

# Agricultural Machinery and Equipment operation

## Level – I



### TVET Curriculum Version-I

Based on March 2022, Version- II Occupational Standard

## **Acknowledgements**

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## Preface

The reformed TVET-System is an outcome-based system. It utilizes the needs of the labor market and occupational requirements from the world of work as the benchmark and standard for TVET delivery. The requirements from the world of work are analyzed and documented – taking into account international benchmarking – as occupational standards (OS).

In the reformed TVET-System, curricula and curriculum development play an important role with regard to quality driven comparable TVET-Delivery. The Curricula help to facilitate the training process in a way, that trainees acquire the set of occupational competences (skills, knowledge and attitude) required at the working place and defined in the occupational standards (OS).

This curriculum has been developed by a group of professional experts from different Regional TVET Bureaus, colleges, Industries, Institutes and universities based on the occupational standard for **Agricultural Machinery and equipment operation Level I**. The curriculum development process has been actively supported and facilitated by **Ministry of Labor and Skills**.

## 1 TVET-Program Design

### 1.1 TVET-Program Title: Agricultural Machinery and equipment operation -Level I

#### 1.2 TVET-Program Description

The Program is designed to develop the necessary knowledge, skills and attitude of the trainees to the standard required by the occupation. The contents of this program are in line with the occupational standard. The Trainees who successfully completed the Program will be qualified to work as **Agricultural Machinery and equipment operation Worker** with competencies elaborated in the respective OS. Graduates of the program will have the required qualification to work in the **Agriculture Sector** in the field of Agricultural Machinery and equipment operation.

The prime objective of this training program is to equip the Trainees with the identified competences specified in the OS. Graduates are therefore expected to Use Basic workshop Tools and measuring devices, Perform Crop Production, Perform Agricultural Crop Harvesting, Operate Manual Agricultural equipment, Operate Animal Husbandry Machinery and Equipment, Undertake basic Maintenance of Machinery and Equipment , Inspect, repair and Replace Tyres, Operate and Use Post Harvest Technologies, Apply First Aid, Apply Agricultural Extension Communication, Implement Agribusiness Marketing, Apply Basics of Human Nutrition Practices and Apply 5S Procedures in accordance with the performance criteria and evidence guide described in the OS.

### 1.3 Training Program Structure

Unit of Competence		Module Code & Title		Learning Outcomes	Duration (In Hours)
AGR AMO1 10 0322	Apply Agricultural Extension Communication	AGR AMO1 M01 0922	Applying Agricultural Extension Communication	<ul style="list-style-type: none"> <li>• Understand the Concept and evolution of Agricultural Extension</li> <li>• Apply Extension methods and Approaches</li> <li>• Apply Agricultural Extension Communication and Facilitation for technology promotion</li> <li>• Conduct Training</li> <li>• Record and Document Data</li> </ul>	55
AGR AMO1 13 0322	Apply 5S Procedures	AGR AMO1 M02 0922	Applying 5S Procedures	<ul style="list-style-type: none"> <li>• Prepare for work.</li> <li>• Sort items.</li> <li>• Set all items in order</li> <li>• Perform shine activities.</li> <li>• Standardize 5S.</li> <li>• Sustain 5S.</li> </ul>	50

AGR AMO1 01 0322	Use Basic workshop Tools and measuring devices	AGR AMO1 M03 0922	Using Basic workshop Tools and measuring devices	<ul style="list-style-type: none"> <li>Identify Workshop Tools and Measuring Devices</li> <li>Use hand and power tools</li> <li>Conduct measurements and analyze results</li> <li>Maintain tools and measuring device</li> </ul>	40hrs
AGR AMO1 04 0322	Operate Manual Agricultural equipment	AGR AMO1 M04 0922	Operating Manual Agricultural equipment	<ul style="list-style-type: none"> <li>Prepare manual equipment for operation</li> <li>Operate manual equipment</li> <li>Maintain and store manual equipment</li> </ul>	70hrs
AGR AMO1 02 0322	Perform Crop Production	AGR AMO1 M05 0922	Performing Crop Production	<ul style="list-style-type: none"> <li>Identify crop types</li> <li>Identify and Determine Basic Properties of Soil</li> <li>Prepare materials, inputs, tools and equipment for crop production</li> <li>Undertake agricultural Crop production work</li> <li>Handle, Clean up and store materials and equipment</li> <li>Record and document</li> </ul>	55

AGR AMO1 06 0322	Undertake basic Maintenance of Machinery and Equipment	AGR AMO1 M06 0922	Undertaking basic Maintenance of Machinery and Equipment	<ul style="list-style-type: none"> <li>• Prepare for basic routine maintenance</li> <li>• Perform routine and scheduled maintenance</li> <li>• Complete basic routine and scheduled maintenance</li> </ul>	60hrs
AGR AMO1 12 0322	Apply Basics of Human Nutrition Practices	AGR AMO1 M07 0922	Applying Basics of Human Nutrition Practices	<ul style="list-style-type: none"> <li>• Identify Categories of agricultural foods items</li> <li>• Recognize malnutrition in the community</li> <li>• Identify the role of agriculture in nutrition</li> <li>• Demonstrate diversified Agricultural food production and consumption techniques</li> <li>• Perform proper handling and storage of agricultural food products</li> <li>• Document and report food production, consumption and difficulties</li> </ul>	48



AGR AMO1 05 0322	Operate Animal Husbandry Machinery and Equipment	AGR AMO1 M08 0922	Operating Animal Husbandry Machinery and Equipment	<ul style="list-style-type: none"> <li>• Prepare and identify for Work</li> <li>• Identify technologies for animal husbandry machinery and equipment</li> <li>• Operate and use livestock husbandry machinery and equipment</li> <li>• Clean machinery and equipment</li> <li>• Safe storage of Machinery and equipment</li> </ul>	60hrs
AGR AMO1 09 0322	Apply First Aid	AGR AMO1 M09 0922	Applying First Aid	<ul style="list-style-type: none"> <li>• Assess the situation</li> <li>• Apply first aid procedures</li> <li>• Communicate details of the incident</li> <li>• Evaluate own performance</li> </ul>	30hrs
AGR AMO1 08 0322	Operate and Use Post Harvest Technologies	AGR AMO1 M10 0922	Operating and Using Post Harvest Technologies	<ul style="list-style-type: none"> <li>• Prepare post-harvest machinery and equipment for use</li> <li>• Operate post-harvest machinery and equipment</li> <li>• complete post-harvest technologies and equipment operation</li> <li>• Perform post-harvest handling</li> </ul>	70hrs

AGR AMO1 07 0322	Inspect, repair and Replace Tyres	AGR AMO1 M11 0922	Inspecting, repairing and Replacing Tyres	<ul style="list-style-type: none"> <li>• Prepare to inspect, repair and replace tyre</li> <li>• Conduct inspection</li> <li>• Carry out removal, repair and refit</li> <li>• Check Tyre for use or storage</li> </ul>	45hrs
AGR AMO1 11 0322	Implement Agribusiness Marketing	AGR AMO1 M12 0922	Implementing Agribusiness Marketing	<ul style="list-style-type: none"> <li>• Understand concept of agricultural marketing</li> <li>• Understand concepts of agribusiness</li> <li>• Identify marketing targets for Agricultural products</li> <li>• Implement marketing strategy</li> <li>• Establish contract farming</li> <li>• Apply Agricultural marketing services</li> </ul>	41
AGR AMO1 03 0322	Perform Agricultural Crop Harvesting	AGR AMO1 M13 0922	Performing Agricultural Crop Harvesting	<ul style="list-style-type: none"> <li>• Prepare for agricultural crop harvesting operations.</li> <li>• Prepare machinery and equipment for crop harvesting</li> <li>• Complete harvesting operation</li> </ul>	40hrs

#### 1.4 Duration of the TVET-Program

The Program will have duration of ----- hours including the on school/ Institution training and on-the-job practice or cooperative training time. Such cooperative training based on realities of the industry, nature of the occupation, location of the TVET institution, and other factors will be considered in the training delivery to ensure that trainees acquire practical and workplace experience.

S. No	Module title	TVET Institution training		Cooperative training	Total hours	Remark
		Theory	Practical			
1.	Applying Agricultural Extension Communication	20	30	5	55hrs	
2.	Applying 5S Procedures	15	20	15	50hrs	
3.	Use Basic workshop Tools and measuring devices	10	25	5	40hrs	
4.	Operating Manual Agricultural equipment	20	40	10	70hrs	
5.	Performing Crop Production	17	30	8	55hrs	
6.	Undertaking basic Maintenance of Machinery and Equipment	20	25	5	60hrs	
7.	Applying Basics of Human Nutrition Practices	15	23	10	48hrs	
8.	Operating Animal Husbandry Machinery and Equipment	20	30	15	60hrs	
9.	Applying First Aid	10	15	5	30hrs	
10	Operating and Using Post Harvest Technologies	20	30	20	70hrs	
11	Inspecting, repairing and Replacing Tyres	15	25	5	45hrs	
12	Implementing Agribusiness Marketing	12	19	10	41hrs	
13	Performing Agricultural Crop Harvesting	15	20	5	40hrs	
Total hour		209	332	118	<b>659hrs</b>	

### 1.5 Qualification Level and Certification

Qualification is a formal certificate issued by an official agency in recognition to that an individual has been assessed as achieving learning outcomes or competencies to the standard specified for the qualification title. A qualification confers official recognition of value in the labour market and in further education and training. Based on the descriptors elaborated on the Ethiopian National TVET Qualification Framework (NTQF) the qualification of this specific TVET Program is Certificate I according to the level. The trainee will be awarded transcript and the institutional certificate after successfully completing all the modules in the level.

### 1.6 Target Groups

Any citizen who meets the entry requirements under items 1.7 and capable of participating in the training activities is entitled to take part in the Program.

### 1.7 Entry Requirements

In principle everyone should be able to access training based on the labor market. Hence the prospective participants of this program are any citizens who possess the entry requirement directive of the Ministry of Labor and Skills.

### 1.8 Mode of Delivery

This TVET-Program is characterized as a formal Program on middle level technical skills. The mode of training delivery is in the institution and co-operative training. Cooperative training is a model of training by the cooperation of enterprises/industries and TVET institutions whereby trainees spend much of their time in the enterprises/industries to acquire industrial knowledge, skills, experiences, and attitudes of the industrial environment and the remaining time in TVET institutions to acquire basic skills and theoretical concepts. Therefore, it is necessary to make the TVET sector more effective by strengthening a system of cooperative training accepted by the industry.

The program will employ different alternatives of cooperative training such as apprenticeships, internship and traineeship based on the nature of the occupation, location of the TVET institutions, and interest of the industry. In addition, in the areas where industry is not sufficiently available the established production and service centers/learning factories in TVET institutions will be used as cooperative training places. The Training-Institution and identified companies should have to take an

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agreement to co-operate with regard to the implementation of this program.

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## 1.9 Institutional Assessment

Two types of evaluation will be used in determining the extent to which training outcomes are achieved. The specific training outcomes are stated in the modules. In assessing them, verifiable and observable indicators and standards shall be used.

The **formative assessment** is incorporated in the training modules and form part of the training process. Formative evaluation provides the trainee with feedback regarding success or failure in attaining training outcomes. It identifies the specific training errors that need to be corrected, and provides reinforcement for successful performance as well. For the teacher, formative evaluation provides information for making instruction and remedial work more effective.

**Summative Evaluation** the other form of evaluation is given when all the modules in the program have been accomplished. It determines the extent to which competence have been achieved. And, the result of this assessment decision shall be expressed in the term of institutional Assessment implementation guidelines.

