves</li> </ul>  | 126 |

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|  |  |                                | <p>identify, and illustrate procedures of fruit tree pruning</p> <p><b>Demonstration:</b><br/>Demonstrate to the student how to conduct fruit tree pruning</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to identify equipment and materials for pruning fruit tree available at school environment</p> | <ul style="list-style-type: none"> <li>•Select fruit trees to be pruned</li> <li>•Select vegetable fruit to be pruned</li> <li>•Disinfect pruning tool before and after every pruning.</li> <li>•Perform pruning of fruit trees</li> <li>•Perform training of fruit crops</li> <li>•Observe safety precautions when handling tools and equipment</li> <li>•Clean the tools and equipment</li> <li>•Store the tools and equipment</li> </ul> |                                   | <p>explain how to prune and train plants using required tools, equipment and machines.</p> <p><b>Principles:</b><br/>The student should explain principles of pruning and training of different plants</p> <p><b>Theories:</b><br/>The student should explain:</p> <ul style="list-style-type: none"> <li>•Identify fruit crops for pruning</li> <li>•Identify different types of pruning</li> <li>•Advantages of pruning</li> <li>•Difference between pruning</li> <li>•Reasons for pruning</li> <li>•System of pruning</li> <li>•Pruning techniques</li> <li>•Time of pruning</li> <li>•Proper way of pruning fruit trees</li> <li>•Maintain fruit trees</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about techniques for pruning</p> | <ul style="list-style-type: none"> <li>• Caps</li> <li>• Secateurs</li> <li>• Pruning shear</li> <li>• Rakes</li> <li>• Aerial pruners.</li> <li>• Handsaws.</li> <li>• Hedge shears.</li> <li>• Pruning knife</li> <li>• Pruning scissors</li> <li>• Ladder</li> <li>• Disinfectant</li> <li>• Wheel barrow</li> </ul> |  |
|  |  | (b) Conducting vegetable crops | <b>Brainstorming :</b><br>Lead the   | <b>The student should be able to:</b>   | Vegetable crops pruning conducted | <b>Knowledge evidence:</b><br><b>Detailed</b>   | The following tools, equipments and safety gears are to be available:   |  |

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|  |  | pruning | <p>student to Identify procedures for pruning vegetable crops</p> <p><b>Practical work:</b><br/>Guide the student to conduct vegetable crop pruning at the school environment</p> <p><b>Practical activity:</b><br/>Organise the student in manageable group to identify equipment and materials for pruning vegetable crop</p> | <ul style="list-style-type: none"> <li>•Select farm tools, equipment and machines</li> <li>•Select vegetable crop to be pruned</li> <li>•Disinfect pruning tool before and after every pruning.</li> <li>•Perform pruning of vegetables</li> <li>•Observe safety precautions when handling tools and equipment</li> <li>•Clean the tools and equipment</li> <li>•Store the tools and equipment</li> </ul> | according to horticultural crop practices | <p><b>knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to prune and train plants using required tools, equipment and machines.<br/><b>Principles:</b><br/>The student should explain principles of pruning and training of different plants<br/><b>Theories:</b><br/>The student should explain:</p> <ul style="list-style-type: none"> <li>•Identify vegetables crops for pruning</li> <li>•Identify vegetables crops for training</li> <li>•Identify different types of pruning</li> <li>•Advantages of pruning and training</li> <li>•Difference between pruning and training</li> <li>•Reasons for pruning</li> <li>•System of pruning</li> <li>•Pruning techniques</li> <li>•Time of pruning</li> <li>•Proper way of pruning vegetable</li> <li>•Maintain vegetables crops</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge</p> | <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• knife</li> <li>• Pruning shear</li> <li>• Pruning knife</li> <li>• Garden hand rake</li> <li>• Pruning scissors</li> <li>• Disinfectant</li> <li>• Wheel barrow</li> </ul> |  |
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|  |  |   |   |  |  | about rules and regulation for pruning  |  |  |
|  |  | (c) Conducting pruning of the hedges, shrubs and ornamental trees | <p><b>Discussion</b><br/>Lead the students to Define pruning, identify and illustrate procedures of pruning hedges, shrubs and ornamental trees</p> <p><b>Practical demonstration :</b><br/>Demonstrate to the student how to conduct pruning of hedges, shrubs and ornamental trees</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to identify equipment and materials for hedges, shrubs and ornamental trees</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select farm tools, equipment and machines</li> <li>•Disinfect pruning tool before and after every pruning.</li> <li>•Perform training of ornamental crops</li> <li>•Observe safety precautions when handling tools and equipment</li> <li>•Clean the tools and equipment</li> <li>•Store the tools and equipment</li> </ul> | Pruning of hedges, shrubs and ornamental trees conducted according to horticultural crop practices | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b><br/>The student should explain how to prune and train plants using required tools, equipment and machines.<br/><b>Principles:</b><br/>The student should explain principles of pruning and training of different plants<br/><b>Theories:</b><br/>The student should explain:<br/>•Identification of parts of ornamental crops for pruning<br/>•Identification of different types of pruning<br/>•Advantages of pruning<br/>•Differences between pruning and training<br/>•Reasons for pruning<br/>•System of pruning<br/>•Pruning techniques<br/>•Time of pruning</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Pruning shear</li> <li>• Aerial pruners.</li> <li>• Hedge shears.</li> <li>• Pruning knife</li> <li>• Garden hand rake</li> <li>• Pruning scissors</li> <li>• Ladder</li> <li>• Disinfectant</li> <li>• Wheel barrow</li> </ul> |  |

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|  |  |  |  |  |  | <p>•How to Maintain ornamental crops</p> <p><b>Circumstantial knowledge:</b></p> <p>Detailed knowledge about rejuvenation pruning</p>  |   |  |
|  |  | <p>(d)</p> <p>Conducting training of vine vegetables</p> | <p><b>Discussion:</b></p> <p>Guide the students in manageable groups to define training, and, vine vegetables, identify, list, and illustrate the procedures of training vine vegetables</p> <p><b>Practical demonstration :</b></p> <p>Show to the student how to conduct training of vine vegetables</p> <p><b>Practical activity:</b></p> <p>Organise the student in manageable group to identify equipment and materials for</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select farm tools, equipment and machines</li> <li>•Perform training of vine vegetables</li> <li>•Observe safety precautions when handling tools and equipment</li> <li>•Clean the tools and equipment</li> <li>•Store the tools and equipment</li> </ul> | <p>Training of vine vegetables conducted according to horticultural crop practices</p> | <p><b>Knowledge evidence:</b></p> <p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b></p> <p>The student should explain how to prune and train plants using required tools, equipment and machines.</p> <p><b>Principles:</b></p> <p>The student should explain principles of training of different plants</p> <p><b>Theories:</b></p> <p>The student should:</p> <ul style="list-style-type: none"> <li>•Identify vegetables crops for training</li> <li>•Identify different types training</li> <li>•Explain advantages of training</li> <li>•Differentiate between pruning and training</li> <li>•Explain reasons for training</li> <li>•Explain training techniques</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Ropes</li> <li>• pole</li> <li>• nails</li> <li>• claw hammer</li> <li>• Wheel barrow</li> </ul> |  |

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|  |  |  | training vine vegetables   |  |   | <ul style="list-style-type: none"> <li>• Explain the importance of training</li> <li>• Maintain vegetables crops</li> </ul> <b>Circumstantial knowledge:</b><br><b>Detailed knowledge about:</b><br>Rules and regulation for training   |   |  |
|  |  | (e)<br>Conducting training of fruits crops | <b>Group work:</b><br>Assign the students in manageable groups to identify, list, and illustrate procedures of training fruit crops<br><b>Practical demonstration :</b><br>Demonstrate to the student how to conduct training of fruit crops<br><br><b>Practical activity:</b><br>Organise the students in manageable groups to identify equipment and | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Select farm tools, equipment and machines</li> <li>• Perform training of fruit crops</li> <li>• Observe safety precautions when handling tools and equipment</li> <li>• Clean the tools and equipment</li> <li>• Store the tools and equipment</li> </ul> | Training of fruits crop conducted according to horticultural crop practices | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b><br>The student should explain how to prune and train plants using required tools, equipment and machines.<br><b>Principles:</b><br>The student should explain principles of training of different plants<br><b>Theories:</b><br>The student should: <ul style="list-style-type: none"> <li>• Identify fruits crops for training</li> <li>• Identify different types training</li> <li>• Explain advantages of training</li> <li>• Differentiate between pruning</li> </ul> | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Overalls</li> <li>• Gloves</li> <li>• Caps</li> <li>• Ropes</li> <li>• knife</li> <li>• wire</li> <li>• Ladder</li> <li>• Wheel barrow</li> </ul> |  |

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|  |  |  | materials for training fruit crops  |   |  | and training<br>Explain reasons for training<br>•Describe the importance of training<br>•Explain how to maintain fruit trees crops<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about rules and regulation for training of grapes  |  |  |
|  |  | (f)<br>Conducting training of ornamental crops | <b>Discussion:</b><br>Lead the students in manageable groups to define ornamental crops, identify, list, and illustrate procedures of training of ornamental crops<br><br><b>Practical work:</b><br>Guide the student how to conduct training of ornamental crops | <b>The student should be able to:</b><br>•Select farm tools, equipment and machines<br>•Perform training of ornamental crops<br>•Observe safety precautions when handling tools and equipment<br>•Clean the tools and equipment<br>•Store the tools and equipment | Training of ornamental crops conduct according to horticultural crop practices | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b><br>The student should explain how to train ornamental plants using required tools, equipment and machines.<br><b>Principles:</b><br>The student should explain principles of training of different plants<br><b>Theories:</b><br>The student should:<br>•Identify ornamental crops for training<br>•Identify different types training<br>•Explain advantages of training | The following tools, equipments and safety gears are to be available:<br>• Gum boots<br>• Overalls<br>• Gloves<br>• Caps<br>• Ropes<br>• knife<br>• wire<br>• pole<br>• Ladder<br>• Wheel barrow |  |



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|                       |                       |                                | <b>Practical activity:</b><br>Organise the student in manageable group to identify equipment and materials for training ornamental crops  |  |  | •Differentiate between pruning and training<br>•Explain the reasons for training<br>•Explain importance of training<br>•Explain how to maintain ornamental crops<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about rules and regulation for training   |   |    |
| 3.0 Controlling pests | 3.1 Controlling weeds | (a) Identifying types of weeds | <b>Brainstorming :</b><br>Guide the student to define, list and identify types of weeds, and illustrate procedures of controlling weeds<br><br><b>Field visit:</b><br>Organise the students to visit around the near farm and guide them to identify types of weeds<br><br><b>Practical</b> | <b>The student should be able to:</b><br>•Select tools and equipment<br>•Identify different types of weeds<br>•Classify types of weeds<br>•Observe safety precaution on using herbicides<br>•Clean tools and equipment<br>•Store tools and equipment | Weeds identified and controlled as per recommended standards | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The student should explain how to control different types of weeds<br><b>Principles:</b><br>The student should explain the principles of<br>•identification and classification of weed<br><b>Theories:</b><br>The student should explain:<br>•Characteristics of different weeds<br>•Types of weeds | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Gloves</li> <li>• Gumboots</li> <li>• Caps</li> <li>• Overalls</li> <li>• Samples of weeds</li> <li>• Note books</li> <li>• Hand hoes</li> <li>• Knife</li> <li>• Wheel barrows</li> </ul> | 84 |

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|  |  |                                      | <b>activity:</b><br>Organise the students in manageable groups to identify equipment and materials for controlling weeds  |  |  | •Effects of weeds to horticultural production.<br>•Importance of weed control<br><b>Circumstantial knowledge</b> Detailed knowledge about identification and classification of weeds  |  |  |
|  |  | (b) Performing cultural weed control | <b>Brainstorming :</b><br>Guide the students to define cultural weed control<br><br><b>Practical activity:</b><br>Guide the students in manageable groups to perform cultural weed control<br><br><b>Group work :</b><br>Organise the students into manageable groups to identify equipment and materials for cultural weed control | <b>The student should be able to:</b><br>•Select tools and equipment<br>•Carry out mulching<br>•Observe safety precautions when using herbicides<br>•Clean tools and equipment<br>•Store tools and equipment | Cultural weed control performed as per recommended standards | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The student should explain how to control weed by cultural method<br><b>Principles:</b><br>The student should explain the principles of observing rules and regulations regarding using of cultural techniques in weed control<br><b>Theories:</b><br>The student should explain:<br>•The importance of cultural weed control<br>•Cultural control measures.<br><b>Circumstantial knowledge:</b> | The following tools, equipments and safety gears are to be available:<br>• Gloves<br>• Gumboots<br>• Caps<br>• Masks<br>• Safety glasses<br>• Overalls<br>• Shovels<br>• rake<br>• tractor<br>• mower<br>• Hand hoes |  |

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|  |  |   |   |   |  | Detailed knowledge about <b>the</b> identification and classification of weeds   |   |  |
|  |  | (c)<br>Performing mechanical weed control | <b>Brainstorming :</b><br>Lead the student to define mechanical weed control, identify, and list procedures of mechanical weed control<br><br><b>Practical demonstration :</b><br>Demonstrate to the student how to perform mechanical weed control<br><br><b>Practical activity:</b><br>Organise the students in manageable groups to identify equipment and materials for mechanical weed control | <b>The student should be able to:</b><br>•Select tools and equipment<br>•Carryout mechanical control<br>•Observe safety precautions when using mechanical methods<br>•Clean tools and equipment<br>•Store tools and equipment | Mechanical weed control performed as per recommended standards | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The student should explain how to control weed mechanically<br><b>Principles:</b><br>The student should explain the principles of observing rules and regulations regarding the use of mechanical methods in weed control<br><b>Theories:</b><br>The student should explain:<br>•The importance of mechanical weed control<br>•Mechanical control measures<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about identification and classification of | The following tools, equipments and safety gears are to be available:<br>• Gloves<br>• Gumboots<br>• Caps<br>• Masks<br>• Safety glasses<br>• Overalls<br>• Weeders<br>• Harrows<br>• Disc ploughs<br>• Mould ploughs<br>• Hand hoes<br>• Garden forks<br>• Rakes<br>• Mowers<br>• Tractors |  |

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|  |  |                                      |  |  |  | weeds  |   |  |
|  |  | (d) Performing chemical weed control | <p><b>Group work:</b><br/>Guide the students in manageable groups to define chemical weed control, identify, and illustrate procedures for chemical weed control</p> <p><b>Practical Demonstration:</b><br/>Demonstrate to the student how to perform chemical weed control</p> <p><b>Practical activity:</b><br/>Organise the student in manageable group to identify equipment and materials for chemical weed control</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>• Select tools and equipment</li> <li>• Calibrate herbicide rates</li> <li>• Apply herbicide to horticultural crop fields</li> <li>• Carry out chemical control</li> <li>• Observe safety precautions when using herbicides</li> <li>• Clean tools and equipment</li> <li>• Store tools and equipment</li> </ul> | Chemical weed control performed as per recommended standards | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to control weeds using chemicals<br/><b>Principles:</b><br/>The student should explain the principles of<br/>• observing rules and regulations regarding using of chemicals in weed control<br/><b>Theories:</b><br/>The student should explain:<br/>• Chemical control measures<br/>• Types of herbicides<br/><b>Circumstantial knowledge:</b><br/>Detailed knowledge about identification and classification of weeds</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Gloves</li> <li>• Gumboots</li> <li>• Caps</li> <li>• Masks</li> <li>• Safety glasses</li> <li>• Overalls</li> <li>• Knapsack sprayer</li> <li>• Weed herbariums</li> <li>• Note books</li> <li>• Herbicides</li> <li>• Boom sprayer tractor</li> </ul> |  |
|  |  | (e) Performing manual                | <p><b>Group work:</b><br/>Lead the students in</p>   | <p><b>The student should be able to:</b></p>   | Manual weed control performed as                             | <p><b>Knowledge evidence:</b><br/><b>Detailed</b></p>  | <p>The following tools, equipments and safety gears are to be available:</p>  |  |

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|  |                              | weed control                          | manageable groups to define manual weed control, and identify procedures for manual weed control<br><br><b>Practical work:</b><br>Guide the student to perform manual weed control in a nearby horticultural field.<br><br><b>Practical activity:</b><br>Organise the students in manageable groups to identify equipment and materials for manual weed control | <ul style="list-style-type: none"> <li>•Select tools and equipment</li> <li>•Perform manual weeding</li> <li>•Carry out mulching</li> <li>•Carryout biological control</li> <li>•Observe safety precaution on using manual</li> <li>•Clean tools and equipment</li> <li>•Store tools and equipment</li> </ul> | per recommended standards                                     | <b>knowledge of:</b><br><b>Method used:</b> The student should explain how to control weed by manual method<br><b>Principles:</b><br>The student should explain the principles of<br>•observing rules and regulations regarding using of manual in weed control<br><b>Theories:</b><br>The student should explain:<br>•Importance of manual weed control<br><b>Circumstantial knowledge</b> Detailed knowledge about Noxious weeds | <ul style="list-style-type: none"> <li>•Gloves</li> <li>•Gumboots</li> <li>•Caps</li> <li>•Masks</li> <li>•Safety glasses</li> <li>•Overalls</li> <li>•Shovels</li> <li>•Hand hoe</li> <li>•Note books</li> <li>•Garden forks</li> <li>•Wheel barrows</li> </ul> |    |
|  | 3.2 Controlling insect pests | (a) Identifying types of insect pests | <b>Discussion:</b><br>Lead the students to define insect pests, and identify types of insect pests  | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>•Select tools and equipment and machineries</li> <li>•Identify different types of vegetable</li> </ul>   | Types of insect pests identified as per recommended standards | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The student should explain how to identify crop insect  | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>•Masks</li> <li>•Gloves</li> <li>•Gumboots</li> <li>•Overalls</li> <li>•Safety glasses</li> </ul>   | 90 |

