



Model Curriculum

QP Name: Repair and Maintenance Supervisor (Farm Machinery)

QP Code: AGR/Q1111

Version: 4.0

NSQF Level: 5

Model Curriculum Version: 3.0

Agriculture Skill Council of India || Agriculture Skill Council of India (ASCI), 6th Floor, GNG Tower, Plot
No. 10, Sector – 44

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Training Parameters

Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Farm Machinery, Equipment Operation and maintenance
Country	India
NSQF Level	5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7233
Minimum Educational Qualification and Experience	<p>UG Diploma or equivalent in Agriculture/Horticulture /Forestry/Agricultural Engineering and other related fields OR UG certificate in Agriculture/Horticulture /Forestry/Agricultural Engineering and other related fields with 1.5 year of relevant experience in Agriculture and allied sectors OR 12 or equivalent with 3 years of relevant experience in Agriculture and allied sectors OR 10 class pass with 6 years of relevant experience in Agriculture and allied sectors OR Previous NSQF Level 4.5 with 1.5 year of relevant experience in Agriculture and allied sectors OR Previous NSQF Level 4 with 3 years of relevant experience in Agriculture and allied sectors</p>
Pre-Requisite License or Training	NA
Minimum Job Entry Age	20 Years
Last Reviewed On	30/05/2024

Next Review Date	30/11/2024
NSQC Approval Date	30/05/2024
QP Version	4.0
Model Curriculum Creation Date	30/05/2024
Model Curriculum Valid Up to Date	30/11/2024
Model Curriculum Version	3.0
Minimum Duration of the Course	480 Hours
Maximum Duration of the Course	480 Hours

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills to:

- Explain the process of establishing and managing a business.
- Describe the process of preparing for and setting up an agriculture machinery repair and maintenance service centre.
- Demonstrate the process of inventory management and supervision of an agriculture machinery repair and maintenance service centre.
- Explain the importance and need of quality assurance and digitization of business records
- Explain the use of various payment methods.
- Demonstrate the use of a computer to prepare and maintain records and to communicate.
- Demonstrate various practices to maintain personal hygiene, cleanliness, and safety at the workplace.

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
AGR/N9921- Establish and manage a business NOS Version- 1.0 NSQF Level- 5	25:00	35:00	0:00	0:00	60:00
Module 1: Introduction to the role of a Repair and Maintenance Supervisor (Farm Machinery)	5:00	0:00	0:00	0:00	5:00
Module 2: Establishment and management of a business	20:00	35:00	0:00	0:00	55:00
AGR/N1137- Prepare to set up the repair and maintenance centre NOS Version- 2.0 NSQF Level- 5	20:00	40:00	0:00	0:00	60:00
Module 3: Preparation for setting up the agriculture	20:00	40:00	0:00	0:00	60:00

machinery repair and maintenance service centre					
AGR/N1154- Maintain inventory and supervise the repair and maintenance centre NOS Version- 1.0 NSQF Level- 5	20:00	70:00	0:00	0:00	90:00
Module 4: Inventory management and supervision of the agriculture machinery repair and maintenance service centre	20:00	70:00	0:00	0:00	90:00
AGR/N1155- Ensure quality assurance and maintain digitized business records NOS Version- 1.0 NSQF Level- 5	10:00	20:00	0:00	0:00	30:00
Module 5: Quality assurance and maintenance of digitized business records	10:00	20:00	0:00	0:00	30:00
AGR/N9903- Maintain health and safety at the workplace NOS Version- 3.0 NSQF Level- 4	15:00	15:00	0:00	0:00	30:00
Module 6: Hygiene and cleanliness	03:00	03:00	0:00	0:00	6:00
Module 7: Safety and emergency procedures	12:00	12:00	0:00	0:00	24:00
DGT/VSQ/N0103 Employability Skills NOS Version-1.0 NSQF Level-5	90:00	00:00	0:00	0:00	90:00
Module 8: Employability Skills	90:00	00:00	0:00	0:00	90:00
Total Duration	180:0	180:00	120:00	0:00	480:00

Module Details

Module 1: Introduction to the role of a Repair and Maintenance Supervisor (Farm Machinery)

Bridge Module, Mapped to AGR/N9921 v1.0

Terminal Outcomes:

- Identify the scope of the agriculture industry and its sub-sectors.
- State the role and responsibilities of a Repair and Maintenance Supervisor (Farm Machinery).
- Identify the career options available to a Repair and Maintenance Supervisor (Farm Machinery).