Techniques or tools for obtaining information about trainees' achievement include oral or written test, demonstration and on-site observation. Therefore, a trainee is required to earn at least 60% to be theoretically qualified. This result should be 18% or more when converted to 30%. Regarding performance appraisal results, it must score at least 80% or at least 32% or more when converted to 40%. Must cooperate at least 80% out of 100% in cooperative training; When converted to 30%, it must register 24%.

## 1.10 TVET Teachers Profile

The trainers conducting this particular TVET Program are **B Level** and above who have satisfactory practical experiences or equivalent qualifications.

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### 1.11 Inclusive training and assessment methodology

The program is delivered using a variety of training methods. The table below shows training and assessment methodology for non-impaired trainees and with reasonable adjustment for impaired trainees. In addition, as per the nature of the module title the trainer can use recommended and possible training and assessment methodology.

<b>Learning Methods:</b>				
<b>For none impaired trainees</b>	<b>Reasonable Adjustment for Trainees with Disability (TWD)</b>			
	<b>Low Vision</b>	<b>Deaf</b>	<b>Hard of hearing</b>	<b>Physical impairment</b>
<b>Lecture-discussion</b>	<ul style="list-style-type: none"> <li>❖ Provide large print text</li> <li>❖ Prepare the lecture in Audio/video</li> <li>❖ Organize the class room seating arrangement to be accessible to trainees</li> <li>❖ Write short notes on the black/white board using large text</li> <li>❖ Make sure the luminosity of the light of class room is kept</li> <li>❖ Use normal tone of voice</li> <li>❖ Encourage trainees to record the lecture in audio format</li> <li>❖ Provide Orientation on the physical feature of the work shop</li> <li>❖ Summarize main points</li> </ul>	<ul style="list-style-type: none"> <li>❖ Assign sign language interpreter</li> <li>❖ Arrange the class room seating to be conducive for eye to eye contact</li> <li>❖ Make sure the luminosity of the light of class room is kept</li> <li>❖ Introduce new and relevant vocabularies</li> <li>❖ Use short and clear sentences</li> <li>❖ Give emphasis on visual lecture and ensure the attention of the trainees</li> <li>❖ Avoid movement during lecture time</li> <li>❖ Present the lecture in video format</li> <li>❖ Summarize main points</li> </ul>	<ul style="list-style-type: none"> <li>❖ Organize the class room seating arrangement to be accessible to trainees</li> <li>❖ Speak loudly</li> <li>❖ Ensure the attention of the trainees</li> <li>❖ Present the lecture in video format</li> <li>❖ Ensure the attention of the trainees</li> </ul>	<ul style="list-style-type: none"> <li>❖ Organize the class room seating arrangement to be accessible for wheelchairs users.</li> <li>❖ Facilitate and support the trainees who have severe impairments on their upper limbs to take note</li> <li>❖ Provide Orientation on the physical feature of the work shop</li> </ul>

<p><b>Lecture-discussion</b></p>	<ul style="list-style-type: none"> <li>❖ Provide large print text</li> <li>❖ Prepare the lecture in Audio/video</li> <li>❖ Organize the class room seating arrangement to be accessible to trainees</li> <li>❖ Write short notes on the black/white board using large text</li> <li>❖ Make sure the luminosity of the light of class room is kept</li> <li>❖ Use normal tone of voice</li> <li>❖ Encourage trainees to record the lecture in audio format</li> <li>❖ Provide Orientation on the physical feature of the work shop</li> <li>❖ Summarize main points</li> </ul>	<ul style="list-style-type: none"> <li>❖ Assign sign language interpreter</li> <li>❖ Arrange the class room seating to be conducive for eye to eye contact</li> <li>❖ Make sure the luminosity of the light of class room is kept</li> <li>❖ Introduce new and relevant vocabularies</li> <li>❖ Use short and clear sentences</li> <li>❖ Give emphasis on visual lecture and ensure the attention of the trainees</li> <li>❖ Avoid movement during lecture time</li> <li>❖ Present the lecture in video format</li> <li>❖ Summarize main points</li> </ul>	<ul style="list-style-type: none"> <li>❖ Organize the class room seating arrangement to be accessible to trainees</li> <li>❖ Speak loudly</li> <li>❖ Ensure the attention of the trainees</li> <li>❖ Present the lecture in video format</li> <li>❖ Ensure the attention of the trainees</li> </ul>	<ul style="list-style-type: none"> <li>❖ Organize the class room seating arrangement to be accessible for wheelchairs users.</li> <li>❖ Facilitate and support the trainees who have severe impairments on their upper limbs to take note</li> <li>❖ Provide Orientation on the physical feature of the work shop</li> </ul>
<p><b>Demonstration</b></p>	<ul style="list-style-type: none"> <li>❖ Conduct close follow up</li> <li>❖ Use verbal description</li> <li>❖ Provide special attention in the process of guidance</li> <li>❖ facilitate the support of peer trainees</li> <li>❖ Prepare &amp; use simulation</li> </ul>	<ul style="list-style-type: none"> <li>❖ use Sign language interpreter</li> <li>❖ Use video recorded material</li> <li>❖ Ensure attention of the trainees</li> <li>❖ Provide structured training</li> <li>❖ Show clear and short method</li> <li>❖ Use gesture</li> <li>❖ provide tutorial support (if necessary)</li> </ul>	<ul style="list-style-type: none"> <li>❖ Illustrate in clear &amp; short method</li> <li>❖ Use Video recorded material</li> <li>❖ Ensure the attention of the trainees</li> <li>❖ provide tutorial support (if necessary)</li> </ul>	<ul style="list-style-type: none"> <li>❖ Facilitate and support the trainees having severe upper limbs impairment to operate equipments/ machines</li> <li>❖ Assign peer trainees to assist</li> <li>❖ Conduct close follow up</li> <li>❖ provide tutorial support (if necessary)</li> </ul>



<b>Group discussion</b>	<ul style="list-style-type: none"> <li>❖ Facilitate the integration of trainees with group members</li> <li>❖ Conduct close follow up</li> <li>❖ Introduce the trainees with other group member</li> <li>❖ Brief the thematic issues of the work</li> </ul>	<ul style="list-style-type: none"> <li>❖ Use sign language interpreters</li> <li>❖ Facilitate the integration of trainees with group members</li> <li>❖ Conduct close follow up</li> <li>❖ Introduce the trainees with other group member</li> </ul>	<ul style="list-style-type: none"> <li>❖ Facilitate the integration of trainees with group members</li> <li>❖ Conduct close follow up</li> <li>❖ Introduce the trainees with other group member</li> <li>❖ Inform the group members to speak loudly</li> </ul>	<ul style="list-style-type: none"> <li>❖ Introduce the trainees with their peers</li> </ul>
<b>Exercise</b>	<ul style="list-style-type: none"> <li>❖ Conduct close follow up and guidance</li> <li>❖ Provide tutorial support if necessary</li> <li>❖ provide special attention in the process</li> </ul>	<ul style="list-style-type: none"> <li>❖ Conduct close follow up and guidance</li> <li>❖ Provide tutorial support if necessary</li> <li>❖ provide special attention in the process/practical training</li> <li>❖ Introduce new and relevant vocabularies</li> </ul>	<ul style="list-style-type: none"> <li>❖ Conduct close follow up and guidance</li> <li>❖ Provide tutorial support if necessary</li> <li>❖ provide special attention in the process/ practical training</li> </ul>	<ul style="list-style-type: none"> <li>❖ Assign peer trainees</li> <li>❖ Use additional nominal hours if necessary</li> </ul>
<b>Individual assignment</b>	<ul style="list-style-type: none"> <li>❖ prepare the assignment questions in large text</li> <li>❖ Encourage the trainees to prepare and submit the assignment in large texts</li> <li>❖ Make available recorded assignment questions</li> <li>❖ Facilitate the trainees to prepare and submit the assignment in soft or hard copy</li> </ul>	<ul style="list-style-type: none"> <li>❖ Use sign language interpreter</li> <li>❖ Provide briefing /orientation on the assignment</li> <li>❖ Provide visual recorded material</li> </ul>	<ul style="list-style-type: none"> <li>❖ Provide briefing /orientation on the assignment</li> <li>❖ Provide visual recorded material</li> </ul>	

<b>Assessment Methods:</b>				
<b>Interview</b>		<ul style="list-style-type: none"> <li>❖ Use sign language interpreter</li> <li>❖ Ensure or confirm whether the proper communication was conducted with the trainee through the service of the sign language interpreter</li> <li>❖ Use short and clear questioning</li> <li>❖ Time extension</li> </ul>	<ul style="list-style-type: none"> <li>❖ Speak loudly</li> <li>❖ Using sign language interpreter if necessary</li> </ul>	<ul style="list-style-type: none"> <li>❖ Use written response as an option for the trainees having speech challenges</li> </ul>
<b>Written test</b>	<ul style="list-style-type: none"> <li>❖ Prepare the exam in large texts</li> <li>❖ Use interview as an option if necessary</li> <li>❖ Prepare the exam in audio format</li> <li>❖ Assign human reader</li> <li>❖ (if necessary)</li> <li>❖ Time extension</li> </ul>	<ul style="list-style-type: none"> <li>❖ Prepare the exam using short sentences, multiple choices, True or False, matching and short answers</li> <li>❖ Avoid essay writing</li> <li>❖ Time extension</li> </ul>	<ul style="list-style-type: none"> <li>❖ Prepare the exam using short sentences, multiple choices, true or false, matching and short answers if necessary.</li> </ul>	<ul style="list-style-type: none"> <li>❖ Use oral response as an option to give answer for trainees having severe upper limb impairment</li> <li>❖ Time extension for trainees having severe upper limb impairment</li> </ul>
<b>Demonstration/ Observation</b>	<ul style="list-style-type: none"> <li>❖ Brief the instruction or provide them in large text</li> <li>❖ Time extension</li> </ul>	<ul style="list-style-type: none"> <li>❖ Use sign language interpreter</li> <li>❖ Brief on the instruction of the exam</li> <li>❖ Provide activity-based/ practical assessment method</li> <li>❖ Time extension</li> </ul>	<ul style="list-style-type: none"> <li>❖ Provide activity based assessment</li> <li>❖ Brief on the instruction of the exam</li> <li>❖ Use loud voice</li> <li>❖ Time extension</li> </ul>	<ul style="list-style-type: none"> <li>❖ Provide activity based assessment</li> <li>❖ Conduct close follow up</li> <li>❖ Time extension</li> </ul>

## Learning Module Design

<p><b>MODULE CODE &amp; TITLE: AGR AMO1 M01 0322</b></p> <p style="text-align: center;"><b>Applying Agricultural Extension Service</b></p>
<p>NOMINAL DURATION: 55 Hours</p>
<p><b>MODULE DESCRIPTION:</b> This module covers the knowledge, skills and attitudes required to understand the Concept and evolution of agricultural Extension, apply extension methods and Approaches, apply Agricultural extension Communication and facilitation for technology promotion, Conduct training and record and document data</p>
<p><b>LEARNING OUTCOMES</b></p> <p>At the end of the module the trainee will be able to:</p> <p>LO1. Understand the Concept and evolution of Agricultural Extension</p> <p>LO2. Apply Extension methods and Approaches</p> <p>LO3. Apply Agricultural Extension Communication and Facilitation for technology promotion</p> <p>LO4 Conduct Training</p> <p>LO4 Record and Document Data</p> <p>LO5 Recording and Documenting Data</p>
<p><b>MODULE CONTENTS:</b></p> <p><b>LO1. Understanding the Concept and evolution of Agricultural Extension ....</b></p> <ol style="list-style-type: none"> <li>1.1 Understanding the concept of Agricultural extension</li> <li>1.2 Expressing the evolution and progress of agricultural extension</li> <li>1.3 Understanding the role of extension in agricultural development</li> <li>1.4 Determining the importance of Agricultural extension</li> <li>1.5 Understanding extension planning activities</li> </ol> <p><b>LO2. Applying Extension methods and Approaches</b></p> <ol style="list-style-type: none"> <li>2.1. Understanding extension methods to provide Extension services</li> <li>2.2. Understanding extension approaches</li> <li>2.3. Understanding the importance of extension methods and approaches</li> <li>2.4. Applying appropriate extension methods and approaches lines</li> </ol>