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|  |  |  | <p><b>Practical demonstration :</b><br/>Show the student how to identify types of insect pests</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to identify equipment and materials used for identifying types of insect pests</p> | <p>crop insect pests</p> <ul style="list-style-type: none"> <li>•Identify different types of fruit crop insect pests</li> <li>•Identify different types of spices crop insect pests</li> <li>•Identify different types of ornamental crop insect pests</li> <li>•Identify symptom infestation</li> <li>•Calibrate amount of insecticide</li> <li>•Apply insecticide to the infested horticultural crops</li> <li>•Observe safety precautions</li> <li>•Clean tools and equipment</li> <li>•Store tools and equipment</li> </ul> |  | <p>pests.</p> <p><b>Principles:</b><br/>The student should explain the principles observing rules and regulations regarding controlling of horticultural insect pest</p> <p><b>Theories:</b><br/>The student should explain:</p> <ul style="list-style-type: none"> <li>•Classes of crop pests</li> <li>•Common insect pests in horticultural crops</li> <li>•Identification method of insect pests</li> <li>•Insect pest control</li> <li>•Effects of insect pests on horticultural production</li> <li>•Insect pest forecasting</li> <li>•Types of insecticides</li> <li>•Damages/effects caused by crop insect pests in different horticultural crops.</li> </ul> <p><b>Circumstantial knowledge Detailed</b></p> | <ul style="list-style-type: none"> <li>• Samples of common crop insect pests</li> </ul> |  |
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|  |  |   |  |   |   | <b>knowledge about</b><br>Different methods of insect pest's control.  |   |  |
|  |  | (b) Performing mechanical insect pest control | <p><b>Discussion:</b><br/>Guide the students to define mechanical insect pest control, identify, and illustrate procedures for mechanical insect pest control</p> <p><b>Practical demonstration :</b><br/>Demonstrate to the student how to perform mechanical insect pest control in the horticultural crops at school environment</p> <p><b>Practical work:</b><br/>Organise the students in manageable groups to identify</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select tools and equipment and machineries</li> <li>•Classify crop pests</li> <li>•Calibrate amount of insecticide</li> <li>•Apply insecticide to the infested horticultural crops</li> <li>•Carry out mechanical control method</li> <li>•Observe safety precautions</li> <li>•Clean tools and equipment</li> <li>•Store tools and equipment</li> </ul> | Mechanical insect pest control performed as per recommended standards | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to control mechanically crop insect pests.<br/><b>Principles:</b><br/>The student should explain the principles observing rules and regulations regarding controlling of horticultural insect pest<br/><b>Theories:</b><br/>The student should :<br/>•Classify crop pests<br/>•Identify methods of insect pests<br/>•Explain control measures for using mechanical insect pest control<br/>•Explain importance of mechanical insect pest control.<br/><b>Circumstantial knowledge</b></p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Masks</li> <li>• Gloves</li> <li>• Gumboots</li> <li>• Overalls</li> <li>• Safety glasses</li> <li>• Insect traps</li> <li>• Containers</li> <li>• Collection jars</li> <li>• Knapsack sprayer</li> <li>• Hand sprayer</li> </ul> |  |

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|  |  |  | equipment and materials for mechanical insect pest control  |   |   | <b>Detailed knowledge about:</b><br>Different methods of insect pest control.  |  |  |
|  |  | (c)<br>Performing biological insect pest control | <p><b>Peer teaching:</b><br/>Guide the students to define biological insect pest control, and identify biological ways of insect pest control</p> <p><b>Simulation:</b><br/>Show to the student short video clip how to perform biological insect pest control</p> <p><b>Practical activity:</b><br/>Organise the students in manageable group to identify equipment and materials for biological insect pest control</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select tools and equipment and machineries</li> <li>•Carry out biological control method</li> <li>•Observe safety precautions</li> <li>•Clean tools and equipment</li> <li>•Store tools and equipment</li> </ul> | Biological insect pest control performed as per recommended standards | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to control insect pests biologically</p> <p><b>Principles:</b><br/>The student should explain the principles observing rules and regulations regarding controlling of horticultural insect pest</p> <p><b>Theories:</b><br/>The student should explain:</p> <ul style="list-style-type: none"> <li>• Methods of insect pest control</li> <li>•Control measure by using biological control</li> <li>•Importance of biological insect pest control</li> </ul> <p><b>Circumstantial knowledge</b> Detailed knowledge about</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Masks</li> <li>• Gloves</li> <li>• Gumboots</li> <li>• Overalls/overcoat</li> <li>• Safety glasses</li> <li>• Insect traps</li> <li>• Bacillus thuringiensis</li> <li>• petri dishes</li> <li>• Samples of common crop insect pests</li> </ul> |  |



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|  |  |   |   |   |  | different methods of insect pest's control.  |  |  |
|  |  | (d) Performing chemical insect pest control | <p><b>Discussion:</b><br/>Lead the students to define chemical insect, identify, and illustrate procedures of chemical insect pest control methods</p> <p><b>Demonstration:</b><br/>Demonstrate to the student how to perform chemical insect pest control</p> <p><b>Practical activity:</b><br/>Organise the student in manageable groups to identify equipment and materials for chemical insect pest control</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select tools and equipment and machineries</li> <li>•Classify crop pests</li> <li>•Calibrate amount of insecticide</li> <li>•Apply insecticide to the infested horticultural crops</li> <li>•Carry out chemical insect control</li> <li>•Observe safety precautions</li> <li>•Clean tools and equipment</li> <li>•Store tools and equipment</li> </ul> | Chemical insect control performed as per recommended standards | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to control crop insect pests by using chemical method</p> <p><b>Principles:</b><br/>The student should explain the principles observing rules and regulations regarding controlling of horticultural insect pest</p> <p><b>Theories:</b><br/>The student should explain:</p> <ul style="list-style-type: none"> <li>•Control measure by using chemical control</li> <li>•Importance of chemical insect controlling method</li> </ul> <p><b>Circumstantial knowledge</b> Detailed knowledge about Different methods of insect pest's control</p> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Masks</li> <li>• Gloves</li> <li>• Gumboots</li> <li>• Overalls</li> <li>• Safety glasses</li> <li>• Containers</li> <li>• Knapsack sprayer</li> <li>• Hand sprayer</li> <li>• Samples of common crop insect pests</li> <li>• Insecticide</li> </ul> |  |
|  |  | (e) Performing Integrated                   | <p><b>Discussion:</b><br/>Guide the</p>   | <b>The student should be able</b>   | Integrated pest management                                     | <b>Knowledge evidence:</b>   | The following tools, equipments and safety   |  |

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|  |                               | Pest Management method (IPM)    | <p>students in manageable groups to define Integrated Pest Management (IPM), identify and list procedures for performing Integrated Pest Management (IPM)</p> <p><b>Practical demonstration :</b><br/>Demonstrate to the student how to perform Integrated Pest Management method (IPM)</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to identify equipment and materials for Integrated Pest Management method (IPM)</p> | <p><b>to:</b></p> <ul style="list-style-type: none"> <li>•Select tools and equipment and machineries</li> <li>•Carry out Integrated Pest Management (IPM) method</li> <li>•Observe safety precautions</li> <li>•Clean tools and equipment</li> <li>•Store tools and equipment</li> </ul> | method (IPM) performed as per recommended standards | <p><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to control crop insect pests by using (IPM)</p> <p><b>Principles:</b><br/>The student should explain the principles of observing rules and regulations regarding controlling of horticultural insect pest</p> <p><b>Theories:</b><br/>The student should explain:</p> <ul style="list-style-type: none"> <li>•Control measure by using integrated pest management control</li> <li>•Importance of integrated pest management</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about different methods of insect pest's control.</p> | <p>gears are to be available:</p> <ul style="list-style-type: none"> <li>• Masks</li> <li>• Gloves</li> <li>• Gumboots</li> <li>• Overalls</li> <li>• Safety glasses</li> <li>• Containers</li> <li>• Collection jars</li> <li>• Samples of damaged plants or plant parts</li> <li>• Samples of common crop insect pests</li> </ul> |    |
|  | 3.3 Controlling crop diseases | (a) Identifying type of disease | <b>Brainstorming :</b><br>Lead the   | <b>The student should be able to:</b>  | Horticultural type of diseases identified as per    | <b>Knowledge evidence:</b><br><b>Detailed</b>  | The following tools, equipments and safety gears are to be available:   | 81 |

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|  |  |  | <p>students to define crop disease, and list examples of crop diseases</p> <p><b>Field visit:</b><br/>Organise the students to make trip to learn how to identify types of crop diseases</p> <p><b>Practical activity:</b><br/>Organise the student in manageable groups to identify equipment and materials for identification of types of crop diseases</p> | <ul style="list-style-type: none"> <li>•Select tools and equipment</li> <li>•Collect samples of infected plants or plant parts.</li> <li>•Identify crop disease</li> <li>•Classify crop diseases</li> <li>•Identify common signs and symptoms of infected horticultural plant/plant parts.</li> <li>•Clean tools and equipment</li> <li>•Store tools and equipment</li> </ul> | recommended standards | <p><b>knowledge of:</b><br/><b>Method used:</b> The student should explain how to identify type of diseases.<br/><b>Principles:</b><br/>The student should explain processes involved in Identification and classification of crop diseases.<br/><b>Theories:</b><br/>The student should explain:</p> <ul style="list-style-type: none"> <li>•Types of diseases in fruits</li> <li>•Types of diseases in vegetables</li> <li>•Types of diseases in Flowers</li> <li>•Types of diseases in Spices</li> <li>•Disease causing agents in vegetables, fruits, spices and ornamental crops</li> <li>•Effects of crop diseases to horticultural crop production</li> <li>•Signs and symptoms of crop disease in fruits</li> <li>•Signs and symptoms of fungal diseases in</li> </ul> | <ul style="list-style-type: none"> <li>•Gloves</li> <li>•Gumboots</li> <li>•Overalls</li> <li>•Masks</li> <li>•Hand lens</li> <li>•Safety glasses</li> <li>•Microscope</li> <li>•Samples of infected plants</li> </ul> |  |
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|  |  |  |   |  |   | vegetable, fruits, spices and ornamental crops<br>•Signs and symptoms of bacterial diseases in ornamental, vegetable, fruits and spices<br>• Signs and symptoms of viral disease in spices, vegetables, fruits and ornamental crops<br>•Disease prevention measures<br>•Disease control measures<br>• Disease triangle<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about identification and classification of horticultural diseases |  |  |
|  |  | (b) Performing chemical control of disease | <b>Discussion:</b><br>Guide the students in manageable groups to define chemical control of disease, list, identify, and illustrate | <b>The student should be able to:</b><br>•Select tools and equipment<br>•Carry out chemical diseases Control<br>•Clean tools and equipment<br>•Store tools and | Chemical control disease performed as per recommended standards | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The student should explain how to use chemical measures of controlling diseases.<br><b>Principles:</b>  | The following tools, equipments and safety gears are to be available:<br>• Gloves<br>• Gumboots<br>• Overalls<br>• Masks<br>• Safety glasses<br>• Knapsack sprayer<br>• Samples of infected plants |  |

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|  |  |  | <p>procedures of chemical control of disease</p> <p><b>Practical demonstration :</b><br/>Demonstrate to the student how to perform chemical control of disease</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to identify equipment and materials for chemical control of disease</p> | equipment  |  | <p>The student should explain process involved in Identification and classification of crop diseases.</p> <p><b>Theories:</b><br/>The student should explain:<br/>production</p> <ul style="list-style-type: none"> <li>•Disease control measures</li> <li>• Disease triangle</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about identification and classification of horticultural diseases.</p> | <ul style="list-style-type: none"> <li>• Pesticides (Fungicides, Bactericides and Nematicides)</li> </ul>   |  |
|  |  | (c)<br>Performing cultural and biological control of disease | <p><b>Brainstorming :</b><br/>Guide the students to identify examples of cultural and biological control of disease</p> <p><b>Simulation</b></p>  | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select tools and equipment</li> <li>•Collect samples of infected plants or plant parts.</li> <li>•Carry out cultural and biological disease control method</li> </ul> | Cultural and biological control disease performed as per recommended standards | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to use cultural and biological measures of controlling diseases.</p> <p><b>Principles:</b></p>  | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Gloves</li> <li>• Gumboots</li> <li>• Overalls</li> <li>• Masks</li> <li>• water</li> <li>• watering can</li> <li>• ICT clip</li> </ul> |  |

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|  |   |   | <p>Guide students to observe a short Video clip showing how to perform cultural and biological control of disease</p> <p><b>Practical activity:</b><br/>Organise the student in manageable group to identify equipment and materials for cultural control of disease</p> | <p>•Clean tools</p>   |   | <p>The student should explain process involved in Identification and classification of crop diseases.</p> <p><b>Theories:</b><br/>The student should explain:</p> <ul style="list-style-type: none"> <li>•Disease prevention measures</li> <li>•Disease control measures</li> <li>• Disease triangle</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about identification and classification of horticultural diseases.</p> |   |    |
|  | 3.4 Controlling vertebrate (vermin) pests | (a) Identifying types of vertebrate pests | <p><b>Discussion:</b><br/>Lead the students in manageable groups to define vertebrate pests, and identify types of vertebrate pests</p> <p><b>Field visit:</b><br/>Organise the student trip around the</p>  | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select tools and equipment</li> <li>•Classify vertebrate pests</li> <li>•Select tools, equipment and for vertebrate control</li> <li>•Clean tools and equipment</li> <li>•Store tools and equipment</li> </ul> | Types of vertebrate pests identified as per recommended standards | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to control different types of vertebrates.</p> <p><b>Principles:</b><br/>The student should explain the principles of controlling vermin as per rules and regulations.</p>   | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Masks</li> <li>• Gloves</li> <li>• Gumboots</li> <li>• Safety glasses</li> <li>• Overalls</li> <li>• Traps</li> <li>• Repellents</li> <li>• Bait boxes</li> <li>• Samples of common crop vermins</li> </ul> | 81 |

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|  |  |   | farm and guide them to identify types of vertebrate pests available<br><br><b>Practical activity:</b><br>Organise the student in manageable groups to identify equipment and materials for identification of types of vertebrate pests              |  |   | <b>Theories:</b><br>The student should explain:<br>•Importance of identifying vertebrate<br>•Damages/effects caused by vertebrate pests<br><br><b>Circumstantial knowledge;</b><br>Detailed knowledge about identification and classification of crop vermin pests.   |   |
|  |  | (b) Performing mechanical vertebrate pest control | <b>Discussion:</b><br>Lead the students to define mechanical vertebrate pest control<br><br><b>Practical work:</b><br>Guide the students in manageable groups to practice how to perform mechanical vertebrate pest control<br><br><b>Practical</b> | <b>The student should be able to:</b><br>•Select tools and equipment<br>•Identify common horticultural vertebrate pests<br>•Classify vertebrate pests<br>•Select tools, equipment and for vertebrate control<br>•Carry out mechanical vertebrate control<br>•Clean tools and equipment<br>•Store tools and equipment | Mechanical vertebrate pest control performed as per recommended standards | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The student should explain how to control different types of vertebrate pests.<br><b>Principles:</b><br>The student should explain the principles of controlling vertebrate as per rules and regulations.<br><b>Theories:</b><br>The student should explain: | The following tools, equipments and safety gears are to be available:<br>• Masks<br>• Gloves<br>• Gumboots<br>• Safety glasses<br>• Overalls<br>• Traps<br>• Repellents<br>• Bait boxes<br>• Samples of common crop vertebrate. |

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|  |  |  | <b>activity:</b><br>Organise the students in manageable groups to identify equipment and materials used to perform mechanical vertebrate pest control   |  |   | •Types of mechanicals used to control vertebrate<br>•Importance of identifying vertebrate<br><b>Circumstantial knowledge;</b><br>Detailed knowledge about identification and classification of crop vermin pests.   |   |  |
|  |  | (c)<br>Performing chemical vermin pest control | <b>Discussion:</b><br>Lead the students in manageable groups to define chemical vermin pest control, identify, list, and illustrate procedures of chemical vermin pest control<br><br><b>Demonstration:</b><br>Demonstrate to the student how to perform chemical vermin pest control<br><br><b>Practical activity:</b> | <b>The student should be able to:</b><br>•Select tools and equipment<br>•Identify common horticultural vermin pests<br>•Select tools, equipment and for vermin control<br>•Control vermin by chemical method<br>•Clean tools and equipment<br>•Store tools and equipment | Chemical vermin pest control performed as per recommended standards | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The student should explain how to control different types of vermins.<br><b>Principles:</b><br>The student should explain the principles of controlling vermin as per rules and regulations.<br><b>Theories:</b><br>The student should explain:<br>•Types of vermin pests<br>• Vermin pest control<br>•Common vermin pest in horticultural crops<br>•Effects of vermin | The following tools, equipments and safety gears are to be available:<br>• Masks<br>• Gloves<br>• Gumboots<br>• Safety glasses<br>• Overalls<br>• Repellents<br>• Bait boxes<br>• Samples of common crop vermins. |  |



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|  |  |   | Organise the students in manageable groups to identify equipment and materials for chemical vermin pest control   |   |   | pests on horticultural production<br>•Signs of vermin infestation<br>•Types of chemicals used to control vermin<br>•Importance of identifying vermin<br>•Damages/effects caused by vermin pests<br><b>Circumstantial knowledge;</b><br>Detailed knowledge about identification and classification of crop vermin pests. |   |
|  |  | (d) Performing cultural vermin control method | <b>Group work:</b><br>Assign students in a manageable group to Define cultural vermin control method, and identify procedures for performing cultural vermin control method<br><br><b>Simulation:</b><br>Organise students in | <b>The student should be able to:</b><br>•Select tools and equipment<br>•Identify common horticultural vermin pests<br>•Control vermin by cultural method<br>•Clean tools and equipment<br>•Store tools and equipment | Cultural vermin control method performed as per recommended standards | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The student should explain how to control different types of vermin by cultural method<br><b>Principles:</b><br>The student should explain the principles of controlling vermin as per rules and regulations.                        | The following tools, equipments and safety gears are to be available:<br>• Masks<br>• Gloves<br>• Gumboots<br>• Safety glasses<br>• Overalls<br>• Traps<br>• Repellents<br>• Bait boxes<br>• Samples of common crop vermins<br>• ICT clip |