**LO3. Applying Agricultural Extension Communication and Facilitation for technology promotion**

- 3.1. Understanding the concept, principle and type of communication
- 3.2. Identifying, understanding and solving Communication barriers
- 3.3. Defining elements of extension communication
- 3.4. Understanding audio visual techniques
- 3.5. Recommending roles and characteristics of extension communicator
- 3.6. Understanding the basic concept of facilitation
- 3.7. Applying the roles and responsibilities of a facilitator
- 3.8. Understanding conflict resolution skill
- 3.9. Applying the skills of a facilitator

**LO4 Conducting Training**

- 4.1. Conducting need assessment
- 4.2. Carrying out preparation facilities
- 4.3. Conducting implementation to capacitate trainees
- 4.4. Carrying-out evaluation understand the outcome

**LO5 Recording and Documenting Data**

- 5.1 Developing data collecting formats
- 5.2 Collecting and organizing appropriate data
- 5.3 Documenting and reporting collected and organized data

**LEARNING METHODS:**

- Lecture and Discussion
- Braine storming
- Practical demonstration
- Practical exercice
- Role playing

**ASSESSMENT METHODS:**

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- Written test
- Oral questioning
- Practical (group work)
- Presentation

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**ASSESSMENT CRITERIA:**

**LO1. Understand the Concept and evolution of Agricultural Extension ....**

- understand the concept of Agricultural extension
- Express the evolution and progress of agricultural extension
- Understand the role of extension in agricultural development
- Determine the importance of Agricultural extension
- Understand extension planning activities

**LO2. Apply Extension methods and Approaches**

- understanding extension methods to provide Extension services
- understanding extension approaches
- understanding the importance of extension methods and approaches
- Applying appropriate extension methods and approaches lines

**LO3. Apply Agricultural Extension Communication and Facilitation for technology promotion**

- Understand the concept, principle and type of communication
- Identify, understand and solve Communication barriers
- Define elements of extension communication
- Understand audio visual techniques to provide Agricultural Extension and communication
- Recommend roles and characteristics of extension communicator
- Understand the basic concept of facilitation
- Apply the roles and responsibilities of a facilitator
- Understand conflict resolution skill
- Apply the skills of a facilitator for communication & technology promotion

**LO4 Conduct Training**

- Conduct need assessment
- Carry out preparation facilities for the training process
- Conduct implementation to capacitate trainees
- carry-out evaluation understands the outcome

**LO5 Record and Document Data**

- Develop data collecting formats
- Collect and organize appropriate data
- Document and report Collected and organized data

<p><b>MODULE CODE &amp; TITLE : AGR AMO1 M02 0422</b></p> <p style="text-align: center;"><b>Applying 5S Procedures</b></p>
<p><b>NOMINAL DURATION : 50 Hours</b></p>
<p><b>MODULE DESCRIPTION :</b> This module covers the knowledge, skills and attitude required to apply 5S techniques to his/her workplace. It covers responsibility for the day-to-day operations of the workplace and ensuring that continuous improvements of Kaizen elements are initiated and institutionalized.</p>
<p><b>LEARNING OUTCOMES</b></p> <p>At the end of the module the trainee will be able to:</p> <p><b>LO1.</b> Develop understanding of quality system</p> <p><b>LO2.</b> Sort needed items from unneeded</p> <p><b>LO3.</b> Set workplace in order</p> <p><b>LO4.</b> Shine work area</p> <p><b>LO5.</b> Standardize activities</p> <p><b>LO6.</b> Sustain 5S system</p>
<p><b>MODULE CONTENTS:</b></p> <p><b>LO1. Developing and Understanding of Quality System</b></p> <p>1.1 Discussing quality assurance procedures of the organization</p> <p>1.2 Understanding quality system and improvement in the workplace</p> <p>1.3 Identifying the workplace requirements and elements of quality assurance system</p> <p>1.4 Explaining the 5S system</p> <p><b>LO2. Sorting needed items from unneeded items</b></p> <p>2.1 Identifying items in the workplace</p> <p>2.2 Distinguishing essential and non-essential items</p> <p>2.3 Sorting items to achieve deliverables and value expected by customers</p> <p>2.4 Sorting items for required purposes</p> <p>2.5 Placing non-essential item in a appropriate place</p> <p>2.6 Checking the essential items in the workplace</p>

### **LO3. Setting Workplace in Order**

- 3.1 Identifying the location for essential item
- 3.2 Placing item in assigned location
- 3.3 Returning the items after use
- 3.4 Checking each item regularly

### **LO4. Shining Work Area**

- 4.1 Keeping the work area clean
- 4.2 Conducting regular housekeeping activities
- 4.3 Cleaning the work area at beginning and end of shift

### **LO5. Standardize Activities**

- 5.1 Following the procedures
- 5.2 Following checklists for activities
- 5.3 Keeping workplace to specific Standard

### **LO6. Sustaining 5S system**

- 6.1 Cleaning up workplace
- 6.2 Identifying the situations and take actions specified in procedures
- 6.3 Inspecting workplace to the specified Standard
- 6.4 Recommending improvements in the workplace

### **LEARNING METHODS:**

- Lecture and Discussion
- Demonstration
- Role playing

### **ASSESSMENT METHODS:**

- Written test with
- Oral questioning
- Practical (group work)
- Presentation



**ASSESSMENT CRITERIA:**

**LO1. Develop Understanding of Quality System**

- Discuss quality assurance procedures of the enterprise or organization
- Understand the relationship of quality system and continuous improvement in the workplace
- Identify and relate to workplace requirements the purpose and **elements** of quality assurance (QA) system
- Explain the **5S system** as part of the quality assurance of the work organization

**LO2. Sort needed items from unneeded**

- Identify all **items** in the work area
- Distinguish between essential and non-essential items
- Sort items to achieve deliverables and value expected by downstream and final customers
- Sort items required for regulatory or other required purposes
- Place any non-essential item in a appropriate place other than the workplace
- Regularly check that only essential items are in the work area

**LO3. Set Workplace in Order**

- Identify the best location for each essential item
- Place each essential item in its assigned location
- After use immediately return each essential item to its assigned location
- Regularly check that each essential item is in its assigned location

**LO4. Shine Work Area**

- Keep the work area clean and tidy at all times
- Conduct regular housekeeping activities during shift
- Ensure the work area is neat, clean and tidy at both beginning and end of shift

**LO5. Standardize Activities**

- Follow **procedures**
- Follow checklists for activities, where available
- Keep the work area to specified Standard

**LO6. Sustain 5S system**

- Clean up after completion of job and before commencing next job or end of shift

Page 22 of 85	Identify situations where compliance to Standards is unlikely and take actions	Author/Copyright	Program Title	Curriculum version - I
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specified in procedures

- Inspect work area regularly for compliance to specified Standard
- Recommend improvements to lift the level of compliance in the workplace

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<p><b>MODULE CODE AND TITLE : AGR AMO1 M03 0922</b></p> <p style="text-align: center;">Using Basic Workshop Tools and Measuring Devices</p>
<p><b>Nominal Duration :</b> 40 Hours</p>
<p><b>Module Description :</b> This module covers the knowledge, skills and attitudes required to identify, use and maintain Workshop Tools and measuring devices; Conduct measurement and analyse results</p>
<p><b>Learning Outcomes</b></p> <p>At the end of the module the trainee will be able to:</p> <p>LO-1 Identify Workshop Tools and Measuring Devices</p> <p>LO-2 Use hand and power tools</p> <p>LO-3 Conduct measurements and analyze results</p> <p>LO-4 Maintain tools and measuring device</p>
<p><b>Module content</b></p> <p><b>LO-1: Identify Workshop Tools and Measuring Devices</b></p> <p>1.1 .OHS and regulatory requirements</p> <p>1.2. Personal protective equipment</p> <p>1.3. Hand tools, power tools and measuring devices</p> <p>1.4. Identifying and marking unsafe or faulty tools</p> <p>1.5. Workplace information requirements and procedures</p> <p><b>LO-2: Use hand and power tools</b></p> <p>2.1 Using hand and power tools</p> <p>2.2 Adhering all safety requirements</p> <p>2.3 Storing hand and power tools</p>

LO-3: Conduct measurements and analyses results

3.1 Methods and working instructions/information

3.2 Common automotive measurement terminology.

3.3 Types of non-specialist measuring equipment and their applications

3.4 Technical and/or calibration requirements

3.5 Measuring result and processing report

LO-4: Maintain tools and measuring device

4.1 Requiring information for maintenance

4.2 Operational maintenance of tools and measuring device

4.3 .Processing and communicating work place document

**Learning Methods:**

- Lecture
- Group discussion
- Demonstration
- Role playing
- Brainstorming

**Assessment Methods:**

- Written test
- Oral questioning
- Practical demonstration

**Assessment Criteria:**

**LO-1: Identify Workshop Tools and Measuring device**

- OHS requirements including regulatory requirements are identified and reported.
- Personal protective equipment needs are identified
- Hand tools, power tools and measuring devices are identified
- Safe working procedures adhered and followed
- Unsafe or faulty tools are identified and marked for use according to designated procedures before, during and after use.
- Workplace information requirements and procedures are accessed and strictly followed

**LO:2 Use hand and power tools**

- Hand and power tools are selected appropriate to the task requirements
- All safety requirements are adhered to before, during and after use
- Hand tools are used to produce desired outcomes to job specifications which may include finish, tension, size or shape.
- Power tools are used for a determined sequence of operations
- Hand and Power tools are stored safely in appropriate location according to standard workshop procedures and manufacturers' recommendations.

**LO-3 Conduct measurements and analyze results**

- Methods and Work instructions/information are strictly applied.
- Technical and/or calibration requirements and warning are sourced for measuring equipment and support equipment is identified and prepared.
- Measurement results are compared with manufacturer/ component supplier specifications to indicate compliance or non-compliance.
- Report is processed in accordance with workplace procedure

LO-4 Maintain tools and measuring device

- Information required for maintenance is accessed from manufacturer/component supplier specifications and correctly interpreted
- Operational maintenance of tools and measuring device are carried out.
- Checks are completed without causing damage to component or system
- Workplace documents are processed and communicated in accordance with workplace procedures

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<p>Module Code and Title : <b>AGR AMO1 M04 0922</b></p> <p style="text-align: center;"><b>Operating Manual Agricultural Equipment</b></p>			
<p><b>Nominal Duration :</b>     <b>70hrs</b></p>			
<p><b>Module Description :</b> This module covers the knowledge, attitude and skill required to prepare, operate, maintain and store manual equipment. The trainees are expected to prepare manual equipment, operate manual equipment, and maintain and store manual equipment.</p>			
<p><b>Learning Outcomes</b></p> <p>At the end of the module the trainee will be able to:</p> <p>LO-1 Prepare manual equipment for operation</p> <p>LO-2 Operate manual equipment</p> <p>LO-3 Maintain and store manual equipment</p>			
<p><b>Module Contents:</b></p> <p><b>LO-1: Prepare manual equipment for operation</b></p> <p>1.1 Personal protective equipment</p> <p>1.2 Components and working principles of manual equipment</p> <p>1.3 OHS and regulatory requirements</p> <p>1.4 Safe operating procedures</p> <p>1.5 Environmental requirements and workplace information sources</p> <p>1.6 Carrying out pre-operational checks</p> <p>1.7 Performing emergency procedures</p> <p>1.8 Chemical labels and symbols and identifying hazards</p> <p>1.9 Calibrating and adjusting equipment/ equipment</p> <p>1.10 Fitting and accessory for desired operation</p> <p><b>LO-2 Operate manual equipment</b></p> <p>2.1. Manual equipment operations</p> <p>2.2. Environmental impacts of chemical use</p> <p>2.3. Using Chemicals for the control of pests and weeds</p> <p>2.4. Using numeracy skills to complete basic calculations</p> <p>2.5. Spraying operations</p> <p>2.6. Feeding the right amount of input</p> <p>2.7. Monitoring and correcting seed breakage or insufficient work result</p>			

<p><b>LO-3 Maintain and store manual equipment</b></p> <p>3.1 Maintaining and replacing faulty equipment</p> <p>3.2 Cleaning manual operated equipment</p> <p>3.3 Removing and disposing waste and disposable materials</p> <p>3.4 Maintaining worn out parts and components</p> <p>3.5 Storing manual equipment</p> <p>3.6 Instructions for transport, handling and storage of chemicals</p> <p>3.7 Instructions for use, maintenance and storage of personal protective equipment</p>
<p><b>Learning Methods:</b></p> <ul style="list-style-type: none"> <li>• Lecture</li> <li>• Group discussion</li> <li>• Demonstration</li> <li>• Role playing</li> <li>• Brainstorming</li> </ul>
<p><b>Assessment Methods:</b></p> <ul style="list-style-type: none"> <li>• Written test</li> <li>• Oral questioning</li> <li>• Practical demonstration</li> </ul>



**Assessment Criteria:**

**LO-1: Prepare manual equipment for operation**

- Components and working principles of manual equipment are identified and understood.
- OHS requirements and hazards associated with the use of equipment are identified.
- Safe operating procedures are observed and noted during the use of tools/ equipment in accordance with workplace guidelines.
- Personal Protective Equipment (PPE) is selected and used.
- Environmental requirements and Workplace information sources are accessed and procedures are strictly adhered.
- Pre-operational checks are performed.
- Chemical labels and symbols are recognized and hazards are identified.
- Equipment is calibrated and adjusted according to job specification
- Appropriate fitting and accessory for desired operation is selected.

**LO:2 Operate manual equipment**

- The implements/equipment are adjusted and calibrated according to work requirements
- Manual equipment operations are performed according work requirements
- Spraying operations are carried out according requirement
- Feed the right amount of input for the designed capacity of equipment.
- Seed breakage or insufficient work result are monitored and corrected.

**LO:3 Maintain and store manual equipment**

- Faulty equipment is maintained and replaced
- Manual operated equipment is cleaned after use according to manufacturer instruction.
- Waste and disposable materials are removed and disposed after operation in appropriate location.
- Worn out parts and components are maintained.
- Manual equipment is stored in a safe place.
- Instructions for transport, handling and storage of chemicals are recognized and observed
- Instructions for use, maintenance and storage of personal Protective equipment and application equipment are implemented.
- Records are completed in accordance with work plan Procedures

<p>MODULE CODE &amp; TITLE: <u>AGR AMO1 M05 0422</u></p> <p>Performing crop production</p>
<p>NOMINAL DURATION: .55 Hours</p>
<p>MODULE DESCRIPTION: This module covers the knowledge, skills and attitude required to identify crop types, identify and determine basic Properties of Soil Prepare materials, tools and equipment for crop production, undertake agricultural crop production, harvesting and post-harvest work, clean up, store materials, equipment, and record and document.</p>
<p>LEARNING OUTCOMES</p> <p>At the end of the module the trainee will be able to:</p> <p>LO1. Identify crop types</p> <p>LO2. Identify and Determine Basic Properties of Soil</p> <p>LO3. Prepare materials, inputs, tools and equipment for crop production</p> <p>LO4. Undertake agricultural Crop production work</p> <p>LO5. Handle, Clean up and store materials and equipment</p> <p>LO6. Record and document document</p>
<p>MODULE CONTENTS:</p> <p><b>LO1. Identifying crop types</b></p> <p>1.1. Identifying crop types and characteristics</p> <p>1.2. Methods of crop productions</p> <p>1.3. Identifying suitable agro climatic zone for crops</p> <p>1.4. Identifying good agriculture practice(GAP)</p> <p><b>LO2. Identifying and Determining Basic Properties of Soil</b></p> <p>2.1. Techniques and methods of soil sampling</p> <p>2.2. Collecting soil samples for testing</p> <p>2.3. Identifying physical characteristics of the soil</p> <p>2.4. Determining soil profile</p> <p>2.5. Soil-plant relationships</p> <p><b>LO3. Preparing materials, inputs, tools and equipment for crop production</b></p> <p>3.1. Personal Protective Equipment (PPE) and OHS hazards</p> <p>3.2. Identifying the required inputs, materials, tools equipment and machinery</p> <p>3.3. Checking materials, tools and equipment with insufficient or faulty</p> <p>3.4. Using correct manual handling and techniques for loading and unloading</p>

**LO4. Undertaking agricultural Crop production work**

- 4.1. Undertaking crop production work
- 4.2. Understanding planting/transplanting/sowing, potting, weeding, hoeing, picking, packing
- 4.3. Conducting Agronomic practices
- 4.4. Identifying and confirming field crops maturity status
- 4.5. Suitable weather conditions for harvesting
- 4.6. Carrying out interactions with farmers and customers
- 4.7. Workplace procedures in relation to workplace practices, handling and disposal of mater

**LO5. Handling, Cleaning up and storing materials and equipment**

- 5.1. Handling and storing waste material produced and generated during crop production work
- 5.2. Checking tools, equipment and machinery for wear/damage, and preparing for transporting/storage
- 5.3. Cleaning and storing materials, equipment and machinery

**LO6. Recording and documenting**

- 6.1. Reporting problems or difficulties in completing work to required standards or timelines
- 6.2. Recording and reporting materials, equipment and machinery condition after work
- 6.3. Reporting work activities and outputs in standard format

**LEARNING METHODS:**

- Lecture and Discussion
- Braine storming
- Practical demonstration
- Practical exercise
- Audio Visual
- Role playing

**ASSESSMENT METHODS:**

- Written test
- Oral questioning
- Practical (group work)
- Assignment
- Presentation

ASSESSMENT CRITERIA:

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LO.1. Identify crop types

- Crop types and characteristics are identified
- Methods of crop productions are identified and understood according to agronomical practices
- Identify suitable agro climatic zone for crops
- Identify good agriculture practice(GAP)

LO2. Identify and Determine Basic Properties of Soil

- Prepare for soil sampling techniques and sample collection methods are identified according to site plans requirements
- Areas of homogeneous soil types are identified for sampling
- Area for soil sample collection is identified from workplace records or according to enterprise work procedures
- The physical characteristics of the soil are identified according to investigative requirements and best practice guidelines
- Soil profile is determined, where appropriate according the guidelines.

LO3. Prepare materials, inputs, tools and equipment for crop production

- The required inputs, materials, tools equipment and machinery are identified.
- Materials, tools and equipment are checked with insufficient or faulty
- Correct manual handling and techniques for loading and unloading materials are used to minimize damage to the load, person and the vehicle.
- Suitable Personal Protective Equipment (PPE) are selected and checked.
- OHS hazards are identified and reported

LO4. Undertake agricultural Crop production work

- Crop production work is undertaken in a safe and environmentally appropriate manner
- Agronomic practices are conducted according to the working procedures
- Field crops maturity status is identified and confirmed
- Suitable weather conditions for harvesting are considered according to farm work procedure.
- Interactions with farmers and customers are carried out in a positive and supportive manner.

- Workplace procedures in relation to workplace practices, handling and disposal of materials are observed

LO5. Handle, Clean up and store materials and equipment

- Waste material produced and generated during crop production work is handled and stored in a designated area
- Tools, equipment and machinery are checked for wear/damage, and prepared for transporting/storage
- Materials, equipment and machinery are cleaned and stored in safe work site while completing cropping activities.

LO6. Record and document

- Problems or difficulties in completing work to required standards or timelines are reported.
- Materials, equipment and machinery condition after work are recorded and reported
- Work activities and outputs are reported in standard format

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<p><b>Module Title &amp; Code :</b> AGR AMO1 M07 0922</p> <p style="text-align: center;">Undertaking basic Maintenance of Machinery and Equipment</p>
<p><b>Nominal Duration :</b> 60 Hours</p>
<p><b>Module Description :</b> This module covers the knowledge, attitudes and skills required for basic routine maintenance, perform routine and scheduled maintenance, complete basic routine and scheduled maintenance.</p>
<p><b>Learning Outcomes</b></p> <p>At the end of the module the trainee will be able to:</p> <p>LO-1 Prepare for basic routine maintenance</p> <p>LO-2 Perform routine and scheduled maintenance</p> <p>LO-3 Complete basic routine and scheduled maintenance</p>

**Module Contents:**

LO-1: Prepare for basic routine maintenance

- 1.1 Personal protective equipment and OHS hazards in the workplace
- 1.2 Tools and supplies required to carry out basic routine maintenance
- 1.3 Types, characteristics and functions of machinery and equipment
- 1.4 Common components of mechanical and hydraulic systems
- 1.5 Identifying faulty or unsafe machinery and equipment

**LO-2 Perform routine and scheduled maintenance**

- 2.1 Operational principles of machinery
- 2.2 Measuring and calculating volumes, consumption and lubrication requirements
- 2.3 Greasing and lubricating
- 2.4 Performing basic scheduled servicing of machinery and equipment
- 2.5 Performing routine maintenance
- 2.6 Pre and on-operational checks of machinery and equipment
- 2.7 Identifying basic techniques and mechanical faults
- 2.8 Reporting serious or complex faults

LO-3 Complete basic routine and scheduled maintenance

- 3.1 Cleaning, returning, storing, tools, machinery and equipment
- 3.2 Collecting, treating and disposing/recycling wastes from maintenance activities
- 3.3 Reporting malfunctions, faults, wear or damaged tools
- 3.4 Recording and reporting Machinery and Equipment servicing activities

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<b>Learning Methods:</b>
<ul style="list-style-type: none"><li>• Lecture</li><li>• Group discussion</li><li>• Demonstration</li><li>• Role playing</li><li>• Video show</li><li>• Audio</li><li>• Brainstorming</li></ul>
<b>Assessment Methods:</b>
<ul style="list-style-type: none"><li>• Written test</li><li>• Oral questioning</li><li>• Practical demonstration</li></ul>

### ASSESSMENT CRITERIA:

#### LO-1: Prepare for basic routine maintenance

- Tools and supplies required to carry out basic routine maintenances are identified and selected according to manufacturer's specifications.
- Suitable personal protective equipment is selected, used and maintained according to OHS requirements.
- Faulty or unsafe machinery and equipment are identified and segregated for repair or replacement according to enterprise requirements.
- OHS hazards in the workplace are identified and safety concerns reported.