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|                          |                          |                            | manageable groups and display to them a video clip showing cultural vermin control method<br><br><b>Practical activity:</b><br>Organise the students in manageable groups to identify equipment and materials for cultural vermin control method |  |  | <b>Theories:</b><br>The student should explain:<br>• Vermin pest control<br>• Common vermin pest in horticultural crops<br>• Importance of identifying vermin pests<br><b>Circumstantial knowledge;</b><br>Detailed knowledge about identification and classification of crop vermin pests.                   |  |    |
| 4.0 Managing farm inputs | 4.1 Preparing farm input | (a) Determining farm input | <b>Brainstorming :</b><br>Lead the students to Define farm input, and list examples of farm inputs.<br><br><b>Practical activity:</b><br>Organise the students in manageable groups to identify farm input equipment and                         | <b>The student should be able to:</b><br>• Select working tools and safety gear<br>• Identify farm inputs<br>• Classify farm inputs<br>• Interpret manufacturers manuals<br>• Determine type of horticultural crops to be grown.<br>• Identify types of fertilizers<br>• Identify types of | Farm input determined as per recommended procedures and guidelines | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The student should explain how to determine farm input<br><b>Principles:</b> The student should explain the principles of determine farm inputs.<br><b>Theories:</b> The student should explain:<br>• Types of farm inputs | The following tools, equipments and safety gears are to be available:<br>• Overcoats<br>• Overall<br>• Gum boots<br>• Gloves<br>• Masks<br>• Fertilizer/manure<br>• Spades<br>• Seeds<br>• Pesticides<br>• Manufacturer's manual | 36 |

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|  |  |  | materials  | seeds<br>•Identify types of pesticides<br>•Observe safety precautions when handling farm inputs<br>•Clean tools and equipment<br>•Store tools and equipment   |   | <ul style="list-style-type: none"> <li>•Preparation of farm inputs</li> <li>•Recommended applications of farm inputs</li> <li>•Farm inputs per element area</li> <li>•Interpretation of Manufacturers manual</li> </ul> <p><b>Circumstantial knowledge:</b><br/><b>Detailed knowledge about:</b></p> <ul style="list-style-type: none"> <li>•Safety precautions of using farm inputs</li> <li>•Manufactures instructions of various farm inputs</li> </ul> |  |  |
|  |  | (b) Calculating amounts of inputs required per unit area for fruit crops | <p><b>Brainstorming :</b><br/>Lead the students to define, list, identify and illustrate procedures of amount of input required per unit area</p> <p><b>Peer teaching:</b><br/>Review sessions where students work together to calculate the required inputs for different</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select working tools and safety gear</li> <li>•Calculate the amount of fertilizer per unit area</li> <li>•Calculate the amount of pesticides per unit area</li> <li>•Calculate the amount of seeds per unit area.</li> <li>•Observe safety precautions when handling farm</li> </ul> | Amount inputs required per unit area for fruit as per recommended procedures and guidelines | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to calculate amount of input per unit area<br/><b>Principles:</b> The student should explain the principles of preparing farm inputs<br/><b>Theories:</b> The student should explain:<br/>•Recommended applications of farm</p>   | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overcoats</li> <li>• Overall</li> <li>• Gum boots</li> <li>• Gloves</li> <li>• Masks</li> <li>• Fertilizer/manure</li> <li>• Seeds</li> <li>• Pesticides</li> <li>• Manufacturer's manual</li> </ul> |  |

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|  |  |  | fruit crops under specific conditions<br><br><b>Practical work:</b><br>Organise the students in manageable groups to identify equipment and materials for amount of input required per unit area   | inputs<br>•Clean tools and equipment<br>•Store tools and equipment  |  | inputs<br>•Farm inputs per unit area<br>•Interpretation of Manufacturers manual<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Safety precautions of using farm inputs<br>•Manufactures instructions of various farm inputs  |  |
|  |  | (c)<br>Calculating amount of inputs required per unit area for leafy vegetable crops | <b>Discussion:</b><br>Guide the students in manageable groups to define, list, identify, and illustrate the procedures of calculating amount of input required per unit area of leafy vegetable crops<br><br><b>Collaborative learning:</b><br>Pair students with different knowledge levels and | <b>The student should be able to:</b><br>•Select working tools and safety gear<br>•Interpret manufacturers manuals<br>•Calculate the amount of fertilizer per unit area.<br>•Calculate the amount of pesticides per unit area.<br>•Calculate the amount of seeds per unit area.<br>•Observe safety precautions when | Amount of input required per unit area for leafy vegetable calculated as per recommended procedures and guidelines | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The student should be able explain how to store various crops<br><b>Principles:</b> The student should explain the principles of preparing farm inputs.<br><b>Theories:</b> The student should explain:<br>•Preparation of farm inputs<br>•Recommended applications of farm | The following tools, equipments and safety gears are to be available:<br>• Overcoats<br>• calculator<br>• Gum boots<br>• Gloves<br>• Masks<br>• Fertilizer/manure<br>• container<br>• Seeds<br>• Pesticides<br>• Manufacturer's manual |

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|  |  |   | <p>encourage them to calculate amount of input required per unit area leafy vegetable</p> <p><b>Practical activity:</b><br/>Organise the student in manageable groups to identify equipment and materials for amount of input</p>                                       | <p>handling farm inputs</p> <ul style="list-style-type: none"> <li>•Clean tools and equipment</li> <li>•Store tools and equipment</li> </ul>  |   | <p>inputs</p> <ul style="list-style-type: none"> <li>•Farm inputs per unit area</li> <li>•Interpretation of Manufacturers manual</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about:</p> <ul style="list-style-type: none"> <li>•Safety precautions of using farm inputs</li> <li>•Manufactures instructions of various farm inputs</li> </ul>                                  |  |  |
|  |  | (d) Calculating amounts of inputs required per unit area for spices | <p><b>Brainstorming :</b><br/>Guide the students to define, list, identify and illustrate procedures of amount of input required per unit area of spice crops</p> <p><b>Collaborative learning:</b><br/>Pair students with different knowledge levels and encourage</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select working tools and safety gear</li> <li>•Interpret manufacturers manuals</li> <li>•Determine type of horticultural crops to be grown.</li> <li>•Calculate the amount of fertilizer per unit area.</li> <li>•Calculate the amount of pesticides per unit</li> </ul> | Amount input required per unit area for spices as per recommended procedures and guidelines | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to calculate amount input required per unit area of spices<br/><b>Principles:</b> The student should explain the principles of preparing farm inputs.<br/><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>•Preparation of farm</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overcoats</li> <li>• Container</li> <li>• Gum boots</li> <li>• Gloves</li> <li>• Masks</li> <li>• Fertilizer/manure</li> <li>• Calculator</li> <li>• Seeds</li> <li>• Pesticides</li> <li>• Manufacturer's manual</li> </ul> |  |

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|  |  |  | <p>them to calculate amount of input required per unit area for spice crops</p> <p><b>Practical work:</b><br/>Organise the students in manageable group to identify equipment and materials amount of input</p>   | <p>area.</p> <ul style="list-style-type: none"> <li>•Calculate the amount of seeds per unit area.</li> <li>•Observe safety precautions when handling farm inputs</li> <li>•Clean tools and equipment</li> <li>•Store tools and equipment</li> </ul>  |  | <p>inputs</p> <ul style="list-style-type: none"> <li>•Recommended applications of farm inputs</li> <li>•Farm inputs per unit area</li> <li>•Interpretation of Manufacturers manual</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about:</p> <ul style="list-style-type: none"> <li>•Safety precautions of using farm inputs</li> <li>•Manufactures instructions of various farm inputs</li> </ul> |  |  |
|  |  | <p>(e)<br/>Calculating amounts of inputs required per unit area for ornamental .</p> | <p><b>Peer teaching:</b><br/>Lead the students to define, list, identify and illustrate procedures of amount of input required per unit area for ornamental</p> <p><b>Hands-On work:</b><br/>Allow students to work on a physical garden where they need to calculate the inputs required</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select working tools and safety gear</li> <li>•Interpret manufacturers manuals</li> <li>•Calculate the amount of fertilizer per unit area.</li> <li>•Calculate the amount of pesticides per unit area.</li> <li>•Calculate the amount of seeds per unit area.</li> <li>•Observe safety</li> </ul> | <p>Amount input required per unit area for ornamental as per recommended procedures and guidelines</p> | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to calculate amount input required per unit area of ornamental<br/><b>Principles:</b> The student should explain the principles of preparing farm inputs.<br/><b>Theories:</b> The student should explain:<br/>•Preparation of farm</p>  | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overcoats</li> <li>• Container</li> <li>• Gum boots</li> <li>• Gloves</li> <li>• Masks</li> <li>• Fertilizer/manure</li> <li>• Calculator</li> <li>• Seeds</li> <li>• Pesticides</li> <li>• Manufacturer's manual</li> </ul> |  |

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|  |                                     |                                 | per unit area for ornamental<br><br><b>Practical activity:</b><br>Organise the students in manageable groups to identify equipment and materials amount of input  | precautions when handling farm inputs<br>•Clean tools and equipment<br>•Store tools and equipment  |  | inputs<br>•Recommended applications of farm inputs<br>•Farm inputs per unit area<br>•Interpretation of Manufacturers manual<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about:<br>•Safety precautions of using farm inputs<br>•Manufactures instructions of various farm inputs   |   |    |
|  | 4.2 Managing storage of farm inputs | (a) Performing storage of seeds | <b>Brainstorming :</b><br>Lead the students to identify, and illustrate procedures of storage seeds<br><br><b>Practical demonstration :</b><br>Demonstrate to the student how to perform storage of seeds<br><br><b>Practical activity:</b><br>Organise the | <b>The student should be able to:</b><br>•Select working tools, equipment and safety gear<br>•Determine storage method for different inputs<br>•Clean the storage facility<br>•Fumigate the storage facility<br>•Keep labels of stored inputs<br>•Make inventory of stored inputs<br>•Store farm inputs<br>•Observe expiring dates of inputs | Seeds stored as per recommended procedures | <b>Knowledge evidence:</b><br><b>Detailed knowledge of Method used:</b> The student should explain how to store different types of seeds<br><b>Principles:</b><br>The student should explain the principles of:<br>•Handling different types of farm inputs.<br>•Observing farm inputs rules and regulations<br><b>Theories:</b><br>The student should explain: | The following tools, equipments and safety gears are to be available:<br>• Overalls<br>• Gum boots<br>• Masks<br>• Gloves<br>• Pallets<br>• Gunny bags<br>• Plastic bags<br>• Bags of seeds<br>• Bottles of pesticides<br>• Fumigation facilities | 18 |

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|  |  |                                      | students in manageable groups to identify equipment and materials for seed storage   | <ul style="list-style-type: none"> <li>•Clean working tools and equipment</li> <li>•Store working tools and equipment</li> </ul>  |   | <ul style="list-style-type: none"> <li>•Importance of storing farm inputs safely</li> <li>•Methods of farm input storage</li> <li>•Causes of input quality deterioration in store</li> <li>•Different types of farm inputs</li> <li>•Conditions for safe storage of inputs</li> <li>•Safe disposal of input packages</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about:</p> <ul style="list-style-type: none"> <li>•Safety precautions in storing farm inputs</li> <li>•Safe disposal of containers and bags</li> </ul> |   |  |
|  |  | (b) Performing storage of pesticides | <p><b>Discussion:</b><br/>Lead the students to identify ways of storing pesticides</p> <p><b>Practical work:</b><br/>Set up a physical storage area where students practice arranging pesticides</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select working tools, equipment and safety gear</li> <li>•Determine storage method for different inputs</li> <li>•Clean the storage facility</li> <li>•Keep labels of stored inputs</li> <li>•Make inventory of stored inputs</li> </ul> | Storage of pesticides performed as per recommended procedures | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of Method used:</b> The student should explain how to store different types of pesticides</p> <p><b>Principles:</b><br/>The student should explain the principles of:</p> <ul style="list-style-type: none"> <li>•Handling different types of farm inputs.</li> <li>•Observing farm</li> </ul>  | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overalls</li> <li>• Gum boots</li> <li>• Masks</li> <li>• Gloves</li> <li>• Pallets</li> <li>• Gunny bags</li> <li>• Plastic bags</li> <li>• Bags of seeds</li> <li>• Bottles of pesticides</li> <li>• Fumigation facilities</li> </ul> |  |



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|  |  |   | <p>according to safety standards</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to identify equipment and materials for storage of pesticides</p>   | <ul style="list-style-type: none"> <li>•Observe expiring dates of inputs</li> <li>•Clean working tools and equipment</li> <li>•Store working tools and equipment</li> </ul>   |   | <p>inputs rules and regulations</p> <p><b>Theories:</b><br/>The student should explain:</p> <ul style="list-style-type: none"> <li>•Importance of storing farm inputs safely</li> <li>•Methods of farm input storage</li> <li>•Conditions for safe storage of inputs</li> <li>•Safe disposal of input packages</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about:</p> <ul style="list-style-type: none"> <li>•Safety precautions in storing farm inputs</li> <li>•Safe disposal of containers and bags</li> </ul> |   |
|  |  | <p>(c)</p> <p>Performing storage of fertilizers</p> | <p><b>Group work:</b><br/>Assign students in manageable groups to identify procedures of storing fertilizers</p> <p><b>Interactive field visits:</b><br/>Organise field trips/village outreach to agricultural facilities</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select working tools, equipment and safety gear</li> <li>•Determine storage method for different inputs</li> <li>•Clean the storage facility</li> <li>•Fumigate the storage facility</li> <li>•Keep labels of stored inputs</li> </ul> | <p>Storage of fertilizer as per recommended procedures.</p> | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to store different types of fertilizer<br/><b>Principles:</b><br/>The student should explain the principles of:</p> <ul style="list-style-type: none"> <li>•Handling different types of farm inputs.</li> <li>•Observing farm</li> </ul>   | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overalls</li> <li>• Gum boots</li> <li>• Masks</li> <li>• Gloves</li> <li>• Pallets</li> <li>• Gunny bags</li> <li>• Plastic bags</li> <li>• Bags of seeds</li> <li>• Bottles of pesticides</li> <li>• Fumigation facilities</li> </ul> |

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|  |  |  | <p>storage units to observe proper fertilizer storage practices in action</p> <p><b>Practical activity:</b><br/>Organise the student in manageable groups to identify equipment and materials for storage of fertilizer</p> | <ul style="list-style-type: none"> <li>•Make inventory of stored inputs</li> <li>•Store farm inputs</li> <li>•Observe expiring dates of inputs</li> <li>•Clean working tools and equipment</li> <li>•Store working tools and equipment</li> </ul>   |  | <p>inputs rules and regulations</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>•Importance of storing farm inputs safely</li> <li>•Methods of farm input storage</li> <li>•Different types of farm inputs</li> <li>•Conditions for safe storage of inputs</li> <li>•Safe disposal of input packages</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about:</p> <ul style="list-style-type: none"> <li>•Safety precautions in storing farm inputs</li> <li>•Safe disposal of containers and bags</li> </ul> |  |     |
| 5.0 Performing post-harvest activities | 5.1 Handling harvested horticultural crops | (a) Performing drying of horticultural crops | <p><b>Discussion:</b><br/>Lead the students to define, list, identify and illustrate procedures of dry horticultural crops</p> <p><b>Practical demonstration :</b></p>  | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select and prepare tools, equipment and materials</li> <li>•Sort harvested vegetables</li> <li>•Sort fruits</li> <li>•Grade fruits</li> </ul> <p>Dry horticultural crops<br/>Grade harvested crops</p> | Drying of horticultural crops performed according to required procedures | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to drying horticultural crops</p> <p><b>Principles:</b> The student should explain the principles pre-harvest handling</p>  | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overcoats</li> <li>• Baskets</li> <li>• Gloves</li> <li>• Trays</li> <li>• Wash basins</li> <li>• Cushioning material</li> <li>• Polyshrink containers</li> <li>• Small trailer</li> <li>• Trolleys</li> </ul> | 110 |

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|  |  |  | <p>Conduct live demonstrations to the students how to dry different types of horticultural crops</p> <p><b>Practical activity:</b><br/>Organise the student in manageable groups to identify equipment and materials for drying horticultural crops</p> |  |   | <p>of perishable horticultural crops</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>•Importance of drying horticultural crops</li> <li>•Pre harvest factors affecting quality crops</li> <li>•The quantitative and qualitative losses in perishables</li> <li>•Types of containers for handling crops</li> <li>•Methods of reduction of metabolic rates of crops</li> <li>•Methods of reducing water loss in fruits and vegetables</li> </ul> <p><b>Circumstantial knowledge</b> Detailed knowledge about: handling of the harvested horticultural crops</p> | <ul style="list-style-type: none"> <li>• Driers</li> <li>• Packing cartons</li> <li>• Plastic containers</li> <li>• Wooden containers</li> </ul>  |  |
|  |  | (b) Performing sorting and grading horticultural crops | <p><b>Discussion:</b><br/>Guide the students in manageable groups to define, identify tools and illustrate</p>  | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select and prepare tools, equipment and materials</li> <li>•Sort harvested</li> </ul> | Sorting and grading performed according to required practices | <p><b>Knowledge evidence:</b></p> <p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b> The student should explain how to sort and grade</p>   | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overcoats</li> <li>• Baskets</li> <li>• Gloves</li> <li>• Trays</li> <li>• Wash basins</li> </ul> |  |