#### LO:2 Perform routine and scheduled maintenance

- Common Greasing, lubrication points are identified
- Basic scheduled servicing of machinery / equipment is carried out according to manufacturer's specifications and enterprise requirements.
- Perform routine maintenance according to operational manual.
- Routine Pre and On Operational checks of machinery and equipment are carried out and adjustments made according to manufacturer's specifications.
- Basic techniques are applied and mechanical faults are identified and rectified according to manufacturer's specifications.
- More serious or complex faults are reported for referral according to enterprise requirements.

#### LO:3 Complete basic routine and scheduled maintenance

- Tools are cleaned, returned to operating order and stored according to manufacturer's specifications and enterprise requirements.
- Environmental procedures are followed and waste from maintenance activities is collected, treated and disposed or recycled according to enterprise requirements.
- Work area is cleaned and maintained according to OHS and enterprise requirements.
- Malfunctions, faults, wear or damage to tools are reported to the supervisor according to enterprise requirements.
- Machinery /equipment service activities are recorded and reported

<p><b>MODULE CODE &amp; TITLE : AGR AMO1 M07 0922</b></p> <p>Applying Basics of Human Nutrition Practices</p>
<p><b>NOMINAL DURATION : 48 Hours</b></p>
<p><b>MODULE DESCRIPTION :</b> This unit covers the knowledge, skill and attitude required to categorize agricultural foods items, recognize malnutrition in the community, identify the role of agriculture in nutrition and contribute to the awareness creation of the community in utilization of agricultural products.</p>
<p><b>LEARNING OUTCOMES</b></p> <p>At the end of the module the trainee will be able to:</p> <p>LO1: Identify Categories of agricultural foods items</p> <p>LO2: Recognize malnutrition in the community</p> <p>LO3: Identify the role of agriculture in nutrition</p> <p>LO4: Demonstrate diversified Agricultural food production and consumption techniques</p> <p>LO5: Perform proper handling and storage of agricultural food products</p> <p>LO6: Document and report food production, consumption and difficulties</p>
<p><b>MODULE CONTENTS:</b></p> <p><b>LO1: Identify Categories of agricultural foods items</b></p> <ol style="list-style-type: none"> <li>1.1. Identifying and explaining basic terminologies and concepts in nutrition</li> <li>1.2. Identifying and explaining food groups, nutrient and their sources of balanced diet</li> <li>1.3. Identifying and describing origin and composition of food stuffs</li> <li>1.4. Identifying and explaining energy dense and nutrient dense food sources</li> </ol> <p><b>LO2: Recognize malnutrition in the community</b></p> <ol style="list-style-type: none"> <li>2.1. Identifying and explaining physical signs of malnutrition</li> <li>2.2. Identifying forms, causes and consequences of malnutrition</li> <li>2.3. Promoting measures to overcome malnutrition</li> <li>2.4. Making awareness creation programs</li> </ol> <p><b>LO3: Identify the role of agriculture in nutrition</b></p> <ol style="list-style-type: none"> <li>3.1. Recognizing and promoting the role of agriculture for food Variety</li> <li>3.2. Describing the contribution of agriculture sector in nutrition sensitive intervention</li> <li>3.3. Identifying and communicating nutrition sensitive agricultural practices</li> </ol>

**LO4: Demonstrate diversified Agricultural food production and consumption techniques**

- 4.1. Identifying and discussing importance of diet diversification
- 4.2. Identifying and demonstrating techniques of diversified food production
- 4.3. Assessing and implementing techniques of enhancing the nutrient content of foods
- 4.4. Identifying utensils and demonstrating cooking techniques
- 4.5. Selecting and using PPE
- 4.6. Demonstrating balanced and nutrient dense diet preparation

**LO5: Perform proper handling and storage of agricultural food products**

- 5.1. Explaining importance of hygiene
- 5.2. Identifying storage facilities and supporting family holds
- 5.3. Handling and storing agricultural products
- 5.4. Demonstrating methods and techniques of handling and storing

**LO6: Document and report food production, consumption and difficulties**

- 6.1. Documenting diversified food production and consumption activities
- 6.2. Reporting difficulties happened in the processes

**LEARNING METHODS:**

- Lecture and Discussion
- Demonstration
- Role playing
- Group work

**ASSESSMENT METHODS:**

- Written test with Oral questioning
- Quizzes and assignment
- Practical demonstration

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**ASSESSMENT CRITERIA:**

**LO1: Identify Categories of agricultural foods items**

- Basic terminologies and concepts in nutrition are identified and explained
- Food groups, nutrient and their sources of balanced diet are identified and explained
- Origin and composition of food stuffs are identified and described
- Energy dense and nutrient dense food sources are identified and explained

**LO2: Recognize malnutrition in the community**

- Physical signs of malnutrition are identified and explained
- Forms, causes and consequences of malnutrition in different groups of community are identified
- Measures to overcome malnutrition, importance of maintenance of adequate and balanced diet are promoted
- Contribution is made in elders, family heads and women awareness creation programs

**LO3: Identify the role of agriculture in nutrition**

- The role of agriculture as source of variety foods is recognized and promoted
- The contribution of agriculture sector in nutrition sensitive intervention is described
- Nutrition sensitive agricultural practices are identified and communicated as per the nutrition program guideline

**LO4: Demonstrate diversified Agricultural food production and consumption techniques**

- Importance of diet diversification is identified and discussed with family holds and community according to the program guideline
- Techniques of diversified food production are identified and demonstrated to farmers and family members
- Techniques of enhancing the nutrient content of family foods are assessed and implemented according to the program guideline and cultural requirements of the rural community
- Utensils are identified and cooking techniques demonstrated for specific agricultural products
- PPE are selected and used in accordance to OHS requirement and code of ethics
- Balanced and nutrient dense diet preparation is demonstrated using food stuff ingredients

**LO5: Perform proper handling and storage of agricultural food products**

- Importance of hygiene for nutrition is explained
- Storage facilities are identified and family holds supported in construction.
- Agricultural products are safely handled and store
- Methods and techniques of safely handling and storing agricultural products are demonstrated in accordance products requirement

**LO6: Document and report food production, consumption and difficulties**

- Diversified food production and consumption activities are documented
- Difficulties happened in the processes are reported to the respective authorities.

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<p><b>MODULE CODE AND TITLE : AGR AMO1 M08 0922</b></p> <p style="text-align: center;"><b>Operating Animal Husbandry Machinery and Equipment</b></p>	
<p><b>Nominal Duration :</b></p>	<p><b>24 Hours</b></p>
<p><b>Module Description :</b> This module covers the knowledge, skills and attitudes required to Prepare and identify technologies for animal husbandry machinery and equipment, operate and use livestock husbandry machinery and equipment and Clean and safe storage of Machinery and equipment</p>	
<p><b>Learning Outcomes</b></p> <p>At the end of the module the trainee will be able to:</p> <p>LO-1 Prepare and identify for Work</p> <p>LO-2 Identify technologies for animal husbandry machinery and equipment</p> <p>LO-3 Operate and use livestock husbandry machinery and equipment</p> <p>LO-4 Clean machinery and equipment</p> <p>LO-5 Safe storage of Machinery and equipment</p>	
<p><b>Module Contents:</b></p> <p><b>LO-1:</b> Prepare and identify for Work</p> <p>1.1 Safety rules</p> <p>1.2 Identification of machinery and equipment for work</p> <p>1.3 Personal protective equipment and OHS requirement</p> <p>1.4 Routine pre-operational checks of machinery and equipment</p> <p>1.5 Identifying faulty or unsafe machinery and equipment</p> <p><b>LO-2:</b> Identify technologies for animal husbandry machinery and equipment</p> <p>2.1 Animal products used by human beings.</p> <p>2.2 Animal product storage equipment's.</p> <p>2.3 Animal product processing machinery and equipment.</p> <p>2.4 Industry terminology related to work procedures, equipment and animal management</p> <p>2.5 Major components of animal product storage and processing machinery and equipment</p> <p>2.6 Daily routines requirement.</p>	



<p><b>LO-3:</b> Operate an checked d use livestock husbandry machinery and equipment</p> <p>3.1 Checking machinery and equipment for contamination.</p> <p>3.2 Using appropriate machinery and equipment</p> <p>3.3 Basic machinery and equipment for handling of animal products.</p> <p>3.4 Safety requirement for checking machinery and support equipment with free moving parts</p> <p>3.5 Identifying operating procedures for inspecting contamination.</p> <p><b>LO-4:</b> Clean machinery and equipment</p> <p>4.1 Selecting appropriate equipment for cleaning.</p> <p>4.2 Cleaning machinery and equipment with free moving parts pinned.</p> <p>4.3 Checking and replacing guards safely.</p> <p><b>4.4</b> Inspecting and cleaning areas that accumulate contaminants on other equipment.</p> <p><b>LO-5:</b> Safe storage of Machinery and equipment</p> <p>5.1 Disposing waste materials.</p> <p>5.2 Storing equipment safely in clean environment and storage area.</p> <p>5.3 Separating malfunctioned and damaged equipment in storage area.</p> <p>5.4 Recording methods of cleaning</p>
<p><b>.Learning Methods:</b></p> <ul style="list-style-type: none"> <li>• Lecture</li> <li>• Group discussion</li> <li>• Demonstration</li> <li>• Role playing</li> <li>• Brainstorming</li> </ul>
<p><b>Assessment Methods:</b></p> <ul style="list-style-type: none"> <li>• Written test</li> <li>• Oral questioning</li> <li>• Practical demonstration</li> </ul>

**Assessment Criteria:**

**LO-1:** Prepare and identify for Work

- Safety rules are followed and applied according to the policy of the working area/industry.
- Identification is done in accordance with OHS requirements.
- Personal protective equipment is applied.
- Routine pre-operational checks of machinery and equipment are carried out and adjustments made according to manufacturer's specifications and/or enterprise policies and procedures.
- Faulty or unsafe machinery and equipment are identified and segregated for repair or replacement according to enterprise requirements.

**LO:2** Identify technologies for animal husbandry machinery and equipment

- Animal products used by human beings are identified.
- Animal product storage equipment's is identified and selected
- Animal product processing machinery and equipment are identified and selected
- Industry terminology related to work procedures, equipment and animal management is used in work activities.
- Daily routines are completed in accordance with occupational health and safety (OHS ) requirements and environmentally sensitive work practices

**LO.3:** Operate and use livestock husbandry machinery and equipment

- Machinery and equipment are checked for contamination according to written guidelines and legislative requirements.
- Appropriate machinery and equipment are used according to the manufacturers guidelines
- Basic machinery and equipment are used for efficient and economic handling of animal products
- Machinery and support equipment are made safe for checking, supported safely with free moving parts pinned or supported as required.
- legislation or operating procedures are identified and inspected for contamination according to organizational procedures

**LO.4:** Clean machinery and equipment

- Machinery and equipment with free moving parts pinned is made safe for cleaning
- Appropriate equipment is selected for cleaning.
- Guards are checked and replaced safely
- Areas on other equipment that likely to accumulate contaminants are identified, inspected and cleaned.

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**LO.5:** Safe storage of Machinery and equipment

- Waste materials are disposed of according to enterprise operating procedures and relevant legislative requirements.
- Equipment are stored safely in clean environment and storage area
- Malfunctioned and damaged equipment are separated in storage area
- Records of cleaning are recorded on appropriate forms according to enterprise policy and procedures.

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<p><b>Module Code and Title :</b>    <b>AGR AMO1 M09 0922</b></p> <p style="text-align: center;"><b>Applying First Aid</b></p>
<p><b>Nominal Duration :</b>        <b>24 Hours</b></p>
<p><b>Module Description :</b> This module covers the knowledge, skills and attitudes required to assess the situation, communicate details of the incident, evaluate own performance</p>
<p><b>Learning Outcomes</b></p> <p>At the end of the module the trainee will be able to:</p> <p>LO-1 Assess the situation</p> <p>LO-2 Apply first aid procedures</p> <p>LO-3 Communicate details of the incident</p> <p>LO-4 Evaluate own performance</p>
<p><b>Module Contents:</b></p> <p><b>LO-1:</b> Assess the situation</p> <p>    1.1. Identifying, assessing and minimizing hazards.</p> <p>    1.2. Minimizing immediate risk.</p> <p>    1.3. Identifying and assessing causes, injuries, illnesses and conditions.</p> <p>    1.4. Basic occupational health and safety requirements in the provision of first aid</p> <p><b>LO-2</b> Apply first aid procedures</p> <p>    2.1 Providing information, adopting a communication style to match the casualty's level of consciousness.</p> <p>    2.2 Available resources and equipment to make the casualty</p> <p>    2.3 Responding the casualty in a culturally aware, sensitive and respectful manner..</p> <p>    2.4 Determining the nature of casualty's injury/condition and relevant first aid procedures</p> <p>    2.5 Prioritizing to apply first aid management.</p> <p>    2.6 Providing and establishing first aid management and principles</p> <p>    2.7 Operating first aid equipment is correctly.</p> <p>    2.8 Safe manual handling techniques.</p> <p>    2.9 Monitoring casualty's condition.</p>

<p><b>LO-3:</b> Communicate details of the incident</p> <p>3.1 Relevant communication media and equipment.</p> <p>3.2 Assessment of casualty's condition and management activities.</p> <p>3.3 preparing reports, presenting all relevant facts according to established procedures.</p> <p>3.4 Recording and responding details of casualty's physical condition.</p> <p>3.5 Maintaining confidentiality of records and information/documentation.</p> <p><b>LO-4:</b> Evaluate own performance</p> <p>4.1 Feedback from appropriate clinical expert.</p> <p>4.2 Possible psychological impacts.</p> <p>4.3 Debriefing/evaluation to improve future response and address individual needs.</p>
<p><b>.Learning Methods:</b></p> <ul style="list-style-type: none"> <li>• Lecture</li> <li>• Group discussion</li> <li>• Demonstration</li> <li>• Role playing</li> <li>• Brainstorming</li> </ul>
<p><b>Assessment Methods:</b></p> <ul style="list-style-type: none"> <li>• Written test</li> <li>• Oral questioning</li> <li>• Practical demonstration</li> </ul>

### Assessment Criteria:

#### LO-1: Assess the situation

- Hazards are identified, assessed and minimized in the situation that may pose a risk of injury or illness to self and others.
- Immediate risk is minimized to self and casualty's health and safety by controlling any hazard in accordance with occupational health and safety requirements.
- Casualty is assessed and injuries, illnesses and conditions are identified.

#### LO:2 Apply first aid procedures

- Information is calmly provided to reassure casualty, adopting a communication style to match the casualty's level of consciousness.
- Available resources and equipment are used to make the casualty as comfortable as possible.
- The casualty is responded to in a culturally aware, sensitive and respectful manner.
- The nature of casualty's injury/condition and relevant first aid procedures are determined and explained to provide comfort.
- Consent is sought from casualty prior to applying first aid management.
- First aid management is provided in accordance with established first aid principles and Ethiopian resuscitation council (arc) guidelines and/or state/territory regulations, legislation and policies and industry requirements.
- First aid assistance is sought from others in a timely manner and as appropriate.
- First aid equipment is correctly operated as required for first aid management according to manufacturer/supplier's instructions and local policies and/or procedures.
- Safe manual handling techniques are used as required.
- Casualty's condition is monitored and responded in accordance with effective first aid principles and procedures.
- Casualty management is finalized according to casualty's needs and first aid principles.

#### LO.3: Communicate details of the incident

- Ambulance support and/or appropriate medical assistance are/is requested according to relevant circumstances using relevant communication media and equipment.
- Assessment of casualty's condition and management activities is accurately conveyed to

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- ambulance services /other emergency services/relieving personnel.
- Reports are prepared as appropriate in a timely manner, presenting all relevant facts according to established procedures.
- Details of casualty's physical condition, changes in conditions, management are accurately recorded and responded to management in line with established procedures.
- Confidentiality of records and information/documentation is maintained in line with privacy principles and statutory and/or organisation policies.

**LO.4:** Evaluate own performance

- Feedback is sought from appropriate clinical expert.
- The possible psychological impacts are recognized on rescuers of involvement in critical incidents.
- Debriefing/evaluation as appropriate is made participatory in to improve future response and address individual needs

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<b>MODULE CODE &amp; TITLE: AGR AMO1 M10 0922</b> <p style="text-align: center;"><b>Operating post harvesting technology</b></p>	
<b>Nominal Duration :</b>	<b>70hrs</b>
<b>Module Description :</b> This module is covers the knowledge, skills and attitudes required to prepare for use and operate post-harvest machinery and equipment, complete post-harvest technologies and equipment operation	
<b>Learning Outcomes</b> At the end of the module the trainee will be able to: LO-1 Prepare post-harvest machinery and equipment for use LO-2 Operate post-harvest machinery and equipment LO-3 complete post-harvest technologies and equipment operation LO-4 Perform post-harvest handling	
<b>Module Contents:</b> <b>LO-1: Prepare post-harvest machinery and equipment for use</b> <ol style="list-style-type: none"> <li>1.2 Types and mechanism of post harvesting technology</li> <li>1.3 Selecting Post-harvest technology</li> <li>1.4 Source power of post-harvest technology</li> <li>1.5 Performing Routine pre-operational check</li> <li>1.6 Post-harvesting equipment calibration procedure</li> <li>1.7 Tagging and reporting faulty part</li> <li>1.8 Occupational Health and Safety (OHS) hazards</li> </ol> <b>LO-2 Operate post-harvest machinery and equipment</b> <ol style="list-style-type: none"> <li>2.1 Using Personal Protective Equipment (PPE)</li> <li>2.2 Transportation of machinery and equipment to worksite</li> <li>2.3 Operating post-harvest technologies</li> <li>2.4 Emergency stop procedures</li> <li>2.5 Environmental impact associated with machinery operation</li> </ol>	



**LO-3 complete post-harvest technologies and equipment operation**

- 3.1 Machinery and equipment shut-down procedures
- 3.2 Recording operational activity
- 3.3 Procedures of cleaning, securing and storing Machinery and equipment
- 3.4 Recording and reporting damage part

**LO-4 Perform post-harvest handling**

- 4.1 Post-harvest handling technologies
- 4.2 Crop treatment for shelf life and packaging
- 4.3 Identifying and applying product quality checking
- 4.4 Appropriate product transportation and storage
- 4.5 Carry-out basic routine maintenance
- 4.6 Reporting any faults, improper operation and safety issue

**Learning Methods:**

- Lecture
- Group discussion
- Demonstration
- Role playing
- Brainstorming

**Assessment Methods:**

- Written test
- Oral questioning
- Practical demonstration

**Assessment Criteria:**

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**LO-1: Prepare post-harvest machinery and equipment for use**

- Types, working mechanisms and components of post-harvest technologies are identified
- Post-harvest technologies appropriate to job requirements are selected against a work requirement
- Source of power is identified and prepared for the selected post-harvest technology according to appropriate job activities.
- Routine pre-operational checks of Post-harvest technologies are carried out according to manufacturer's specifications.
- Equipment is securely calibrated for operation to manufacturer's specifications.
- Check safe guards are in place
- Faulty parts are identified, safety tagged, and reported to supervisor according to enterprise requirements.
- Occupational Health and Safety (OHS) hazards are identified, risks assessed and risk controls are implemented.

**LO:2 Operate post-harvest machinery and equipment**

- Personal Protective Equipment (PPE) is selected and used according to procedures.
- Transportation to worksite are performed in accordance of enterprise regulation and procedure
- Post-harvest technologies are operated in a safe and controlled manner, and monitored for performance and efficiency.
- Emergency stop procedures are confirmed and followed
- Environmental implications associated with machinery operation are identified, assessed and taken into account.

**LO-3 Complete post-harvest technologies and equipment operation**

- Machinery and equipment shut-down procedures are carried out to manufacturer's specifications and enterprise requirements.
- Post-harvest technologies operational records are maintained and reported according to Enterprise requirements.
- Machinery and equipment are cleaned, secured and stored according to manufacturer's specifications and enterprise requirements.

- Post-harvest technologies damage, malfunctions or irregular performance are recorded and/or reported according to enterprise requirements.

**LO-4 Perform post-harvest handling**

- Post-harvest handling technologies are identified
- Product quality checking is identified and applied
- Appropriate product transportation and storage is selected and applied
- Basic routine maintenance is carried out according to manufacturer's instruction and procedure.
- Report any faults, improper operation and safety issue on time according to enterprise reporting procedure.

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<b>MODULE CODE AND TITLE : AGR AMO1 M11 0922</b> <b>Inspecting, repairing and Replacing Tyres</b>	
<b>Nominal Duration :</b>	<b>45Hours</b>
<b>Module Description :</b> This module covers the knowledge, attitudes and skills required to prepare, repair and replace tyre, conduct inspection, carry out removal, refit and check tyre for use or storage	
<b>Learning Outcomes</b> At the end of the module the learner will be able to: LO1. Prepare to inspect, repair and replace tyre LO2. Conduct inspection. LO3. Carry out removal, repair and refit. LO4. Check Tyre for use or storage	
<b>Module Contents:</b> <b>LO1. Prepare to inspect, repair and replace tyre</b> 1.1 Identifying Nature and scope of work. 1.2 Observing OHS and personal protective requirements 1.3 Sourcing Tooling, equipment and materials. 1.4 Technical requirements for repair and fitting of tyres and tubes  <b>LO2. Conduct inspection</b> 2.1 Implementing inspection works 2.2 Inspecting road wheel assemblies, mounting points and fittings 2.3 Comparing inspection results with manufacturer specifications. 2.4 Documenting results, making recommendation and preparing report  <b>LO3. Carry out removal, repair and refit</b> 3.1. Identifying emergency procedures 3.2. Observing safe operating procedures 3.3. Types & methods of service and repair 3.4. Implementing removal, repair and refit.	

<p><b>LO4. Check Tyre for use or storage</b></p> <p>4.1 Completing final inspection to ensure safety features</p> <p>4.2 Completing final inspection to ensure work is to workplace expectations.</p> <p>4.3 Cleaning tyre for use or storage</p> <p>4.4 Completing repair schedule documentation</p> <p>4.5 Environmental requirements</p> <p>4.6 Processing job card.</p>
<p><b>Learning Methods:</b></p> <ul style="list-style-type: none"> <li>• Lecture</li> <li>• Group discussion</li> <li>• Demonstration</li> <li>• Role playing</li> <li>• Brainstorming</li> <li>• Video showing</li> </ul>
<p><b>Assessment Methods:</b></p> <ul style="list-style-type: none"> <li>• Written test</li> <li>• Oral questioning</li> <li>• Practical demonstration</li> </ul>

### Assessment Criteria:

#### LO-1: Prepare to inspect, repair and replace tyre .

- Nature and scope of work requirements are identified and confirmed
- OHS requirements, including regulatory requirements and Personal Protective Equipment needs are observed throughout the work.
- Procedures and information such as workshop manuals and specifications is prepared.
- Tooling, equipment and materials required are sourced.
- Technical requirements are sourced for repair and fitting of tyres and tubes and support equipment is identified and prepared.