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|  |  |  | <p>procedures of sorting and grading horticultural crops</p> <p><b>Simulation:</b><br/>Apply computer visual system to provides a hands-on experience in a classroom or workshop setting to the student how to sort and grade horticultural crops</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to identify equipment and materials for sorting and grading horticultural crops</p> | <p>vegetables</p> <ul style="list-style-type: none"> <li>•Sort fruits</li> <li>•Grade fruits</li> </ul>                   |  | <p>horticultural crops</p> <p><b>Principles:</b><br/>The student should explain the principles pre-harvest handling of perishable horticultural crops</p> <p><b>Theories:</b><br/>The student should explain:</p> <ul style="list-style-type: none"> <li>•Importance handling harvested of horticultural crops</li> <li>•Types of containers for handling crops</li> <li>•Distinguish between the climacteric and non-climacteric fruits and vegetable</li> </ul> <p><b>Circumstantial knowledge</b> Detailed knowledge about handling of the harvested horticultural crops</p> | <ul style="list-style-type: none"> <li>• Cushioning material</li> <li>• Polyshrink containers</li> <li>• Washing area</li> <li>• Small trailer</li> <li>• Trolleys</li> <li>• Packing cartons</li> <li>• Fruit graders</li> <li>• Plastic containers</li> <li>• Wooden containers</li> <li>• Automated Sorting Machines</li> </ul> |  |
|  |  | (c) Performing packing horticultural crops | <p><b>Discussion:</b><br/>Guide the students to define, list tools, identify</p>   | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select and prepare tools,</li> </ul> | Packing performed according to required procedures | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The</p>   | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overcoats</li> <li>• Baskets</li> </ul>  |  |

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|  |  |                               | <p>materials and illustrate procedures of packing horticultural crops</p> <p><b>Guest speaker:</b><br/>Invite the industry expert to train the student how to pack horticultural crops</p> <p><b>Practical activity:</b><br/>Organise the student in manageable group to identify equipment and materials for packing horticultural crops</p> | <p>equipment and materials<br/>Pack harvested horticultural crops</p>   |   | <p>student should explain how to pack harvested horticultural crops</p> <p><b>Principles:</b><br/>The student should explain the principles pre-harvest handling of perishable horticultural crops</p> <p><b>Theories:</b><br/>The student should explain:</p> <ul style="list-style-type: none"> <li>•Importance handling harvested of horticultural crops</li> <li>•Various packing materials and transport</li> <li>•Types of containers for handling crops</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about handling of the harvested horticultural crops</p> | <ul style="list-style-type: none"> <li>• Gloves</li> <li>• Trays</li> <li>• Cushioning material</li> <li>• Polyshrink containers</li> <li>• Small trailer</li> <li>• Trolleys</li> <li>• Packing cartons</li> </ul> <p>Fruit graders</p> <ul style="list-style-type: none"> <li>• Plastic containers</li> <li>• Wooden containers</li> </ul> |    |
|  | 5.2 Performing post-harvest treatments | (a) Conducting heat treatment | <p><b>Question and answer:</b><br/>Lead the students to define, identify tools, and illustrate procedures of heat treatment</p>   | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select working tools, equipment and safety gear</li> <li>•Apply Pre cooling treatments in</li> </ul> | Heat treatment conducted according to required procedures | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to: perform heat treatment for</p>  | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overcoats</li> <li>• Overalls</li> <li>• Rubber gloves</li> <li>• Safety boots</li> <li>• Safety clear glasses</li> </ul>  | 91 |

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|  |  |                                   | <p><b>Interactive Tutorials:</b><br/>Instructors can integrate interactive tutorials that allow students to conduct the heat treatment process</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to identify equipment and materials for heat treatment</p> | <p>harvested crops</p> <ul style="list-style-type: none"> <li>•Apply heat treatments in harvested crops</li> <li>•Observe safety precaution</li> <li>•Clean tools, equipment and workplace</li> <li>•Store tools and equipment</li> </ul> |   | <p>different horticultural crops</p> <p><b>Principles:</b> The student should explain the principles postharvest treatments of the horticultural crops</p> <p><b>Theories:</b> The student should explain:</p> <ul style="list-style-type: none"> <li>•Importance of heat treatment of harvested crops</li> <li>•Different types of heat treatments</li> <li>•Importance of pre cooling of the harvested crops</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about safety precautions while performing post-harvest treatments</p> | <ul style="list-style-type: none"> <li>•Gloves</li> <li>•Masks</li> <li>•Refrigerators</li> <li>•Cold rooms</li> <li>•Cold boxes</li> </ul>  |  |
|  |  | (b) Conducting chemical treatment | <p><b>Brainstorm:</b><br/>Guide the student to define, list types of chemical treatment, illustrate procedures of chemical</p>   | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select working tools, equipment and safety gear</li> <li>•Apply different types of hormones in harvested crops</li> </ul>                            | Chemical treatment conducted according to required procedures | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to: conduct chemical treatment for different</p>  | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>•Overcoats</li> <li>•Overalls</li> <li>•Rubber gloves</li> <li>•Safety boots</li> <li>•Safety clear glasses</li> <li>•Masks</li> </ul> |  |

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|  |  |                               | <p>treatment</p> <p><b>Practical demonstration :</b><br/>Demonstrate to the student how to conduct chemical treatment</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to identify equipment and materials for chemical treatment</p> | <ul style="list-style-type: none"> <li>•Use different chemicals to treat harvested crops</li> <li>•Handle different machines</li> <li>•Observe safety precaution</li> <li>•Clean tools, equipment and workplace</li> <li>•Store tools and equipment</li> </ul> |   | <p>horticultural crops</p> <p><b>Principles:</b><br/>The student should explain the principles postharvest treatments of the horticultural crops</p> <p><b>Theories:</b><br/>The student should explain:</p> <ul style="list-style-type: none"> <li>•Importance of chemical heat treatment of harvested crops</li> <li>•Suitability of various treatment of the harvested crops</li> <li>•Chemicals treatment on harvested horticultural crops</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about handling chemicals while performing post-harvest treatments</p> | <ul style="list-style-type: none"> <li>• Debi relic acid</li> <li>• Ethelyne</li> </ul>   |  |
|  |  | (c) Conducting cold treatment | <p><b>Group work:</b><br/>Assign the students to define cold treatment, list tools and identify method of cold treatment</p>  | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Select working tools, equipment and safety gear</li> <li>•Apply Pre cooling treatments in</li> </ul>  | Cold treatment conducted according to required procedures | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to conduct cold treatment for</p>   | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overcoats</li> <li>• Overalls</li> <li>• Rubber gloves</li> <li>• Safety boots</li> <li>• Safety clear glasses</li> </ul> |  |

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|  |   |                                    | <p><b>Practical demonstration :</b><br/>Demonstrate to the student how to conduct cold treatment</p> <p><b>Practical work:</b><br/>Organise the students in manageable groups to identify equipment and materials for cold treatment</p> | <p>harvested crops</p> <ul style="list-style-type: none"> <li>•Handle different machines</li> <li>•Observe safety precaution</li> <li>•Clean tools, equipment and workplace</li> <li>•Store tools and equipment</li> </ul> |   | <p>different horticultural crops</p> <p><b>Principles:</b><br/>The student should explain the principles postharvest treatments of the horticultural crops</p> <p><b>Theories:</b><br/>The student should explain:</p> <ul style="list-style-type: none"> <li>•Importance of cold treatment of the harvested crops</li> <li>•Suitability of various treatment of the harvested crops</li> <li>•Importance of pre cooling of the harvested crops</li> <li>•Factors influencing quality of the harvested products</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about safety handling while performing post-harvest treatments.</p> | <ul style="list-style-type: none"> <li>• Masks</li> <li>• Refrigerators</li> <li>• Cold rooms</li> <li>• Cold boxes</li> </ul>  |     |
|  | 5.3 Storing different horticultural crops | (a) Practicing traditional storage | <p><b>Brainstorming :</b><br/>Lead the student to define and identify</p>  | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Importance of storage of harvested crops</li> </ul>   | Traditional storage practiced according to required rules and regulations | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should</p>  | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overcoats</li> <li>• Overalls</li> <li>• Rubber gloves</li> </ul> | 101 |



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|  |  |  | <p>methods of traditional storage</p> <p><b>Video clip:</b><br/>Show step-by-step instructions to the students to learn how to practise traditional storage</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to identify equipment and materials for traditional storage</p> | <ul style="list-style-type: none"> <li>• Different types of storage structures</li> <li>• Qualities of good storage structures for horticultural crops</li> <li>• Suitability of various methods to store the horticultural harvested crops</li> <li>• Factors causing deterioration of horticultural crops</li> <li>• Ripening of fruits for proper storage</li> <li>• Procedure of making charcoal cooler</li> </ul> |  | <p>explain how to store different types of horticultural products by using traditional method</p> <p><b>Principles:</b><br/>The student should explain techniques of storing the horticultural products</p> <p><b>Theories:</b><br/>The student should explain:</p> <ul style="list-style-type: none"> <li>• Importance of storage of harvested crops</li> <li>• Different types of storage structures</li> <li>• Qualities of good storage structures for horticultural crops</li> <li>• Procedure of making charcoal cooler</li> <li>• Factors causing deterioration of horticultural crops</li> <li>• Ripening of fruits for proper storage</li> <li>• Techniques used in delaying ripening of fruits</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about</p> | <ul style="list-style-type: none"> <li>• Safety boots</li> <li>• Safety clear glasses</li> <li>• Refrigerator</li> <li>• Atmospheric storage equipment's</li> <li>• Charcoal</li> <li>• Pieces of wood</li> <li>• Polythene sheet</li> <li>• Wire mesh</li> <li>• Nails</li> </ul> |  |
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|  |  |  |   |   |   | storing of horticultural produce and products  |  |  |
|  |  | (b) Performing canning of horticultural products | <p><b>Question and answer:</b><br/>Guide the student to define, identify method, and illustrate procedures of canning in horticultural products</p> <p><b>Field visit:</b><br/>Organise a trip visit of any horticultural industry unit the student to learn how to perform canning of horticultural products</p> <p><b>Practical activity:</b><br/>Organise the student in manageable group to identify equipment and materials for canning of horticultural</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>•Importance of storage of harvested crops</li> <li>•Different types of storage structures</li> <li>•Qualities of good storage structures for horticultural crops</li> <li>•Importance of reducing respiration in storage of crops</li> <li>•Usage of disinfectants in storage structures of the horticultural crops</li> <li>•Factors causing deterioration of horticultural crops</li> </ul> | Canning performed according to required rules and regulations | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to store different types of horticultural products by canning method</p> <p><b>Principles:</b><br/>The student should explain techniques of storing the horticultural products</p> <p><b>Theories:</b><br/>The student should explain:</p> <ul style="list-style-type: none"> <li>•Importance of storage of harvested crops</li> <li>•Different types of storage structures</li> <li>•Qualities of good storage structures for horticultural crops</li> <li>•Suitability of various methods to store the horticultural harvested crops</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Overcoats</li> <li>• Overalls</li> <li>• Rubber gloves</li> <li>• Safety boots</li> <li>• Safety clear glasses</li> <li>• Refrigerator</li> <li>• Polythene sheet</li> </ul> |  |

|  |  |                                    |   |   |  |   |  |  |
|--|--|------------------------------------|---|---|--|---|--|--|
|  |  |                                    | products  |   |  | <ul style="list-style-type: none"> <li>•Importance of reducing respiration in storage of crops</li> <li>•Usage of disinfectants in storage structures of the horticultural crops</li> <li>•Factors causing deterioration of horticultural crops</li> </ul> <b>Circumstantial knowledge:</b><br>Detailed knowledge about storing of horticultural produce and products |  |  |
|  |  | (c)<br>Performing bottling storage | <b>Discussion:</b><br>Lead the students to define, identify types and illustrate procedures of bottling storage<br><br><b>Video-based Learning:</b><br>Video clip showing to the students how to perform bottling storage | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>•Importance of storage of harvested crops</li> <li>•Different types of storage structures</li> <li>•Qualities of good storage structures for horticultural crops</li> <li>•Usage of disinfectants in storage structures</li> </ul> | Bottling storage performed according to required rules and regulations | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The student should explain how to store different types of horticultural products by using bottling storage<br><b>Principles:</b><br>The student should explain techniques of storing the  | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Overcoats</li> <li>• Overalls</li> <li>• Rubber gloves</li> <li>• Safety boots</li> <li>• Safety clear glasses</li> <li>-Paper boxes</li> <li>• Refrigerator</li> <li>• Atmospheric storage equipment</li> <li>• bottles</li> <li>• Polythene sheet</li> <li>• trays</li> </ul> |  |

|                        |                              |                |   |  |  |  |           |  |
|------------------------|------------------------------|----------------|---|--|--|--|-----------|--|
|                        |                              |                | <b>Practical activity:</b><br>Organise the student in manageable group to identify equipment and materials for bottling storage | of the horticultural crops<br>•Ripening of fruits for proper storage |  | horticultural products<br><b>Theories:</b><br>The student should explain:<br>•Importance of storage of harvested crops<br>•Different types of storage structures<br>•Qualities of good storage structures for horticultural crops<br>•Suitability of various methods to store the horticultural harvested crops<br>•Usage of disinfectants in storage structures of the horticultural crops<br>•Ripening of fruits for proper storage<br>•Techniques used in delaying ripening of fruits<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about storing of horticultural crops and products | • pallets |  |
| Implementing a project | Designing and carrying out a | Carrying out a |   |  |  |  |           |  |

|  |              |                 |  |  |  |  |  |  |
|--|--------------|-----------------|--|--|--|--|--|--|
|  | project work | project<br>work |  |  |  |  |  |  |
|--|--------------|-----------------|--|--|--|--|--|--|

## Form Four

**Table 6:** Detailed Contents for Form Four

| Module Title<br>(Main Competence)               | Unit Title<br>(Specific Competences)         | Elements (Learning Activities)            | Suggested Teaching and Learning Methods   | Assessment Criteria   |  |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|---|--|---|---|---|--|---|--|----------------------------|
|   |  |   |   | Process Assessment  | Product/Services Assessment                                      | Knowledge Assessment  |  |                            |
| 1.0 Performing processing of horticulture crops | 1.1 Processing different horticultural crops | (a) Preparing horticultural crop products | <p><b>Discussion:</b><br/>Guide the students to define methods of horticultural crop products preparation</p> <p><b>Practical demonstration:</b><br/>Show the students how to use tools, equipment and machines to prepare horticultural crop products</p> <p><b>Role play:</b><br/>Organise the students in manageable groups to practice how to prepare horticultural crop products</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>Select working tools and equipment</li> <li>Identify techniques to prepare horticultural crop products</li> <li>Perform pre-cooling of horticultural products</li> <li>Pack the prepared crop produce</li> <li>Observe safety precautions</li> <li>Clean tools</li> </ul> | Horticultural crops are prepared by using recommended practices. | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to prepare horticultural crop produce using available tools, equipment, machineries and materials<br/><b>Principles:</b> The students should explain the principles of preparing horticultural crop products.<br/><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>Importance of preparing horticultural crop produce</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>Laboratory coats</li> <li>Caps</li> <li>Gum boots</li> <li>Fridges/freezers</li> <li>Crates</li> <li>Boxes (Plastic/wooden)</li> <li>Sacks</li> <li>Gunny bags</li> <li>Plastic bags</li> <li>Bucket</li> <li>Cold rooms</li> <li>Ventilated rooms</li> <li>Salt</li> <li>Sugar</li> <li>Vinegar</li> <li>Smoke</li> <li>Containers</li> <li>Polythene sheets</li> </ul> | 90                         |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|--|---|---|---|----------------------------|
|                                   |                                      |                                |   | Process Assessment   | Product/Services Assessment   | Knowledge Assessment  |   |                            |
|                                   |                                      |                                |   | and equipment  |   | <ul style="list-style-type: none"> <li>Different horticultural preserving methods</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about:</p> <ul style="list-style-type: none"> <li>Safe handling of prepared crops tools, equipment and machineries</li> <li>Safe handling of preserving tools, equipment and machineries</li> </ul> | <ul style="list-style-type: none"> <li>Sterilizers</li> <li>Preservatives</li> <li>Portable water</li> <li>Electric/solar driers</li> <li>Choppers</li> <li>Knives</li> <li>Sieve</li> <li>Mats</li> <li>Pots</li> <li>Tray</li> <li>Pressing machine</li> <li>Weighing scale</li> </ul>  |                            |
|                                   |                                      | (b) Preparing juice            | <p><b>Group work:</b><br/>Organise the students to describe tips of juice preparation from various crops</p> <p><b>Practical demonstration:</b><br/>Demonstrate to the student how to use tools, equipment and machines to prepare juice from various crops</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>Select working tools and equipment</li> <li>Identify juice preparing methods</li> <li>Determine procedure for juice making from horticultural</li> </ul> | Prepare juice from horticultural crops according to required practices. | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The students should explain how to prepare juice from horticultural crop produce using available tools, equipment, machineries and materials<br/><b>Principles:</b><br/>The student should</p>  | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>Laboratory coats</li> <li>Caps</li> <li>Gum boots</li> <li>Overcoats</li> <li>Fridges/freezers</li> <li>Crates</li> <li>Glasses / Cups</li> <li>Boxes (Plastic/wooden)</li> <li>Filters</li> <li>Sacks</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |                             |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|--|-----------------------------|---|---|----------------------------|
|                                   |                                      |                                |   | Process Assessment   | Product/Services Assessment | Knowledge Assessment  |   |                            |
|                                   |                                      |                                | <b>Practical activity:</b><br>Organise the students in manageable groups to prepare juice | crops <ul style="list-style-type: none"> <li>• Determine preservation methods</li> <li>• Preserve fruits and vegetables by using chemicals.</li> <li>• Pack prepared juice</li> <li>• Observe safety precautions</li> <li>• Clean tools and equipment</li> </ul> |                             | explain the principles of preparing juice from horticultural crop produce.<br><b>Theories:</b> The students should explain: <ul style="list-style-type: none"> <li>• Types of juice from horticultural crops</li> <li>• Method of preparing juice from horticultural crops</li> <li>• Factors to consider in juice making</li> <li>• Procedure of making juice from horticultural crops</li> <li>• Preserving method for juice</li> </ul> <b>Circumstantial knowledge:</b><br>Detailed knowledge about: <ul style="list-style-type: none"> <li>• Safe handling of processing tools, equipment and machineries</li> <li>• Observe hygiene</li> </ul> | <ul style="list-style-type: none"> <li>• Gunny bags</li> <li>• Plastic bags</li> <li>• Bucket</li> <li>• Cold rooms</li> <li>• Ventilated rooms</li> <li>• Salt</li> <li>• Sugar</li> <li>• Vinegar</li> <li>• Containers</li> <li>• Polythene sheets</li> <li>• Sterilizers</li> <li>• Preservatives</li> <li>• Water</li> <li>• Electric/solar driers</li> <li>• Choppers</li> <li>• Blenders</li> <li>• Knives</li> <li>• Sieve</li> <li>• Mats</li> <li>• Pots</li> <li>• Tray</li> <li>• Pressing machine</li> <li>• Weighing scale</li> </ul> |                            |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)              | Suggested Teaching and Learning Methods  | Assessment Criteria   |  |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|---|--|---|--|---|---|----------------------------|
|                                   |                                      |   |  | Process Assessment  | Product/Services Assessment  | Knowledge Assessment  |   |                            |
|                                   |                                      |   |  |   |  | of processed and preserved juice  |   |                            |
|                                   |                                      | (c) Preparing tomato paste and tomato sauce | <p><b>Video Tutorials:</b> Provide students with a video tutorial showing the step-by-step process of preparing tomato paste and tomato sauce.</p> <p><b>Simulations:</b> Guide the students how to use tools, equipment and machines to prepare tomato sauce and tomato paste</p> <p><b>Project:</b> Organise the students in manageable groups to prepare and preserve tomato paste and tomato sauce</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>• Select working tools and equipment</li> <li>• Identify processing methods for tomato paste</li> <li>• Prepare tomato sauce</li> <li>• Maintain hygiene of the products</li> <li>• Preserve tomato sauce and tomato paste by using preservatives / chemicals.</li> <li>• Pack processed and preserved tomato paste and tomato</li> </ul> | Prepare tomato paste and tomato sauce by using recommended methods, practices and standards. | <p><b>Knowledge evidence: Detailed knowledge of:</b></p> <p><b>Method used:</b> The student should explain how to prepare tomato sauce and tomato paste using available tools, equipment, machineries and materials</p> <p><b>Principles:</b> The students should explain the principles of preparing tomato sauce and tomato paste</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• Procedure of processing different types of crops.</li> <li>• Different horticultural processing methods</li> <li>• Different horticultural</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Laboratory coats</li> <li>• Caps</li> <li>• Gum boots</li> <li>• Fridges/freezers</li> <li>• Crates</li> <li>• Boxes (Plastic/wooden)</li> <li>• Sacks</li> <li>• Gunny bags</li> <li>• Plastic bags</li> <li>• Bucket</li> <li>• Cold rooms</li> <li>• Ventilated rooms</li> <li>• Salt</li> <li>• Sugar</li> <li>• Vinegar</li> <li>• Smoke</li> <li>• Containers</li> <li>• Polythene sheets</li> <li>• Sterilizers</li> <li>• Preservatives</li> <li>• Portable water</li> <li>• Electric/solar driers</li> <li>• Choppers</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods                                | Assessment Criteria   |  |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|--|---|--|--|---|----------------------------|
|                                   |                                      |                                |  | Process Assessment  | Product/Services Assessment                | Knowledge Assessment   |   |                            |
|                                   |                                      |                                |  | sauce <ul style="list-style-type: none"> <li>• Observe safety precautions</li> <li>• Clean tools and equipment</li> </ul> |  | preserving methods <ul style="list-style-type: none"> <li>• Drying of fruits and vegetables</li> <li>• Processing method for leafy vegetable</li> <li>• Processing method for fruit vegetable</li> <li>• Preserving method for tomato paste</li> </ul> <b>Circumstantial knowledge:</b><br>Detailed knowledge about: <ul style="list-style-type: none"> <li>• Safe handling of tomato sauce processing tools, equipment and machineries</li> <li>• Safe handling of preserving tools, equipment and machineries</li> </ul> | <ul style="list-style-type: none"> <li>• Knives</li> <li>• Sieve</li> <li>• Mats</li> <li>• Pots</li> <li>• Tray</li> <li>• Pressing machine</li> <li>• Weighing scale</li> </ul> |                            |
|                                   |                                      | (d) Preparing spice powder     | <b>Discussion:</b><br>Lead the students to identify the procedures for | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Select</li> </ul>                          | Prepare spice powder according to required | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The   | The following tools, equipments and safety gears are to be available:   |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |                                    |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|--|---|------------------------------------|--|---|----------------------------|
|                                   |                                      |                                |  | Process Assessment  | Product/Services Assessment        | Knowledge Assessment   |   |                            |
|                                   |                                      |                                | <p>preparation of spice powder</p> <p><b>Live Demos:</b><br/>Arrange for a guest chef (either virtually or in person) who specializes in spice-based cuisine to demonstrate how to make a spice powder sauce.</p> <p><b>Project work:</b><br/>Organise the students in manageable groups to prepare spice powder</p> | <p>working tools and equipment</p> <ul style="list-style-type: none"> <li>• Prepare spice powder</li> <li>• Practice traditional preparation of spice powder</li> <li>• Preserve spice powder</li> <li>• Observe safety precautions</li> <li>• Clean tools and equipment</li> </ul> | practices and recommended methods. | <p>students should explain how to: prepare spice powder by using available tools, equipment, machineries and materials</p> <p><b>Principles:</b><br/>The students should explain the principles of preparing spice powder</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• Importance of spices</li> <li>• Factors to consider in selecting the method of preparing spice powder</li> <li>• Procedures involved in preparing different types of spice powders</li> <li>• Preserving method for fruits and vegetables</li> </ul> | <ul style="list-style-type: none"> <li>• Laboratory coats</li> <li>• Caps</li> <li>• Gum boots</li> <li>• Fridges/freezers</li> <li>• Crates</li> <li>• Boxes (Plastic/wooden)</li> <li>• Sacks</li> <li>• Gunny bags</li> <li>• Plastic bags</li> <li>• Bucket</li> <li>• Cold rooms</li> <li>• Ventilated rooms</li> <li>• Salt</li> <li>• Sugar</li> <li>• Vinegar</li> <li>• Smoke</li> <li>• Containers</li> <li>• Polythene sheets</li> <li>• Sterilizers</li> <li>• Preservatives</li> <li>• Portable water</li> <li>• Electric/solar driers</li> <li>• Choppers</li> <li>• Knives</li> <li>• Sieve</li> <li>• Mats</li> <li>• Pots</li> <li>• Tray</li> <li>• Pressing machine</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences)               | Elements (Learning Activities)                | Suggested Teaching and Learning Methods  | Assessment Criteria  |  |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--|---|--|--|--|---|--|----------------------------|
|                                   |  |   |  | Process Assessment   | Product/Services Assessment                                    | Knowledge Assessment  |  |                            |
|                                   |  |   |  |  |  | <b>Circumstantial knowledge:</b><br><b>Detailed knowledge about</b> <ul style="list-style-type: none"> <li>Safe handling of spice powder preparing tools, equipment and machineries</li> </ul>  | <ul style="list-style-type: none"> <li>Weighing scale</li> </ul>   |                            |
|                                   | 1.2 Performing packaging of horticultural products | (a) Identifying different packaging materials | <b>Interactive Case Studies and Scenarios:</b> Ask the students to identify different packaging materials for different crops<br><br><b>Practical work:</b> Guide the students in manageable groups to identify suitable different packaging materials | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select working tools and equipment's</li> <li>Select types of packaging materials</li> <li>Prepare fruit crops to be packaged</li> <li>Prepare vegetable crops to be packaged</li> <li>Prepare spice crop to be packaged</li> <li>Perform packaging of</li> </ul> | Identify different packaging materials for Horticultural crops | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The students should explain different packaging methods applied to fresh horticultural crops<br><b>Principles:</b> The students should explain the principles of packaging horticultural crops.<br><b>Theories:</b> The students should explain: <ul style="list-style-type: none"> <li>Importance of packaging horticultural products</li> <li>Advantages of</li> </ul> | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>Laboratory coats</li> <li>Caps</li> <li>Gum boots</li> <li>Fridges</li> <li>Freezers</li> <li>Plastic Crates</li> <li>Paper crates</li> <li>Wood Crates</li> <li>Moisture proof container</li> <li>Wooden boxes</li> <li>Sacks</li> <li>Gunny bags</li> <li>Plastic bags</li> <li>Bucket</li> <li>Plastic bottles</li> <li>Glass bottles</li> </ul> | 60                         |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|--|---|---|--|----------------------------|
|                                   |                                      |                                |   | Process Assessment   | Product/Services Assessment   | Knowledge Assessment  |  |                            |
|                                   |                                      |                                |   | vegetables <ul style="list-style-type: none"> <li>• Perform packaging to fruit crop</li> <li>• Perform packaging to spices crop</li> <li>• Observe safety precautions</li> <li>• Clean tools and equipment</li> <li>• Store tools and equipment</li> </ul> |   | packaging vegetables <ul style="list-style-type: none"> <li>• Advantages of packaging spices</li> <li>• Packaging vegetable crops</li> <li>• Packaging of fruit crops</li> <li>• Disadvantages of each packaging materials</li> <li>• Types of packaging materials</li> </ul> <b>Circumstantial knowledge:</b><br>Detailed knowledge about safe handling of packaging materials | <ul style="list-style-type: none"> <li>• Jars</li> <li>• Cold rooms</li> <li>• Ventilated rooms</li> <li>• Salt</li> <li>• Sugar</li> <li>• Vinegar</li> <li>• Plastic containers</li> <li>• Thermometers</li> <li>• Polythene sheets</li> <li>• Sterilizers</li> <li>• Preservatives</li> <li>• Electric drier</li> <li>• solar driers</li> <li>• Choppers</li> <li>• Knives</li> <li>• Sieve</li> <li>• Mats</li> <li>• Tray</li> <li>• Baskets</li> <li>• Cans</li> </ul> |                            |
|                                   |                                      | (b) Preparing labels and logos | <b>Team-Based Branding Projects:</b><br>Divide students into small groups, each tasked with | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Select working tools and</li> </ul>   | Prepare different labels and logos for Horticultural crops produce and products | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The students should explain preparation of   | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Laboratory coats</li> <li>• Caps</li> </ul>   |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |                             |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|--|---|-----------------------------|--|---|----------------------------|
|                                   |                                      |                                |  | Process Assessment  | Product/Services Assessment | Knowledge Assessment   |   |                            |
|                                   |                                      |                                | <p>developing a label and logo e.g., organic tomatoes, herbal teas, or farm-fresh vegetables</p> <p><b>Guest Speaker</b><br/>Invite a professional graphic designer or marketing expert specializing in agricultural or horticultural products to give a talk on creating labels and logos for such products.</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to prepare labels and logos</p> | <p>equipment's</p> <ul style="list-style-type: none"> <li>Select types of labels and logos for branding packaged horticulture products</li> <li>Perform labelling of packaged spices</li> <li>Observe safety precautions</li> <li>Clean tools and equipment</li> <li>Store tools and equipment</li> </ul> |                             | <p>different labels for packaged fresh horticultural crops</p> <p><b>Principles:</b> The students should explain the principles of preparing labels and logos</p> <p><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>Importance of packaging labels and logos for horticultural products</li> <li>Advantages of labels and logos</li> <li>Disadvantages of unlabelled products</li> <li>Important information in labelling a product</li> </ul> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about safety precautions to check for labeled products</p> | <ul style="list-style-type: none"> <li>Gum boots</li> <li>Crates</li> <li>Moisture proof container</li> <li>Wooden boxes</li> <li>Sacks</li> <li>Gunny bags</li> <li>Plastic bags</li> <li>Bucket</li> <li>Plastic bottles</li> <li>Glass bottles</li> <li>Jars</li> <li>Plastic containers</li> <li>Polythene sheets</li> <li>Preservatives</li> <li>Glue</li> <li>Masking tape</li> <li>Knives</li> <li>Sieve</li> <li>Mats</li> <li>Tray</li> <li>Baskets</li> <li>Cans</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)       | Suggested Teaching and Learning Methods  | Assessment Criteria   |  |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------------|--|---|--|--|--|----------------------------|
|                                   |                                      |                                      |  | Process Assessment  | Product/Services Assessment  | Knowledge Assessment   |  |                            |
|                                   |                                      | (c) Performing traditional packaging | <p><b>Brainstorming:</b><br/>Guide the students to perform traditional packaging of horticultural crops</p> <p><b>Hands-On Designs Workshops:</b><br/>Guide the students how to use tools, equipment and machines to perform traditional packaging of horticultural crops</p> <p><b>Activity:</b> Organise the students in manageable groups to perform traditional packaging of horticultural crops</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>• Select working tools and equipment's</li> <li>• Select types of packaging materials</li> <li>• Perform packaging to fruit crop</li> <li>• Perform packaging to spices crop</li> <li>• Observe safety precautions</li> <li>• Clean tools and equipment</li> <li>• Store tools and equipment</li> </ul> | Perform traditional packaging for horticultural crops produce and products | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The students should explain different packaging methods applied to fresh horticultural crops<br/><b>Principles:</b> The students should explain the principles of packaging horticultural crops.<br/><b>Theories:</b> The students should explain:</p> <ul style="list-style-type: none"> <li>• Importance of packaging horticultural products</li> <li>• Advantages of packaging vegetables</li> <li>• Advantages of packaging spices</li> <li>• Packaging vegetable crops</li> <li>• Packaging of fruit crops</li> <li>• Disadvantages of</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>• Laboratory coats</li> <li>• Caps</li> <li>• Gum boots</li> <li>• Fridges</li> <li>• freezers</li> <li>• Crates</li> <li>• Moisture proof container</li> <li>• Wooden boxes</li> <li>• Sacks</li> <li>• Gunny bags</li> <li>• Plastic bags</li> <li>• Bucket</li> <li>• Plastic bottles</li> <li>• Glass bottles</li> <li>• Jars</li> <li>• Cold rooms</li> <li>• Ventilated rooms</li> <li>• Salt</li> <li>• Sugar</li> <li>• Vinegar</li> <li>• Plastic containers</li> <li>• Thermometers</li> <li>• Polythene sheets</li> <li>• Sterilizers</li> <li>• Preservatives</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences)     | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
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|                                   |  |                                |   | Process Assessment   | Product/Services Assessment   | Knowledge Assessment   |  |                            |
|                                   |  |                                |   |  |   | each packaging method <ul style="list-style-type: none"> <li>Factors to take into account in performing traditional packaging of horticultural crops</li> </ul> <b>Circumstantial knowledge:</b><br>Detailed knowledge about safe handling of traditional packaging materials  | <ul style="list-style-type: none"> <li>Electric drier</li> <li>solar driers</li> <li>Choppers</li> <li>Knives</li> <li>Sieve</li> <li>Mats</li> <li>Tray</li> <li>Baskets</li> <li>Cans</li> </ul> |                            |
|                                   | 1.3 Marketing the horticultural products | Preparing crop calendar        | <b>Interactive Quizzes:</b><br>Create quizzes that test students' knowledge of crop cycles, weather patterns, and pest management in preparing crop calendar<br><br><b>Case Study Exploration:</b><br>Present students with real-world case studies of farms or | <b>The student should be able to:</b><br>Select working tools and equipment<br>Collect market information<br>Determine market product chain<br>Prepare crop calendar<br>Determine type of consumers preference<br>Determine types of producers | Set a cropping calendar for growing different horticultural crops using recommended procedures. | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The students should explain how to prepare a crop calendar for horticultural crops.<br><b>Principles:</b> The students should explain the principles of preparing a crop calendar for horticultural crops.<br><b>Theories:</b> The students should explain: | The following tools, equipments and safety gears are to be available:<br>Gum boots<br>Overalls<br>Overcoats<br>Pens<br>Note books<br>Caps<br>Calculator<br>Computer<br>Consumers                   | 75                         |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
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|                                   |                                      |                                |   | Process Assessment   | Product/Services Assessment   | Knowledge Assessment  |   |                            |
|                                   |                                      |                                | agricultural organizations that use crop calendars<br><br><b>Collaborative Group Projects:</b> Divide students into groups, each assigned to plan a crop calendar for different crops or farming systems                        | Determine the crop seasonality of the product<br>Perform SWOT analysis<br>Observe safety and precautions<br>Clean tools and equipment<br>Store tools and equipment                     |   | Importance of prepare a crop calendar for horticultural crops production.<br>Use of Crop Calendar in selecting Crop seasonality in marketing<br>Importance of Crop Calendars in Marketing activities<br><b>Circumstantial knowledge:</b> Detailed knowledge about fluctuation marketing of horticultural products |   |                            |
|                                   |                                      | Developing a business plan     | <b>Peer Review and Feedback:</b> Assign students in groupwise to analyse the business plan and present it to another group for feedback<br><b>Collaborative Group Projects:</b> Divide students into small groups and have each | <b>The student should be able to:</b><br>Select working tools and equipment<br>Collect market information for preparing a business plan<br>Identify types of market information system | Prepare a business plan for horticultural business as per the recommended procedures. | <b>Knowledge evidence: Detailed knowledge of:</b><br><b>Method used:</b> The students should explain how to develop a business plan for horticultural business<br><b>Principles:</b> The students should explain the principles for making a business plan for horticultural                                      | The following tools, equipments and safety gears are to be available:<br>Gum boots<br>Overalls<br>Overcoats<br>Horticultural crops/products<br>Pens<br>Note books<br>Caps<br>Calculator<br>Computer |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)                             | Suggested Teaching and Learning Methods  | Assessment Criteria  |   |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--|--|--|---|--|---|----------------------------|