#### LO:2 Conduct inspection .

- Inspection works are implemented in accordance with workplace procedures.
- Inspection of road wheel assemblies, mounting points and fittings for damage and wear
- Inspection results are compared with manufacturer/ component supplier specifications.
- Results are documented with evidence and supporting information and recommendation(s) made.
- Report is done in accordance with workplace procedures

#### LO-3 Carry out removal, repair and refit

- Safe operating procedures are observed and noted during the use of tools/ equipment.
- Removal, repair and refit are implemented.
- Types & methods of service and repair are implemented.
- Findings and recommendations are completed in accordance with enterprise procedures.
- Emergency procedures are identified and followed as per organization's guideline.

#### LO4 Check Tyre for use or storage

- Repair schedule documentation is completed.
- Final inspection is made to ensure safety features are in place.
- Final inspection is made to ensure work is to workplace expectations.
- Tyre is cleaned for use or storage to workplace expectations.
- Job card is processed in accordance with workplace procedures.

<p><b>MODULE CODE &amp; TITLE: AGR AMO1 M12 0322</b></p> <p style="text-align: center;"><b>Implementing Agribusiness Marketing</b></p>
<p>NOMINAL DURATION: 41 Hours</p>
<p><b>MODULE DESCRIPTION:</b> This module covers the knowledge, skills and attitude required to Understand concept of agricultural marketing Understand concepts of agribusiness Identify marketing targets for Agricultural products Implement marketing strategy Establish contract farming, and Apply Agricultural marketing services.</p>
<p><b>LEARNING OUTCOMES</b></p> <p>At the end of the module the trainee will be able to:</p> <p>LO1. Understand concept of agricultural marketing</p> <p>LO2. Understand concepts of agribusiness</p> <p>LO3. Identify marketing targets for Agricultural products</p> <p>LO4 Implement marketing strategy</p> <p>LO5 Establish contract farming</p> <p>LO6 Apply Agricultural marketing services</p>
<p><b>MODULE CONTENTS:</b></p> <p><b>LO1. Understanding concept of agricultural marketing</b></p> <p>1.1 Understanding concept of agricultural marketing</p> <p>1.2 Understanding importance of agricultural marketing services</p> <p>1.3 Identifying and understanding roles of agricultural market-oriented service</p> <p>1.4 Identifying and understanding principles of agricultural marketing and strategies</p> <p>1.5 understanding marketing mix to implement agricultural marketing activities</p> <p>1.6 Understanding and identifying types of marketing services</p> <p><b>LO2. Understanding concepts of agribusiness</b></p> <p>2.1. Understanding Concept of agribusiness for agricultural marketing</p> <p>2.2 Understanding Importance of agribusiness services</p> <p>2.3 Identifying and understanding roles of agribusiness-oriented service</p> <p>2.4 Identifying and understanding principles of agribusiness and strategies</p> <p>2.5. Understanding characteristic of agribusiness to implement Agribusiness</p> <p>2.6. Understanding and distinguishing dimension and structures of Agribusiness</p>



**LO3. Identifying marketing targets for Agricultural products**

- 3.1 Identifying marketing targets for Agricultural products and services
- 3.2 Understanding approaches of agricultural market product and service.
- 3.3 Using segment descriptors to display the targets of agricultural market
- 3.4 Identifying strategic plan of agricultural marketing options
- 3.5 Preparing business plans

**LO4 Implementing marketing strategy**

- 4.1. Designing agricultural marketing functions strategy.
- 4.2. Developing action plan
- 4.3. Identifying and coordinating require resource
- 4.4. Implementing marketing mix

**LO5 Establishing contract farming**

- 5.1 Understanding concept of contract farming
- 5.2 Identifying types of contract farming
- 5.3 Understanding and identifying models of contract farming
- 5.4. Identifying steps and procedures of contract farming establishments
- 5.5 Identifying and applying contract farming requirements
- 5.6 Establishing contract farming systems

**LO6 Applying Agricultural marketing services**

- 6.1 Identifying agricultural products
- 6.2 Conducting need assessment
- 6.3 Developing market strategies
- 6. 4 Collecting and organizing customer feedbacks
- 6.5 Organizing and documenting data

**LEARNING METHODS:**

**ASSESSMENT METHODS:**

<ul style="list-style-type: none"> <li>• Lecture and Discussion</li> <li>• Braine storming</li> <li>• Practical demonstration</li> <li>• Simulation</li> <li>• Role playing</li> </ul>	<ul style="list-style-type: none"> <li>• Written test</li> <li>• Oral questioning</li> <li>• Presentation</li> <li>• Practical (group work)</li> </ul>
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**ASSESSMENT CRITERIA:**

**LO.1. Understand concept of agricultural marketing**

- Understand concept of agricultural marketing
- Understand importance of agricultural marketing services
- Identify and understand roles of agricultural market-oriented service
- Identify and understand principles of agricultural marketing and strategies
- Understand marketing mix to implement agricultural marketing activities
- Understand and identify types of marketing services

**LO2. Understand concepts of agribusiness.**

- Understand concept of agribusiness for agricultural marketing
- Understand importance of agribusiness services
- Identify and understand roles of agribusiness-oriented service
- Identify and understand principles of agribusiness and strategies
- Understand characteristic of agribusiness to implement Agribusiness
- Understand and distinguishing dimension and structures of Agribusiness

**LO3. Identify marketing targets for Agricultural products**

- Identify marketing targets for Agricultural products and services
- Understand approaches of agricultural market product and service.
- Use segment descriptors to display the targets of agricultural market
- Identify strategic plan of agricultural marketing options
- prepare business plans are to perform cost and benefit analysis

**LO4 Implement marketing strategy**

- Design agricultural marketing functions strategy.
- Develop action plan
- Identify and coordinate require resource
- Implement marketing mix

**LO5 Establish contract farming**

- Understand concept of contract farming
- Identify types of contract farming
- Understand and identify models of contract farming

- Identify steps and procedures of contract farming establishments
- Identify and apply contract farming requirements
- Establish contract farming systems

#### **LO6 Apply agricultural marketing services**

- Identifying agricultural products
- Conducting need assessment
- Developing market strategies
- Collecting and organizing customer feedbacks
- Organizing and documenting data

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<p><b>MODULE CODE AND TITLE : AGR AMO1 M13 0922</b></p> <p style="text-align: center;"><b>Performing Agricultural Crop Harvesting</b></p>
<p><b>Nominal Duration :</b> 40 Hours</p>
<p><b>Module Description :</b> This module covers the knowledge, skills and attitudes required to identify and prepare agricultural crops for harvesting operation and machinery and equipment for crop harvesting</p>
<p><b>Learning Outcomes</b></p> <p>At the end of the module the trainee will be able to:</p> <p>LO-1 Prepare for agricultural crop harvesting operations.</p> <p>LO-2 Prepare machinery and equipment for crop harvesting</p> <p>LO-3 Complete harvesting operation</p>

<b>Module content</b>			
<b>LO-1: Prepare for agricultural crop harvesting operations.</b>			
1.1 Instructions about agricultural crop harvesting activities			
1.2 Personal protective equipment			
1.3 Occupational Health and Safety (OHS) hazards			
1.4 Types of crops and their characteristics			
1.5 Identifying field crops maturity status			
1.6 Suitable weather conditions for harvesting			
<b>LO-2: Prepare machinery and equipment for crop harvesting</b>			
2.1 Identifying machinery for crop harvesting operations			
2.2 Pre-operation requirements for crop harvesting machinery			
2.3 Harvesting schedule and special operating instructions			
2.4 Maintaining and adjusting farm tools, equipment and machinery			
2.5 Scheduling availability of required labour and equipment			
2.6 Crop harvesting procedures and performance expectations			
LO-3: Complete harvesting operation			
3.1 Crop harvest order and procedures			
3.2 Cleaning harvesting machinery and equipment			
3.3 Disposing all containers, leftover fluids waste and harvest debris			
3.4 Completing all required workplace records			
<b>Learning Methods:</b>			
<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Group discussion</li> <li>• Demonstration</li> <li>• Role playing</li> <li>• Brainstorming</li> </ul>			
<b>Assessment Methods:</b>			
<ul style="list-style-type: none"> <li>• Written test</li> <li>• Oral questioning</li> <li>• Practical demonstration</li> </ul>			



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**Assessment Criteria:**

**LO-1: Prepare for agricultural crop harvesting operations.**

- Instructions about agricultural crop harvesting activities are interpreted and clarified with the supervisor.
- Occupational Health and Safety (OHS) hazards are identified, risks assessed and reported to the supervisor.
- Suitable Personal Protective Equipment (PPE) is selected, used and maintained.
- Machinery, equipment and tools are selected and prepared for the task being undertaken.
- Field crops maturity status is identified and confirmed
- Suitable weather conditions for harvesting are considered according to farm work procedure.

**LO:2 Prepare machinery and equipment for crop harvesting**

- Machinery for crop harvesting operations are identified
- Pre-operation requirements are checked for crop harvesting machinery
- Instructions concerning location, harvesting schedule and special operating instructions or work procedures are performed.
- Farm tools, equipment and machinery are maintained and adjusted.
- Availability of required labour and equipment are scheduled (place and time)
- Crop harvesting procedures and performance expectations prepared and confirmed

**LO-3 Complete harvesting operation**

- Crop harvest order and procedures as scheduled in harvesting plan are implemented
- Harvesting machinery and equipment are cleaned according to enterprise procedures and the manufacturer's specifications.
- All containers, leftover fluids waste and harvest debris is disposed of safely and appropriately.
- All required workplace records are completed accurately and promptly in accordance with enterprise requirements.