|                                   |                                      |  |  | Process Assessment   | Product/Services Assessment   | Knowledge Assessment   |   |                            |
|                                   |                                      |  | group work on a different business idea<br><br><b>Business Plan Competitions:</b> Organise a business plan competition where students present their plans to a panel of judges, and the best plans receive recognition or rewards. | Identify market channels<br>Select type of products to be marketed<br>Determine market chain<br>Determine type of consumers preference<br>Determine product quality<br>Determine types of producers<br>Select location of horticulture crop production and it's the market<br>Perform SWOT analysis<br>Observe safety and precautions<br>Store tools and equipment |   | business<br><b>Theories:</b> The students should explain:<br>Importance of a business plan for horticultural business<br>Key horticultural enterprises, services or products for a business a plan<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about types of horticultural business plans | Consumers   |                            |
|                                   |                                      | Determining marketing information, channels and market mix | <b>Brainstorm:</b> Ask students to define the marketing information, channels and market mix   | <b>The student should be able to:</b><br>Select working tools and equipment<br>Collect market  | Determine marketing information, channels and market mix for horticultural enterprises by | <b>Knowledge evidence: Detailed knowledge of:</b><br><b>Method used:</b> The students should explain how to Market different horticultural   | The following tools, equipments and safety gears are to be available:<br>Gum boots<br>Overalls<br>Overcoats |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |                                   |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|--|--|-----------------------------------|--|---|----------------------------|
|                                   |                                      |                                |  | Process Assessment   | Product/Services Assessment       | Knowledge Assessment   |   |                            |
|                                   |                                      |                                | <b>Hands-On Data Collection and Analysis:</b> Engage students in collecting primary marketing data through surveys. providing them with hands-on experience in collecting valuable marketing insights.<br><br><b>Market Research Field Trips:</b> Organise field trips where students can observe businesses in real-world settings, such as a retail store or a pop-up shop, and gather firsthand data on customer behavior, product placement, and promotions and prepare a report | information<br>Identify types of market information system<br>Identify market channels<br>Select type of products to be marketed<br>Determine market information<br>Determine market chain<br>Prepare crop calendar<br>Manage market information system<br>Determine type of consumers preference<br>Determine product quality<br>Determine types of producers<br>Select location of the market<br>Determine the crop seasonality of the product | using the recommended procedures. | products.<br><b>Principles:</b> The students should explain the principles of marketing of horticultural products<br><b>Theories:</b> The student should explain:<br>Importance of marketing<br>Types of market<br>Traditional methods of marketing<br>Sources of market information<br>Marketing segmentation<br>Components of marketing: Product, Place Price and Promotion (4P's)<br>Competitors in business<br>Establish market opportunities<br>Crop seasonality in marketing<br>Market research<br>Market cycle<br>Marketing activities<br><b>Circumstantial</b> | Fliers and leaflets<br>Pens<br>Note books<br>Caps<br>Calculator<br>Computer<br>Consumers<br>Bins<br>Crates<br>Pallets |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)                           | Suggested Teaching and Learning Methods  | Assessment Criteria  |   |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--|--|--|---|--|---|----------------------------|
|                                   |                                      |  |  | Process Assessment   | Product/Services Assessment   | Knowledge Assessment   |   |                            |
|                                   |                                      |  |  | Perform SWOT analysis<br>Observe safety and precautions<br>Clean tools and equipment<br>Store tools and equipment  |   | <b>knowledge:</b><br>Detailed knowledge about marketing of horticultural products in local markets   |   |                            |
| 2.0 Managing farm activities      | 2.1 Managing farm practices          | Preparing format for implements service and repairs form | <p><b>Discussion:</b><br/>Guide the students to prepare format for implements form service and repairs for horticultural farm</p> <p><b>Group-Based Service Form Design:</b> Have students work in groups to design a service and repair form for a specific type of service (e.g., tractor repair, farm machinery maintenance)</p> <p><b>Practical work:</b><br/>Guide the students</p> | <p><b>The student should be able to:</b><br/>Select working tools and equipment<br/>Identify different farm practices<br/>Prepare format implements form<br/>Prepare format for horticultural crop production data collection form<br/>Observe safety precaution<br/>Clean tools and equipment.<br/>Store tools and equipment.</p> | Different formats for various implements are prepared using recommended procedures. | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to prepare format for implements service and repairs form<br/><b>Principles:</b> The student should explain the principles for implements service and repairs<br/><b>Theories:</b> The student should explain:<br/>Important information to be included in implements repair form<br/>The importance of horticultural garden devices management</p> | The following tools, equipments and safety gears are to be available:<br>Pens<br>Note books<br>Caps<br>Gum boots<br>Calculator<br>Computer<br>Hoes<br>Rakes<br>Wheelbarrows | 84                         |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)                  | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|---|---|--|---|--|---|----------------------------|
|                                   |                                      |   |   | Process Assessment   | Product/Services Assessment   | Knowledge Assessment   |   |                            |
|                                   |                                      |   | how to prepare a format for implements form service and repairs for horticultural farm  |  |   | and movement form<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about managing daily farm practices for vegetable garden   |   |                            |
|                                   |                                      | Preparing format for crop calendar control form | <p><b>Group assignments:</b><br/>Assign the students to prepare format for crop calendar control form</p> <p><b>Peer Review and Collaborative Feedback:</b><br/>Assign the students to create their service and repair forms format, and encourage them to share their forms with peers for review</p> <p><b>Practical activity:</b><br/>Organise the students in</p> | <p><b>The student should be able to:</b><br/>Select working tools and equipment<br/>Identify different farm practices<br/>Prepare format for crop calendar<br/>Prepare format for horticultural crop production data<br/>Observe safety precaution<br/>Clean tools and equipment.<br/>Store tools and equipment.</p> | Make different formats for various crop calendar data using recommended procedures. | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The students should explain how to plan, monitor and analyse farm practices by using the crop calendar control form<br/><b>Principles:</b> The student should explain the principles of preparing format for crop calendar control form<br/><b>Theories:</b> The student should explain:<br/>Advantages of preparing format for crop calendar control form for farm activities<br/>Important activities to</p> | The following tools, equipments and safety gears are to be available:<br>Pens<br>Note books<br>Caps<br>Gum boots<br>Calculator<br>Computer<br>Hoes<br>Rakes<br>Wheelbarrows |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)                 | Suggested Teaching and Learning Methods  | Assessment Criteria   |  |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--|--|---|--|--|---|----------------------------|
|                                   |                                      |  |  | Process Assessment  | Product/Services Assessment  | Knowledge Assessment   |   |                            |
|                                   |                                      |  | manageable groups to prepare format for crop calendar control form   |   |  | consider for setting weeding time in crop calendar control form<br>Nutrient management proper timing<br>Tracking input usage quantities, costs and working hours per activity.<br>Pest detection and crop protection calendar<br>Harvesting practices calendar<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about managing farm practices in accordance to crop calendar control form |   |                            |
|                                   |                                      | Preparing format for crop production data form | <b>Questions and Answers:</b><br>Guide the students to define the information to be placed in format for crop production data form | <b>The student should be able to:</b><br>Select working tools and equipment<br>Identify different formats for crop production data form | Make different formats for various crop production data using recommended procedures | <b>Knowledge evidence: Detailed knowledge of:</b><br><b>Method used:</b> The student should explain how to make different formats for various crop production data using recommended   | The following tools, equipments and safety gears are to be available:<br>Pens<br>Note books<br>Printer<br>Caps<br>Gum boots<br>Calculator |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |                             |   | Training Requirements/<br>Suggested Resources                     | Number of Periods per Unit |
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|                                   |                                      |                                |  | Process Assessment   | Product/Services Assessment | Knowledge Assessment  |   |                            |
|                                   |                                      |                                | <b>Service Form Creation Workshops:</b><br>Organise workshops where students collaboratively design and prepare service and repair forms. This can be done using both physical forms (paper) and digital tools (e.g., Google Forms, Microsoft Word, or specialized software)<br><br><b>Practical activity:</b><br>Organise the students in manageable groups to prepare format for crop production data form | Prepare format for highly value horticultural crop production data<br>Observe safety precaution<br>Clean tools and equipment<br>Store tools and equipment. |                             | procedures.<br><b>Principles:</b> The student should explain the principles of making different formats for various crop production data using recommended procedures.<br><b>Theories:</b> The student should explain:<br>Types of different formats for various crop production data using recommended procedures.<br>Advantages of managing farm activities by using formats for crop production data collection<br>Factors to consider in planning the frequency of weeding<br>Importance nutrient management scheduling data form<br>Usage of input control data form<br>Essence of working | Computer<br>Hoes<br>Rakes<br>Computer<br>Printers<br>Wheelbarrows |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)              | Suggested Teaching and Learning Methods  | Assessment Criteria   |  |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
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|                                   |                                      |   |  | Process Assessment  | Product/Services Assessment  | Knowledge Assessment   |   |                            |
|                                   |                                      |   |  |   |  | hours control data form<br>Important aspects to consider in pest protection control data form<br>Harvesting practices control form<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about managing farm practices in accordance to planned calendar   |   |                            |
|                                   | 2.2 Managing various farm records    | Preparing format for different farm records | <b>Discussion:</b><br>Provide illustration for tips to make format for different farm records for horticultural farm<br><br><b>Hands-On Practice:</b><br>Using Spreadsheet Software (Excel/Google Sheets) to introduce students to using | <b>The student should be able to:</b><br>Select working tools and equipment.<br>Identify types of farm record<br>Collect farm reports<br>Prepare farm records for inputs<br>Prepare farm implements and equipment usage records | Prepare format for different farm records for horticultural farm data using recommended procedures | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The students should explain how to<br>Identify farm records<br>Manage different farm records<br><b>Principles:</b> The students should explain the principles of:<br>Collecting different farm records<br>Manage farm records | The following tools, equipments and safety gears are to be available:<br>Pens<br>Note books<br>Folders<br>Papers<br>Files<br>Caps<br>Calculator<br>Computer<br>Printers<br>Farm record book | 70                         |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|--|---|---|--|----------------------------|
|                                   |                                      |                                |   | Process Assessment   | Product/Services Assessment   | Knowledge Assessment  |  |                            |
|                                   |                                      |                                | spreadsheet software like Microsoft Excel or Google Sheets for creating different types of farm records, such as financial records, crop yields, and labor logs<br><br><b>Activity:</b> Organise the students in manageable group to prepare format for different farm records for horticultural farm | Prepare agricultural inputs record<br>Prepare production record.<br>Prepare farm expenditure record<br>Prepare workers records<br>Prepare vehicle records<br>Prepare sales records<br>Clean tools and equipment<br>Store tools and equipment |   | <b>Theories:</b> The students should explain:<br>Importance of good farm record keeping.<br>Types of farm records<br>Methods of collecting farm record<br>Uses of farm records<br>Farm inventory<br>Analyse farm record<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about managing various farm records |  |                            |
|                                   |                                      | Collecting farm reports        | <b>Role Play:</b><br>Organise students to role-play as farm managers, workers, or field officers. They will collect data from various areas of the farm (e.g., crop management soil conditions) and   | <b>The student should be able to:</b><br>Select working tools and equipment<br>Identify types of farm record for daily reporting<br>Collect farm reports<br>Prepare farm   | Prepare reports for horticultural farm crop production using recommended procedures | <b>Knowledge evidence: Detailed knowledge of:</b><br><b>Method used:</b> The students should explain how to:<br>Identify farm different reports<br>Present different farm reports<br><b>Principles:</b> The students should   | The following tools, equipments and safety gears are to be available:<br>Pens<br>Pencils<br>Note books<br>Files<br>Folders<br>Caps<br>Calculator<br>Computer |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria   |  |   | Training Requirements/<br>Suggested Resources                                 | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|---|--|---|---|----------------------------|
|                                   |                                      |                                |   | Process Assessment  | Product/Services Assessment                                    | Knowledge Assessment  |   |                            |
|                                   |                                      |                                | <p>prepare farm reports based on their role</p> <p><b>Hands-On Practical Sessions:</b> Guide the students how to prepare a report for horticultural farm crop production</p> <p><b>Activity:</b> Organise the students in manageable group to prepare a report for horticultural farm crop production</p> | <p>implements and equipment record reports</p> <p>Prepare agricultural inputs reports</p> <p>Prepare crop production reports</p> <p>Prepare farm expenditure reports</p> <p>Prepare workers reports</p> <p>Prepare vehicle reports</p> <p>Prepare sales reports</p> <p>Clean tools and equipment</p> <p>Store tools and equipment</p> |  | <p>explain the principles of:</p> <p>Collecting different crop data and reporting</p> <p><b>Theories:</b> The students should explain:</p> <p>Identification of farming production reports</p> <p>Importance of daily farm</p> <p>Types of farm records</p> <p>Methods of collecting farm reports</p> <p>Uses of farm reports</p> <p>Farm inventory reports</p> <p><b>Circumstantial knowledge:</b></p> <p>Detailed knowledge about managing financial farm reports auditing and evaluation</p> | Farm record book  |                            |
|                                   |                                      | Preparing farm reports         | <p><b>Farm Management Simulations:</b> Use interactive simulation to give</p>   | <p><b>The student should be able to:</b></p> <p>Select working tools and</p>  | Prepare horticultural farm reports for various crop data using | <p><b>Knowledge evidence:</b></p> <p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b> The students should</p>   | The following tools, equipments and safety gears are to be available:<br>Pens |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria   |  |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|---|--|---|--|----------------------------|
|                                   |                                      |                                |   | Process Assessment  | Product/Services Assessment                | Knowledge Assessment  |  |                            |
|                                   |                                      |                                | <p>students a virtual farming experience</p> <p><b>Role-Based Report Preparation:</b><br/>Assign students different roles within a farm (e.g., farm manager, financial officer, agronomist, or livestock manager) and ask them to gather relevant data and prepare a specific section of the farm report</p> <p><b>Practical activity:</b><br/>Organise the students in manageable group to prepare a farm report</p> | <p>equipment.<br/>Identify types of farm reports<br/>Collect farm reports<br/>Prepare farm implements and equipment reports<br/>Prepare agricultural inputs reports<br/>Prepare production reports<br/>Prepare farm expenditure reports<br/>Prepare workers reports<br/>Prepare vehicle reports<br/>Prepare sales reports<br/>Clean tools and equipment<br/>Store tools and equipment</p> | recommended procedures                     | <p>explain how to Prepare farm reports<br/><b>Principles:</b> The students should explain the principles of:<br/>Preparing different farm reports<br/><b>Theories:</b> The students should explain:<br/>Identification of types of farm reports<br/>Importance of good farm reports<br/>Uses of Farm inventory reports<br/>Analysis of farm reports<br/><b>Circumstantial knowledge:</b><br/>Detailed knowledge about managing various farm reports</p> | <p>Note books<br/>Files<br/>Folders<br/>Printers<br/>Caps<br/>Calculator<br/>Computer<br/>Farm record book</p> |                            |
|                                   | 2.3 Managing farm business           | Planning farm activities       | <b>Brainstorming:</b><br>Guide the students to define the   | <b>The student should be able to:</b>   | Plan production of various crop data using | <b>Knowledge evidence: Detailed knowledge of:</b>   | The following tools, equipments and safety gears are to be   | 77                         |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |                             |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|--|--|-----------------------------|---|---|----------------------------|
|                                   |                                      |                                |  | Process Assessment   | Product/Services Assessment | Knowledge Assessment  |   |                            |
|                                   |                                      |                                | planning farm activities<br><br><b>Field Visits or Virtual Farm Tours:</b> Organise a visit to a local farm or set up virtual farm tours<br><br><b>Practical work:</b> Organise the students in manageable group to plan farm activities | Select working tools and equipment.<br>Plan farm activities<br>Prepare farm budget<br>Collect farm reports<br>Prepare crop calendar<br>Prepare farm record<br>Prepare farm implements and equipment record<br>Prepare agricultural inputs record<br>Prepare production record.<br>Prepare farm expenditure record<br>Prepare workers records<br>Prepare vehicle records<br>Prepare machinery | recommended procedures      | <b>Method used:</b> The students should explain how to plan, mobilize and control farm resources.<br><b>Principles:</b> The students should explain the principles of: involved in mobilization and control farm resources<br><b>Theories:</b> The student should explain:<br>Farm economics<br>Marketing of farm products<br>Entrepreneurship skills<br>Record keeping<br>Mobilization of farm resources<br>Importance of farm business<br>Identification of components of business plan<br>Importance of good farm record keeping<br>Types of farm records<br>Methods of collecting farm record<br>Uses of farm records | available:<br>Pens<br>Note books<br>Caps<br>Calculator<br>Computer set<br>Photocopier<br>Communication equipment<br>Cupboard<br>Safe<br>Tables<br>Chairs<br>Binding machine<br>Record books |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|--|---|---|--|----------------------------|
|                                   |                                      |                                |   | Process Assessment   | Product/Services Assessment                                       | Knowledge Assessment  |  |                            |
|                                   |                                      |                                |   | service schedule records<br>Prepare implements records<br>Clean tools and equipment<br>Store tools and equipment   |   | Farm inventory<br>Analyse farm record<br>Generating farm inputs usage book<br>Maintaining farm production data<br>Maintaining stores bin card<br>Keeping profit and loss account<br>Preparing balance sheet<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about managing various farm records |  |                            |
|                                   |                                      | Preparing farm budget          | <b>Role Play Scenarios:</b> Assign students with different roles, such as farm manager, financial officer and task them with preparing a farm budget based on their responsibilities<br><br><b>Group Farm</b> | <b>The student should be able to:</b><br>Select working tools and equipment.<br>Prepare farm budget<br>Collect farm reports<br>Prepare short term farm budget<br>Prepare annual agricultural | Plan production of various crop data using recommended procedures | <b>Knowledge evidence: Detailed knowledge of:</b><br><b>Method used:</b> The students should explain how to prepare a farm budget.<br><b>Principles:</b> The student should explain the principles of: involved in budget preparation<br><b>Theories:</b> The student should explain:                     | The following tools, equipments and safety gears are to be available:<br>Pens<br>Note books<br>Caps<br>Calculator<br>Computer set<br>Printer<br>Photocopier<br>Communication equipment<br>Cupboard |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)   | Suggested Teaching and Learning Methods  | Assessment Criteria  |   |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
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|                                   |                                      |                                  |  | Process Assessment   | Product/Services Assessment                                 | Knowledge Assessment   |  |                            |
|                                   |                                      |                                  | <b>Budget Projects:</b><br>Divide students into small groups and assign them a different type of farm (e.g., vegetable farm)<br><br><b>Practical work:</b><br>Guide the students how to prepare farm budget                  | Prepare labour budget<br>Prepare machinery acquisition budget<br>Clean tools and equipment<br>Store tools and equipment  |   | Importance of farm budget preparation<br>Identification of components of a farm budget<br>Types of farm budget<br>Uses of farm budget<br>Keeping profit and loss account<br>Preparation of balance sheet<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about managing various farm records   | Safe Papers<br>Flip chart<br>Marker pens<br>Tables<br>Chairs<br>Binding machine<br>Record books  |                            |
|                                   |                                      | Promoting horticultural products | <b>Brainstorming:</b><br>Guide the students to promote horticultural products<br><br><b>Collaborative Group:</b><br>Assign students to work on product branding, develop a branding strategy for a new horticultural product | <b>The student should be able to:</b><br>Select working tools and equipment.<br>Promote horticultural products<br>Prepare crop promotion strategy<br>horticultural products<br>Clean tools and | Promote horticultural products using recommended procedures | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The student should explain how to promote horticultural products<br><b>Principles:</b> The students should explain the principles of: involved in promotion of horticultural products<br><b>Theories:</b> The student | The following tools, equipments and safety gears are to be available:<br>Pens<br>Note books<br>Caps<br>Calculator<br>Computer set<br>Printer<br>Photocopier<br>Communication equipment<br>Cupboard<br>Safe |                            |