### 3. Resource requirements

Item No	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Item: Trainee)
<b>A.</b>	<b>Learning Materials</b>			
1.	TTLM	TTTLM prepared by the trainer	25	1:1
2.	Reference Books			
2.1	Farm Tractors: The Case Guide to Tractor Selection) Operation) Economics and Servicing	Meltham, Huddersfield, West Yorkshire, UK (1984). ISBN-13: 978-0-4191-3240-0.	5	1:5
2.2	Industrial Machinery Repair: Best Maintenance Practices Pocket Guide	Ricky Smith and R. Keith Mobley (2003). ISBN 0-7506-7621-3 (pbk : alk. Paper)	5	1:5
2.3	Maintenance Planning and Scheduling Handbook	(Author: Richard D. Palmer 6006) : DOI: 10.1036/0071457666. 2nd	5	1:5
2.4	Facilities and equipment for livestockManagement	Department of Agricultural Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA	6	1:5
2.5	Handbook of Farm, Dairy and Food Machinery	(Autor: Myer Kutz Associates, Inc, Delmar, New York 2002)	5	1:5
2.6	Maintenance Planning and Scheduling Handbook	Richard D. Palmer (2006). DOI: 10.1036/0071457666	5	1:5
2.7	Farm machinery and equipment	(Autor: Harris Pearson Smith, A.E.Year : 1929).	5	1:5



2.8	Machinery's Handbook. 28th Edition	Oberg, Franklin D. Jones, Holbrook L. Horton, And Henry H. Ryffel 2008. ISBN 978-0-8311-2800-5	5	1:5
2.9	Agricultural machinery hazards & safety practices	(Autor: Agricultural Machinery Hazards & Safety Practices Year : January 2012 ISBN-13: 978-1477536643)	5	1:5
2.10	Machinery Component Maintenance and Repair, Third Edition	Heinz P. Bloch and Fred K. Geitner, 2005. ISBN: 0-7506-7726-0	5	1:25
2.11	Scheduled maintenance policy for minimum cost	(Autor: Mohamad Tabikh and Ammar Khattab Year :2011)	5	1:5
2.12	Planning and Implementing Routine Maintenance		5	1:5
2.13	Safe tractor operation	(Autor: David E. Baker and Ryan Milhollin year: 2021)	5	1:5

2.14	Gemba KAIZEN	2nd Edition Masaaki Imai	5 Pcs	1:5
2.15	Journals/Publication/Magazines	Published/unpublished	2 Pcs	1:12
2.16	Workshop process, practice and material	Author :BRUCE J. BLACK (October 1996)	5	1:5
2.17	Mechanical workshop practice 2nd edition	Author :K. C JOHN(January 2013)	5	1:5
2.18	Care and repair of shop machine	Author : JOHN WHITE (September 1998)	5	1:5
2.19	Classic hand tools	Author : GARRETT HACK (May 2004)	5	1:5
2.20	Workshop technology and practice	Author :SEGUN R. BELLO(July 2007)	5	1:5
2.21	Workshop practice manual	Author :K. VENKATA REDDY (March 1994)	5	1:5
2.22	Workshop using hand tools	Author :NICK ENGLER(February 1991)	5	1:5
2.23	Advances in Agricultural Machinery and Technology	Guangnan Chen, 2018	6	1:5
2.24	Maintain and store manual equipment	(Autor: Demers, Charles Year :2018, ISBN13: 9781551527284)	5	1:5
2.25	farm machinery and equipment	harris pearson smith, a.e. second edition seventh impression	5	1:5

2.26	Tractors and their power units	John B. Liljedahl, Paul K. Turnquist, David W. Smith	5	1:5
2.27	First Aid for the Emergency Medicine Board	(Autor: Barbare K Year :2015, Third edition )		
2.28	First aid for basic science general principle	Tao Le and Kendall Krause,2008		
2.29	Advances in postharvest technologies of vegetable crops	(Autor: Bijendra Singh Sudhir Singh Tanmay K. Koley , © 2018 by Apple Academic Press, Inc. Exclusive worldwide distribution by CRC Press, a member of Taylor & Francis Group No claim to original U.S. Government works International Standard Book Number-13: 978-1-77188-619-2 (Hardcover) International Standard Book Number-13: 978-1-315-16102-0 (eBook)	6	1:6
2.30	Handbook of Postharvest Technology; Cereals, Fruits, Vegetables, Tea, and Spices	(Autor: Amalendu Chakraverty Indian Institute of Technology Kharagpur, India 2003 by Marcel Dekker, Inc. All Rights Reserved.	6	1:6

2.31	Crop Post-Harvest: Science and Technology	Autor: Debbie Rees, Graham Farrell and John Orchard  This edition first published 2012 © 2012 by Blackwell Publishing Ltd Wiley- Blackwell is an imprint of John Wiley & Sons, formed by the merger of Wiley's global Scientific, Technical and Medical business with Blackwell Publishing.	6	1:6
2.32	post-harvest technologies of fruits & vegetables	Author: Hosahalli s. ramaswamy, phd, Copy right © 2015 by DEStech Publications, Inc. All rights re served	6	1:6
2.33	Agro tire retreading manual	Agro tire retreading manual  <a href="https://vipal.com">Https://vipal.com</a> and	5	1:5
2.34	Wheels & Tyres Produced	Wheels & Tyres Produced by In cooperation with: Subject Matter Experts Martin McMahon ,SOLAS 2013	5	1:5
2.35	Auto Repair Guide to Beginner Auto Maintenance & Repair	The Crawford Auto Repair Guide to Beginner Auto Maintenance & Repair By Jeff Crawford, CrawfordAuto Repair	5	1:5
2.36	Rema tip top portfolio tyre repair	REMA TIP TOP Portfolio Tyre Repair Material 2014/2015	5	1:5

2.37	Vehicle Maintenance and Repair Series Vehicle Maintenance Vehicle Fitting	Vehicle Maintenance and Repair Series Vehicle Maintenance Vehicle Fitting Units Level 1 and 2 Roy Brooks, Jack Hirst, John Whipp	5	1:5
2.38	Fruit and Vegetables Harvesting, Handling and storage	Author : John Wiley & Sons, Ltd  This third edition first published 2015 Edition history: Iowa State Press (1e, 1996); Blackwell Publishing Ltd (2e,	6	1:6
2.39	Crop Post-Harvest: Science and Technology  Volume 1  Principles and Practice	Author: Peter Golob, Graham Farrell and John. Orchard  First published 2002 by Blackwell Science Ltd  Library of Congress  Cataloging-in-Publication Data  is available		

<b>B.</b>	<b>Learning Facilities &amp; Infrastructure</b>			
1.	Class room	31.5 m2	1	1:25
2.	Workshop	1800 m2	1	1:25
3.	Internet room	100 m2	1	1:25
4.	Library room	Per section 105 – 180 m2	1	1:25
5.	Duplication room	20m2	1	1:25
6.	Tracing Paper	Paper A4 & A3, GSM: 80 - 120	1 ream	1:25
7.	Pencils	Made from Wood+graphite and Environmental friendly, writing smoothly and not easy to break	5pcs	1:25
8.	Eraser	Size: 35*21*10mm	5 pcs	1:5
9.	Pencil Sharper	size: 3.7*3.5*1.8cm, weight: 8.5g Material:Plastic Drive Type:Manual and Waterproof	5 pcs	1:5
10.	Marker	Reusable	1packet	1:25
11.	Colors for bench mark Marking	Red color	5pcs	1:5
12.	CD/DVD	RW	5 pcs	1:5
13.	Photocopier ink/toner	Compatible with the existing printer	1pcs	1:25
14.	Printer toner/ink	Compatible with the existing printer	5 pcs	1:5
15.	Plotter toner	Compatible with the existing printer	1	1:25
16.	Scale ruler	150-1200mm thickened Stainless Steel Ruler with Metric and Inch Scales	5	1:5
17.	Flip chart	Sinar line	5 pads	1:25
18.	GPS Battery	Alkaline	5 Pairs	1:5
19.	Firs Aid Kit	Size: 36*27*4.5 cm or customized Material: 600D Packing:polybag	5 pcs	1:5



20.	Binder	A4, vertical Size:23232218mm Nw: 311g Color Random	1 pcs	1:25
21.	Hi-vis cloths	Yellow colour	25 pcs	1:1
22.	Chalk	White color	1packet	1:25
23.	Image Data	Orthophoto/ orthorectified	5 pcs	1:5
<b>C.</b>	<b>Tools and Equipments</b>			
1.	Desktop Computer	64-bit OS; 8 GB RAM; Intel core i7 (Processor)	25	1:1
2.	Lap top	64-bit OS; 8 GB RAM; Intel core i7 (Processor)	1	1:25
3.	Greasing gun	Maximum pressure 40 MPa Volume/stroke 1,5 cm <sup>3</sup> Length 380 mm Weight 1.5 kg	5	1:5
4.	Rake	Medium teeth	5	1:7
5.	Machetes	Crocodile	7	1:5
6.	Sickles	Sharp teeth	5	1:7
7.	Tape meter ,	10 m	5	1:7
8.	Secateurs,	Stain less steel	7	1:5
9.	Spades,	stainless steel 2CR-13 Fold size: 13.5cm or custom Unfold size: length: 23cm, width: 6.5cm or custom	5	1:7
10.	Forks,	D grip Carbon steel wood handle 4 tines	5	1:7
11.	Hoes,	800g Painted, polish with blade	7	1:5
12.	Cart	Plastic	3	3:25
13.	Box	Plastic	2	2:25
14.	Water can	Plastic	5	1:7

15.	Augers	Open and sharp age	5	5:7
16.	5s Slogans	Per workshop	5 Pcs	1:5
17.	5s Map	Per workshop	5 Pcs	1:5
18.	Shelves	Per workshop	5 Pcs	1:5
19.	Kaizen Board	Per workshop	1 Pcs	1:35
20.	Fish Feeder	AC 220V/50Hz fish pond bait feeder high speed motor	5	1:5
21.	Hatchery	Egg incubator hatchery chicken farm	5	1:5
22.	Beehive	Amber beehive patterned glass	5	1:5
23.	Incubator	160L Low temperature carbon die oxide	5	1:5
24.	Milking Machine	100-240V 50/60HZ 1700W 17000rpm AC blender	5	1:5
25.	Driers (Solar and others)			
26.	Peeling machine	Corn peeling and thresher machine with motor Power: 4kw Capacity: 800-1000kg/hour	1	1:30
27.	Fruit presser	Heavy duty 430 stainless steel		

28.	Tube	Size:16.9/14-28  Valve:TR218A  Material:Butyl  Tensile strength:8.5mpa	5	1:5
29.	Tractor	4WD 40-100HP	1	1:25
30.	Backhoe/Loader	Operating Weight: 7600kg	2	1:13
31.	Knapsack sprayer (battery operated, hand cranked etc.)	Manual Knapsack Sprayer for Agricultural/Pest Control and Sterilization, with 20/16L Capacity	5	1:5
32.	Hand operated Sheller/thresher	hand operated maize shelling machine, Capacity 50 - 100 kgs / hr	5	1:5
33.	Manual groundnut decorticator	Groundnut Decorticator Machine, Material: Carbon Steel, Weight: 120-150 kg	5	1:5
34.	Improved ploughs	Bullock drawn implement, power source: A pair of bullocks, 3500 x 250 x 900 mm, weight : 17 kg, Capacity : 0.5 ha / day	5	1:5
35.	cultivators/weeder	diesel engine electric starting power tiller weeder, 10 hp -20 hp	5	1:5
36.	Disc Plough	3-4 Bottm	1	1:25
37.	Hedge trimmer	26CC, 2 stroke petrol engine,61cm blade	1	1:25
38.	Maize Sheller	10 ton/hr	1	1:25
39.	Lawn mower	35CC, 2 stroke Petrol engine, 40cm bar,	1	1:25
40.	Power tiller	10HP	1	1:25
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41.	Thresher, engine powered	9HP, 20-30qt/hr	1	1:25
D.	<b>Personal protective equipment (PPE)</b>			
42.	Safety shoes	Steel capped	25	1:1
43.	Overall	Cotton, construction: 5cm reflective tapes on chest and sleeve, 0.3cm reflective tapes on chest, two patched pockets on chest with snaps closure, two patched pockets on leg with snaps closure	25	1:1
44.	Gloves , pair	fabric	25	1:1
45.	Hat	Cotton, medium	25	1:1
46.	Safety goggle	Chemical protective goggle with indirect vents Big wraparound lens for maximal vision without obstacles	25	1:25
47.	Fire extinguisher	5 B RMB (0.79 B USD), Space : 2.5m sq. feet, 4kg	5	1:5
48.	First aid kit	Large	5	1:5
49.	Fire alarm	Output voltage: 24VD, Alarm current: DC, 100mA, Alarm confirm: red LED lamp, Size: 14 (dia.) x 4cm	1	1:25
50.	Ear plugs, 25pairs	Foam, 36db	1	1:25
51.	Table	Wooden table	25	1:1
52.	Whit-board/Blackboard	240 x 120 cm	1pcs	1:25
53.	LCD	Used for displaying	1	1:25

#### 4. Developers Profile

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