| Module Title<br>(Main Competence)  | Unit Title<br>(Specific Competences) | Elements (Learning Activities)                    | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
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|                                    |                                      |   |   | Process Assessment   | Product/Services Assessment   | Knowledge Assessment  |  |                            |
|                                    |                                      |   | <b>Practical work:</b><br>Assign each student to promote horticultural products   | equipment<br>Store tools and equipment   |   | should explain:<br>Importance of product promotion<br>Types of product promotion techniques<br>Factors to consider during product promotion<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about modern strategies of product promotion  | Papers<br>Flip chart<br>Marker pens<br>Tables<br>Chairs<br>Binding machine<br>Record books   |                            |
| <b>3.0</b> Managing farm resources | 3.1 Managing human resources         | Determining requirements and qualities of workers | <b>Quiz:</b><br>Assign to the students a quiz to illustrate how to determine number and qualities of required workers<br><br><b>Practical work:</b><br>Guide the students how how to use different strategies to determine number and quality of required workers | <b>The student should be able to:</b><br>Select tools and materials<br>Mobilise manpower resources<br>Determine number of workers in the farm<br>Determine the assets/resources possessed in the farm<br>Determine the | Procedures of determining number and quality of workers formats described by using recommended procedures | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The student should explain how to mobilise and manage human resources<br><b>Principles:</b> The student should explain the principles Involving mobilizing and managing human resources<br><b>Theories:</b> The students should explain: | The following tools, equipments and safety gears are to be available:<br>Note books<br>Ball pens<br>Calculator<br>Farm unit/store<br>Labourers<br>Attendance register<br>Computer set<br>Communication equipment<br>Cupboard<br>Safe<br>Tables<br>Chairs | 60                         |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria   |                             |   | Training Requirements/<br>Suggested Resources | Number of Periods per Unit |
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|                                   |                                      |                                |   | Process Assessment  | Product/Services Assessment | Knowledge Assessment  |   |                            |
|                                   |                                      |                                | <b>Activity:</b> Organise the students in manageable group to determine number and qualities of workers | amount and type of motivation/punishment given to workers<br>Determine number of skilled and unskilled labourers in a farm<br>Determine the types of job performed in a farm<br>Carryout on job training<br>Create specific requirements for the jobs<br>Plan for manpower requirements<br>Train manpower resources<br>Keep different records |                             | Importance of managing human resources<br>Types of labour in a farm<br>Formulation of job description of workers<br>Increasing labour productivity<br>Control man power<br>Plan for manpower requirements<br>Manpower training<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about interpersonal skills | Job cards<br>Record books                     |                            |
|                                   |                                      | Formulating job                | <b>Group work:</b>  | <b>The student</b>  | Job description             | <b>Knowledge evidence:</b>  | The following tools,                          |                            |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |   |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
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|                                   |                                      |                                |  | Process Assessment   | Product/Services Assessment                                 | Knowledge Assessment   |   |                            |
|                                   |                                      | description of workers         | <p>Assign the students to formulate job description of workers in the horticultural farm</p> <p><b>Practical work:</b><br/>Guide the students how to formulate job description of workers</p> <p><b>Role play:</b><br/>Organise the students in manageable group to formulate the strategies of determining a job description of workers in the horticultural farm</p> | <p><b>should be able to:</b><br/>Select tools and materials<br/>Determine the assets/resources possessed in the farm<br/>Determine number of skilled and unskilled labourers requirement in a farm<br/>Determine the types of job performed in a farm<br/>Identify specific requirements for the jobs<br/>Plan for special manpower requirements<br/>Train manpower resources<br/>Keep different records</p> | of workers data are formulated using recommended procedures | <p><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain how to formulate job description of workers<br/><b>Principles:</b> The student should explain the principles of formulating job description of workers<br/><b>Theories:</b> The students should explain:<br/>Importance of managing human resources<br/>Formulation of job description of workers<br/>Increasing labour productivity<br/>Control manpower<br/>Plan for manpower requirements<br/>Manpower training<br/><b>Circumstantial knowledge:</b><br/>Detailed knowledge about sharing working skills experience</p> | <p>equipments and safety gears are to be available:<br/>Note books<br/>Ball pens<br/>Calculator<br/>Farm unit/store<br/>Labourers<br/>Attendance register<br/>Computer set<br/>Communication equipment<br/>Cupboard<br/>Safe<br/>Tables<br/>Chairs<br/>Job cards<br/>Record books</p> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)        | Suggested Teaching and Learning Methods   | Assessment Criteria   |   |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
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|                                   |                                      |                                       |   | Process Assessment  | Product/Services Assessment                             | Knowledge Assessment  |   |                            |
|                                   | 3.2 Managing physical resources      | Analyzing farm needs                  | <p><b>Discussion:</b><br/>Lead the students to define farm needs, to list procedures of how to analyse farm needs for a horticultural farm</p> <p><b>Role play:</b><br/>Assign the students to practice how to analyse farm needs for a horticultural farm</p> <p><b>Collaborative work:</b><br/>Organise the students in manageable group to analyze list of farm needs for a horticultural farm</p> | <p><b>The student should be able to:</b><br/>Organise tools and materials<br/>Determine farms needs<br/>Determine the assets for each specific need in a farm<br/>Store farm tools and assets</p> | Farm needs analysed according to recommended procedures | <p><b>Knowledge evidence:</b><br/><b>Method used:</b> The student should explain how to analyse farm needs<br/><b>Principles:</b> The students should explain the principles of analysing farm needs<br/><b>Theories:</b> The student should explain:<br/>Importance of analysing farm needs<br/>Factors to consider in analyzing farm needs<br/>Determination of sources of financial institutions in the locality<br/><b>Circumstantial knowledge:</b><br/>Detailed knowledge about horticultural farm needs financial management</p> | The following tools, equipments and safety gears are to be available:<br>Note books<br>Pens<br>Calculator<br>Flip chart<br>Marker pens<br>Check lists<br>Computer set<br>Farm store<br>Farm assets<br>Farm workshop | 78                         |
|                                   |                                      | Making an inventory for a given stock | <p><b>Brainstorming:</b><br/>Guide the student to define and illustrate strategies of an inventory</p>  | <p><b>The student should be able to:</b><br/>Organise tools</p>   | Inventories for stock are made in accordance            | <p><b>Knowledge evidence:</b><br/><b>Method used:</b> The student should explain how to make an inventory for a given</p>   | The following tools, equipments and safety gears are to be available:<br>Note books   |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)  | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
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|                                   |                                      |   |   | Process Assessment   | Product/Services Assessment   | Knowledge Assessment  |  |                            |
|                                   |                                      |   | <p>stock taking for a horticultural farm</p> <p><b>Practical work:</b><br/>Guide the students make an inventory for a given stock in a farm</p> <p><b>Practical activity:</b><br/>Organise the students in manageable groups to make an inventory for a given stock</p> | <p>and materials</p> <p>Determine farms needs</p> <p>Determine the assets for each specific need</p> <p>Make an inventory for given stock in the farm</p> <p>Store farm tools and assets</p> | <p>with the recommended financial procedures</p>  | <p>stock</p> <p><b>Principles:</b> The student should explain the principles of making an inventory for horticultural farm</p> <p><b>Theories:</b> The student should explain:<br/>Importance of making an inventory for a horticultural crop<br/>Determine methods of making an inventory for a given stock</p> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about annual inventory stock taking</p> | <p>Pens</p> <p>Calculator</p> <p>Computer set</p> <p>Farm store</p> <p>Farm assets</p> <p>Farm workshop</p>  |                            |
|                                   |                                      | <p>Determining business loan acquisition methods and loan repayment schedules</p> | <p><b>Discussion:</b><br/>Guide the students to determine loan acquisition methods and loan repayment schedules</p> <p><b>Case Studies and Role Play:</b><br/>Provide real-world application of</p>   | <p>Or</p> <p><b>The student should be able to:</b></p> <p><b>Determine business loan amortization</b></p> <p><b>Determine loan repayment</b></p> <p><b>Determine types</b></p>               | <p>Business loan acquisition methods determined as per recommended financial procedures</p> | <p><b>Knowledge evidence:</b></p> <p><b>Method used:</b> The students should explain how to manage finance</p> <p><b>Principles:</b> The students should explain the principles of managing finance</p> <p><b>Theories:</b> The student should explain:</p>   | <p>The following tools, equipments and safety gears are to be available:</p> <p>Note books</p> <p>Pens</p> <p>Calculator</p> <p>Computer set</p> <p>Farm store</p> <p>Farm assets</p> <p>Farm workshop</p> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)  | Suggested Teaching and Learning Methods   | Assessment Criteria   |   |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
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|                                   |                                      |                                 |   | Process Assessment  | Product/Services Assessment   | Knowledge Assessment  |  |                            |
|                                   |                                      |                                 | business loan acquisition concepts to students<br><br><b>Practical activity:</b><br>Organise the students in manageable groups to determine loan acquisition methods and loan repayment schedules from a financial provider service | <b>of loan payment schedules</b><br><b>Determine the amount needed when getting bussnes loan</b><br><b>Determine loan repayment plan</b>      |   | Importance of managing financial resources in a farm<br>Financial record books<br>Components of income statements<br>Methods of acquiring loans<br>Loan repayment plans<br>Determine methods of acquiring loans in the financial service providers<br>Determination of sources of financial institutions<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about financial management |  |                            |
|                                   | 3.3 Managing financial resources     | Preparing farm project proposal | <b>Discussion:</b><br>Share successful farm project proposals or case studies that led to funding or approval from stakeholders to students   | <b>The student should be able to:</b><br>Organise tools and materials<br>Determine types of farm project proposals<br>Determine components of | Farm project proposals for various crops are prepared as per recommended procedures | <b>Knowledge evidence:</b><br><b>Method used:</b> The students should explain how to raise a project proposal<br><b>Principles:</b> The students should explain the principles of raising a project proposal  | The following tools, equipments and safety gears are to be available:<br>Note books<br>Pens<br>Computer<br>Flip charts<br>Marker pens<br>Farm unit/store | 69                         |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)                | Suggested Teaching and Learning Methods   | Assessment Criteria   |   |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
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|                                   |                                      |   |   | Process Assessment  | Product/Services Assessment   | Knowledge Assessment   |   |                            |
|                                   |                                      |   | <b>Collaborative learning:</b><br>Guide the students how to prepare farm project proposal<br><b>Practical activity</b><br>Organise the students in manageable groups to prepare farm project proposal | farm project proposal<br>Prepare a horticultural farm project proposal            |   | <b>Theories:</b> The students should explain:<br>Importance of raising project proposals for horticultural enterprises<br>Components of income project proposals<br>Methods of raising project proposals<br>Determination of sources of proposal funding<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about financial management skills for enterprise sustainability | Income statement<br>Cash books<br>Receipts  |                            |
|                                   |                                      | Preparing a simple income statement of a farm | <b>Interactive Quizzes:</b><br>Use quizzes to assess the knowledge of students on   | <b>The student should be able to:</b><br>Organise tools and materials<br>Identify | An income statement of a farm for various crops are prepared by using | <b>Knowledge evidence:</b><br><b>Method used:</b> The student should explain how to prepare a simple income statement of a farm  | The following tools, equipments and safety gears are to be available:<br>Note books<br>Pens |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |   |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
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|                                   |                                      |                                |  | Process Assessment  | Product/Services Assessment                                     | Knowledge Assessment  |  |                            |
|                                   |                                      |                                | <p>understanding how to prepare a simple income statement of a farm and provide instant feedback</p> <p><b>Practical work:</b><br/>Guide the students how to prepare a simple income statement of a farm</p> <p><b>Peer teaching:</b><br/>Organise the students in manageable groups to prepare a simple income statement of a farm and illustrate to others</p> | <p>important components for preparing an income statement of a farm</p> <p>Make a simple income statement of a farm</p> | recommended procedures  | <p><b>Principles:</b> The students should explain the principles of managing a simple income statement of a farm</p> <p><b>Theories:</b> The students should explain:<br/>Components of income statements<br/>Importance of income statement of a farm<br/>Factors to consider in preparing an income statement of a farm<br/>Advantages of an income statement of a farm</p> <p><b>Circumstantial knowledge:</b><br/>Detailed knowledge about income statement for vegetable garden enterprise</p> | <p>Computer</p> <p>Farm unit/store</p> <p>Income statement</p> <p>Cash books</p> <p>Receipts</p> |                            |
| 4.0 Managing farm environment     | 4.1 Managing soil erosion            | Controlling soil erosion       | <p><b>Discussion:</b><br/>Guide the students to define and identify types soil erosion control</p>   | <p><b>The student should be able to:</b><br/>Select working tools, equipment</p>  | Soil erosion is controlled as per laid down agronomic practices | <p><b>Knowledge evidence:</b><br/><b>Detailed knowledge of:</b><br/><b>Method used:</b> The student should explain</p>  | <p>The following tools, equipments and safety gears are to be available:<br/>Gum boots</p>       | 78                         |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria  |                             |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
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|                                   |                                      |                                |  | Process Assessment   | Product/Services Assessment | Knowledge Assessment  |   |                            |
|                                   |                                      |                                | <p><b>Virtual Field Trips:</b><br/>Allow students to explore real-world examples of soil erosion and erosion control techniques.</p> <p><b>Hands-On Activities:</b><br/>Engage students through physical activities that demonstrate soil erosion and control methods.</p> | <p>and safety gear<br/>Investigate the crop field<br/>Select plants to control erosion<br/>Determine the slope percentage<br/>Make a contour bund<br/>Perform strip-cropping<br/>Construct terraces<br/>Perform gully reclamation<br/>Make shelter belts.<br/>Make a buffer strip<br/>Perform zero tillage<br/>Perform minimum tillage<br/>Perform crop rotation<br/>Plant cover crops<br/>Observe safety precaution of handling tools and equipment<br/>Clean tools and equipment</p> |                             | <p>how to control soil erosion using contour ridges and terraces.<br/><b>Principles:</b> The students should explain the principles of soil erosion control<br/><b>Theories:</b> The students should explain the:<br/>Soil erosion<br/>Type of soil erosion<br/>Causes of soil erosion<br/>Soil erosion control measures<br/>Importance of Soil erosion control<br/>Effects of soil erosion<br/>Terrace contour ridge<br/>Runoff diversion<br/>Methods of protect<br/>Steep Slopes<br/>Types of plants (grasses) to control soil erosion<br/>Importance of mulching<br/>Importance of crop rotation in soil erosion control<br/><b>Circumstantial</b></p> | <p>Safety glasses<br/>Gloves<br/>Overalls<br/>Overcoats<br/>Masks<br/>Hoes<br/>Grasses<br/>Ranging poles<br/>Pegs<br/>Forks<br/>Tape measures<br/>Rope<br/>Line level Automatic level<br/>Staff bar<br/>Note books<br/>Pens<br/>Racks<br/>Slashers<br/>Hand forks<br/>Hand hoes<br/>Forked hoes<br/>Spades<br/>Shovel<br/>Dibblers<br/>Wheelbarrow<br/>Mattocks<br/>Machetes<br/>Stones</p> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)        | Suggested Teaching and Learning Methods  | Assessment Criteria  |                               |  | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
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|                                   |                                      |                                       |  | Process Assessment   | Product/Services Assessment   | Knowledge Assessment   |   |                            |
|                                   |                                      |                                       |  | Store tools and equipment properly   |                               | <b>knowledge:</b> Detailed Knowledge about safety precautions of using land survey equipment   |   |                            |
|                                   |                                      | (a) Identifying types of soil erosion | <b>Interactive Quizzes:</b><br>Reinforce learning and assess understanding of soil erosion types through real-time feedback and collaboration the students to identify type of soil erosion<br><br><b>Hands-On Demonstration:</b><br>Show the students how to identify types of soil erosion<br><br><b>Fieldwork and Outdoor</b> | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Select working tools, equipment and safety gear</li> <li>• Investigate the crop field</li> <li>• Identify different types of soil erosion</li> <li>• Construct terraces</li> <li>• Perform gully reclamation</li> <li>• Make shelter belts</li> </ul> | Soil erosion types identified | <b>Knowledge evidence: Detailed knowledge of:</b><br><b>Method used:</b> The students should identify different types of soil erosion<br><b>Principles:</b> The students should explain the principles of identifying different types of soil erosion<br><b>Theories:</b> The students should explain the: <ul style="list-style-type: none"> <li>• Type of soil erosion</li> <li>• Effects of soil erosion</li> <li>• Advantages of runoff diversion</li> <li>• Methods of</li> </ul> | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Safety glasses</li> <li>• Gloves</li> <li>• Overalls</li> <li>• Overcoats</li> <li>• Masks</li> <li>• Hoes</li> <li>• Grasses</li> <li>• Ranging poles</li> <li>• Pegs</li> <li>• Forks</li> <li>• Tape measures</li> <li>• Rope</li> <li>• Line level</li> <li>• Automatic level</li> <li>• Staff bar</li> <li>• Note books</li> </ul> |                            |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)               | Suggested Teaching and Learning Methods  | Assessment Criteria  |  |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
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|                                   |                                      |  |  | Process Assessment   | Product/Services Assessment  | Knowledge Assessment   |  |                            |
|                                   |                                      |  | <b>Activities:</b> Take students on a nature walk or field trip to observe real-life examples of soil erosion. | <ul style="list-style-type: none"> <li>• Make a buffer strip</li> <li>• Perform minimum tillage</li> <li>• Perform minimum tillage</li> <li>• Plant cover crops</li> <li>• Observe safety precaution of handling tools and equipment</li> <li>• Clean tools and equipment</li> <li>• Store tools and equipment properly</li> </ul> |  | protecting steep slopes from gully erosion <ul style="list-style-type: none"> <li>• Importance of mulching</li> <li>• Techniques in conservation tillage (Agriculture)</li> </ul> <b>Circumstantial knowledge:</b> Detailed Knowledge about safety precautions of using land survey equipment. | <ul style="list-style-type: none"> <li>• Pens</li> <li>• Racks</li> <li>• Slashers</li> <li>• Hand forks</li> <li>• Hand hoes</li> <li>• Forked hoes</li> <li>• Spades</li> <li>• Shovel</li> <li>• Dibblers</li> <li>• Wheelbarrow</li> <li>• Mattocks</li> <li>• Machetes</li> <li>• Stones</li> </ul> |                            |
|                                   |                                      | (b) Performing conservation agriculture (CA) | <b>Interactive Quizzes:</b> Provide the students with questions how to perform conservation agriculture        | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Select working tools, equipment and safety</li> </ul>   | Conservation Agriculture practiced as per laid down agronomic practices. | <b>Knowledge evidence:</b><br><b>Detailed knowledge of:</b><br><b>Method used:</b> The students should explain how to perform conservation agriculture   | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Gum boots</li> <li>• Safety glasses</li> <li>• Gloves</li> <li>• Overalls</li> </ul>  |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |                             |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
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|                                   |                                      |                                |   | Process Assessment   | Product/Services Assessment | Knowledge Assessment   |  |                            |
|                                   |                                      |                                | <p><b>Collaborative Projects and Group Work:</b><br/>Demonstrate to the students how to perform conservation agriculture</p> <p><b>Activity:</b><br/>Organise the students in manageable groups to perform conservational agriculture</p> | <p>gear</p> <ul style="list-style-type: none"> <li>Investigate the crop field</li> <li>Identify different techniques of conservation Agriculture</li> <li>Select plants to control erosion</li> <li>Perform strip-cropping</li> <li>Construct terraces</li> <li>Make a buffer strip</li> <li>Perform minimum tillage</li> <li>Perform crop rotation</li> <li>Plant cover crops</li> <li>Observe safety precaution of handling tools and equipment</li> </ul> |                             | <p><b>Principles:</b> The students should explain the principles of conservation agriculture</p> <p><b>Theories:</b> The students should explain the:</p> <ul style="list-style-type: none"> <li>The advantages of conservation agriculture</li> <li>Importance of practicing conservation Agriculture</li> <li>Concepts of Climate Smart Agriculture</li> <li>Techniques in conservation tillage (Agriculture)</li> <li>Importance of crop rotation in CA</li> </ul> <p><b>Circumstantial knowledge:</b> Detailed Knowledge about climate Smart Agriculture</p> | <ul style="list-style-type: none"> <li>Overcoats</li> <li>Masks</li> <li>Hoes</li> <li>Grasses</li> <li>Ranging poles</li> <li>Pegs</li> <li>Forks</li> <li>Tape measures</li> <li>Rope</li> <li>Line level</li> <li>Automatic level</li> <li>Staff bar</li> <li>Note books</li> <li>Pens</li> <li>Racks</li> <li>Slashers</li> <li>Ox Ploughs</li> <li>Riper</li> <li>Chisel plough</li> <li>Hand forks</li> <li>Hand hoes</li> <li>Forked hoes</li> <li>Spades</li> <li>Shovel</li> <li>Dibblers</li> <li>Wheelbarrow</li> <li>Mattocks</li> <li>Machetes</li> <li>Stones</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |  |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|--|--|---|---|----------------------------|
|                                   |                                      |                                |   | Process Assessment   | Product/Services Assessment  | Knowledge Assessment  |   |                            |
|                                   |                                      |                                |   | <ul style="list-style-type: none"> <li>Clean tools and equipment</li> <li>Store tools and equipment properly</li> </ul>  |  |   |   |                            |
|                                   | 4.2 Conserving soil water            | (a) Constructing ridges        | <p><b>Questions and answers:</b> Guide the students to construct ridges for conserving water in the farm</p> <p><b>Soil Conservation Demo Workshops:</b> Invite local farmers, conservation experts, or environmental organizations to conduct hands-on workshops for students</p> <p><b>Field work:</b> Organise the students in</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>Select tools, instrument and safety gear</li> <li>Design different types of ridges</li> <li>Construct ridges</li> <li>Observe safety precaution of handling tools and equipment</li> <li>Clean tools, equipment and workplace</li> </ul> | Water conservation ridges constructed using recommended procedures | <p><b>Detailed knowledge of:</b></p> <p><b>Method used:</b> The students should explain how to: perform soil water conservation techniques</p> <p><b>Principles:</b> The students should explain principles of: construct ridges</p> <p><b>Theories:</b> The students should explain the: -</p> <ul style="list-style-type: none"> <li>Importance of soil water conservation</li> <li>Soil water plant relationship</li> <li>Concept of climate change</li> <li>Effects of Climate</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>Overalls</li> <li>Rubber gloves</li> <li>Safety boots</li> <li>Wheelbarrow</li> <li>Mattock</li> <li>Hanging baskets</li> <li>Hand hoes</li> <li>Grass mulches</li> <li>Plastic mulch sheets</li> <li>Spades</li> <li>Forked hoes</li> <li>Cover crops</li> </ul> | 60                         |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities)        | Suggested Teaching and Learning Methods   | Assessment Criteria  |  |   | Training Requirements/<br>Suggested Resources   | Number of Periods per Unit |
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|                                   |                                      |                                       |   | Process Assessment   | Product/Services Assessment                          | Knowledge Assessment  |   |                            |
|                                   |                                      |                                       | manageable groups to prepare ridges for conserving water  | <ul style="list-style-type: none"> <li>Store tools and equipment</li> </ul>  |  | change<br><b>Circumstantial knowledge:</b><br><b>Detailed knowledge about:</b> soil water conservation techniques   |   |                            |
|                                   |                                      | (b) Constructing conservation ditches | <p><b>Discussion:</b> Illustrate to students on types and procedures to construct conservation ditches</p> <p><b>Practical work:</b> Guide the students how to construct conservation ditches</p> <p><b>Activity:</b> Organise the students in manageable group to construct water conservation ditches</p> | <p><b>The student should be able to:</b></p> <ul style="list-style-type: none"> <li>Select tools, instrument and safety gear</li> <li>Prepare water ditches in gardens</li> <li>Planting suitable trees in catchment areas</li> <li>Observe safety precaution of handling tools and equipment</li> <li>Clean tools, equipment and</li> </ul> | Construct water ditches using recommended procedures | <p><b>Detailed knowledge of:</b><br/><b>Method used:</b> The students should be able to explain how to: Construct conservation ditches</p> <p><b>Principles:</b> The students should explain principles of: Construct conservation ditches</p> <p><b>Theories:</b> The students should explain the: -</p> <ul style="list-style-type: none"> <li>Importance of soil water conservation through water ditches</li> <li>Factors to consider during water ditches</li> </ul> | <p>The following tools, equipments and safety gears are to be available:</p> <ul style="list-style-type: none"> <li>Overalls</li> <li>Rubber gloves</li> <li>Safety boots</li> <li>Wheelbarrow</li> <li>Mattock</li> <li>Hanging baskets</li> <li>Hand hoes</li> <li>Grass mulches</li> <li>Plastic mulch sheets</li> <li>Spades</li> <li>Forked hoes</li> <li>Cover crops</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |   |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
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|                                   |                                      |                                |   | Process Assessment   | Product/Services Assessment                               | Knowledge Assessment   |  |                            |
|                                   |                                      |                                |   | workplace <ul style="list-style-type: none"> <li>Store tools and equipment</li> </ul>  |   | construction <ul style="list-style-type: none"> <li>Advantages of soil water conservation through ditches</li> </ul> <b>Circumstantial knowledge:</b><br><b>Detailed knowledge about:</b> soil water conservation techniques   |  |                            |
|                                   |                                      | (c) Protecting catchment areas | <b>Interactive Quizzes:</b><br>Guide the student to define catchment areas<br><br><b>Fieldwork:</b><br>Engage the students practise how protection of catchment areas | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select tools, instrument and safety gear</li> <li>Identify different types of mulches</li> <li>Identify different types of eco-friendly trees for catchment areas</li> <li>Planting suitable trees</li> </ul> | catchment areas protected by using recommended procedures | <b>Detailed knowledge of:</b><br><b>Method used:</b><br>The students should explain how to protect catchment areas<br><b>Principles:</b> The students should explain principles of: protecting catchment areas<br><b>Theories:</b> The students should explain the: - <ul style="list-style-type: none"> <li>Importance of catchment areas protection</li> <li>Types of trees for water source protection</li> </ul> | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>Overalls</li> <li>Rubber gloves</li> <li>Safety boots</li> <li>Wheelbarrow</li> <li>Mattock</li> <li>Pots</li> <li>Manure</li> <li>Polyethylene bags</li> <li>Hanging baskets</li> <li>Hand hoes</li> <li>Grass mulches</li> <li>Plastic mulch sheets</li> <li>Spades</li> <li>Forked hoes</li> </ul> |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |   |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
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|                                   |                                      |                                |  | Process Assessment  | Product/Services Assessment                               | Knowledge Assessment   |  |                            |
|                                   |                                      |                                |  | in catchment areas <ul style="list-style-type: none"> <li>Observe safety precaution of handling tools and equipment</li> <li>Clean tools, equipment and workplace</li> <li>Store tools and equipment</li> </ul>             |   | <ul style="list-style-type: none"> <li>Effects of invasive plant species in catchment areas</li> </ul> <b>Circumstantial knowledge:</b><br>Detailed knowledge about water catchment areas invasive plant species control   | <ul style="list-style-type: none"> <li>Cover crops</li> </ul>  |                            |
|                                   | 4.3 Handling waste                   | (a) Handling waste materials   | <b>Brainstorming:</b><br>Guide the student to define and illustrate how to handle waste materials<br><br><b>Collaborative works:</b><br>Engage the students in manageable groups on handling waste materials at school environment | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>Select working tools, equipment and safety gear</li> <li>Identify different types of farm wastes</li> <li>Handle different types of</li> </ul> | Waste materials handled as per the recommended procedures | <b>Knowledge evidence:</b><br><b>Method used:</b> The students should explain how to handle and dispose farm waste products according recommended regulations and rules<br><br><b>Principles:</b> The student should explain the principles of: <ul style="list-style-type: none"> <li>Identifying and applying correctly all farm handling</li> </ul> | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>Overcoats</li> <li>Masks</li> <li>Gloves</li> <li>Trays</li> <li>Containers</li> <li>Basins</li> <li>Trailers</li> <li>Trolleys</li> <li>Wood containers</li> <li>Plastic containers</li> <li>Plastic bags</li> </ul> | 69                         |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |                             |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|--|-----------------------------|---|--|----------------------------|
|                                   |                                      |                                |   | Process Assessment   | Product/Services Assessment | Knowledge Assessment  |  |                            |
|                                   |                                      |                                | <b>Activity:</b> Organise the students in manageable groups to handle waste materials | wastes<br>• Handle pesticide bottles and cans<br>• Identify types of incinerators<br>• Identify types of waste tanks / Dustbins<br>• Identify types of waste plastic bags<br>• Construct hard waste pits<br>• Construct waste composting pits<br>• Perform disposal of toxic waste<br>• Store / handle toxic wastes<br>• Perform disposal of |                             | wastes equipment and supplies<br>• Sort wastes for recycling<br><b>Theories:</b> The student should explain the:<br>• Types of farm wastes<br>• Methods of waste collection<br>• Various methods of disposing waste materials<br>• How to carefully dispose of unwanted or expired pesticides<br>• How to protect environment from toxic wastes<br>• Distinguish types of wastes<br>• Waste separation<br><b>Circumstantial knowledge:</b><br>Detailed knowledge about toxic waste products disposal techniques | • Garden waste<br>• Tanks<br>• Pesticide bottles<br>• Wheel barrow<br>• Hoes<br>• Spades |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods  | Assessment Criteria   |  |  | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
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|                                   |                                      |                                |  | Process Assessment  | Product/Services Assessment                                  | Knowledge Assessment   |  |                            |
|                                   |                                      |                                |  | liquid farm wastes <ul style="list-style-type: none"> <li>• Perform disposal of hard farm wastes</li> <li>• Observe safety precautions in handling wastes</li> <li>• Store tools and equipment properly</li> <li>• Clean tools and equipment</li> </ul> |  |  |  |                            |
|                                   |                                      | (b) Recycling waste materials  | <b>Discussion:</b><br>Lead the students in manageable groups to define and illustrate procedures for recycling waste materials<br><br><b>Demonstration:</b><br>Demonstrate to the student how to recycle waste | <b>The student should be able to:</b> <ul style="list-style-type: none"> <li>• Select working tools, equipment and safety gear</li> <li>• Identify different types of recyclable</li> </ul>   | Waste materials recycled as per using recommended procedures | <b>Knowledge evidence:</b><br><b>Method used:</b> The student should explain how to Recycle waste material products according recommended regulations and rules<br><b>Principles:</b> The student should explain the principles of: <ul style="list-style-type: none"> <li>• Sorting wastes for recycling</li> </ul> | The following tools, equipments and safety gears are to be available: <ul style="list-style-type: none"> <li>• Overcoats</li> <li>• Masks</li> <li>• Gloves</li> <li>• Trays</li> <li>• Containers</li> <li>• Basins</li> <li>• Trailers</li> <li>• Trolleys</li> <li>• Wood containers</li> </ul> |                            |



| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods   | Assessment Criteria  |                             |   | Training Requirements/<br>Suggested Resources  | Number of Periods per Unit |
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|                                   |                                      |                                |   | Process Assessment   | Product/Services Assessment | Knowledge Assessment  |  |                            |
|                                   |                                      |                                | materials<br><br><b>Practical work:</b><br>Guide the students in manageable groups to recycle waste materials | farm wastes <ul style="list-style-type: none"> <li>• Construct waste composting pits</li> <li>• Perform recycling of organic wastes into manure</li> <li>• Observe safety precautions in handling wastes</li> <li>• Store tools and equipment properly</li> <li>• Clean tools and equipment</li> </ul> |                             | <ul style="list-style-type: none"> <li>• Recycling waste materials</li> </ul> <b>Theories:</b> The students should explain the: <ul style="list-style-type: none"> <li>• Types of recycled farm wastes</li> <li>• Importance waste recycling</li> <li>• Methods of waste collection</li> <li>• Various methods of disposing waste materials</li> <li>• How to protect environment from wastes</li> <li>• Distinguish types of wastes</li> <li>• Techniques of waste separation</li> <li>• Importance of waste recycling</li> </ul> <b>Circumstantial knowledge:</b><br>Detailed knowledge about organic manure products from recycled farm products | <ul style="list-style-type: none"> <li>• Plastic containers</li> <li>• Plastic bags</li> <li>• Garden waste</li> <li>• Tanks</li> <li>• Pesticide bottles</li> <li>• Wheel barrow</li> <li>• Hoes</li> <li>• Spades</li> </ul> |                            |
| Implementing a Project            | Designing and carrying out a         | Carrying out a project work    |   |  |                             |   |  |                            |

| Module Title<br>(Main Competence) | Unit Title<br>(Specific Competences) | Elements (Learning Activities) | Suggested Teaching and Learning Methods | Assessment Criteria |                             |                      | Training Requirements/<br>Suggested Resources | Number of Periods per Unit |
|-----------------------------------|--------------------------------------|--------------------------------|---|---------------------|-----------------------------|----------------------|---|----------------------------|
|                                   |                                      |                                |   | Process Assessment  | Product/Services Assessment | Knowledge Assessment |   |                            |
|                                   | project work                         |                                |   |                     |                             |                      |   |                            |

## References

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