Duration: 05:00	Duration: 00:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe the size and scope of the agriculture industry and its sub-sectors. • Discuss the role and responsibilities of a Repair and Maintenance Supervisor (Farm Machinery). • Identify the career opportunities for a Repair and Maintenance Supervisor (Farm Machinery). 	
Classroom Aids	
Training kit - Trainer guide, Presentations, Whiteboard, Marker, projector, laptop	
Tools, Equipment and Other Requirements	
NA	

Module 2: Establishment and management of a business

Mapped to AGR/N9921 v1.0

Terminal Outcomes:

- Identify different ways of conducting market research.
- Describe the process of preparing a business plan and policies.
- Discuss ways to manage customer relationships.
- Explain the importance and process of monitoring business performance.

Duration: 20:00	Duration: 35:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe different methods of conducting market research to identify the demand for goods and services and customer preferences. • Explain the applicable laws and licensing requirements for establishing and conducting a custom hiring service business. • Describe the process of conducting market research. • Describe the process of creating a business plan and policies. • Explain various costs involved in establishing and managing a business such as procurement, production, logistics, etc. • Describe the process of assessing various risks to the business. • Explain the personnel and third-party management processes. • Describe the process of evaluating business performance and customer or client satisfaction. • Identify various practices for effective customer relationship management. • Explain the concept of business sustainability and continuity management. 	<ul style="list-style-type: none"> • Create a sample business plan and policy. • Show how to conduct a risk assessment to assess various risks to business activities in a case study. • Demonstrate the use of the relevant, computer, accounting and Customer Relationship Management (CRM) systems. • Conduct a case study to evaluate business performance and client satisfaction.
Classroom Aids	
Training kit (Trainer guide, Presentations). Whiteboard, Marker, projector, laptop	
Tools, Equipment and Other Requirements	
NA	

Module 3: Preparation for setting up the agriculture machinery repair and maintenance service centre

Mapped to ARG/N1137 v2.0

Terminal Outcomes:

- Discuss the various parameters to assess for setting up the repair and maintenance service centre.
- Explain the necessary financial and regulatory requirements for setting up the repair and maintenance service centre.

Duration: 20:00	Duration: 40:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the process and regulatory requirements for setting up an agriculture machinery repair and maintenance service centre. • Discuss the Dangerous Machines (Regulation) Act, 1983. • Explain various parameters to assess for selecting the location of an agriculture machinery repair and maintenance service centre. • Explain various requirements for setting up an agriculture machinery repair and maintenance service centre such as finance, personnel, machineries, tools, equipment, etc. • Explain various fixed and variable costs involved in setting up an agriculture machinery repair and maintenance service centre. • List the relevant financial institutions that provide financial assistance for setting up an agriculture allied business such as the National Bank for Agriculture and Rural Development (NABARD) and commercial/ regional rural/ co-operative banks. • Describe the process of securing financial assistance and utilities for the agriculture machinery repair and maintenance service centre. 	<ul style="list-style-type: none"> • Demonstrate the process of calculating the space for setting up the agriculture machinery repair and maintenance service centre. • Conduct a role-play to show how to recruit personnel for the agriculture machinery repair and maintenance service centre.
Classroom Aids	
Training kit (Trainer guide, Presentations). Whiteboard, Marker, projector, laptop	
Tools, Equipment and Other Requirements	
Calculator, Map, Drawing sheet	

Module 4: Inventory management and supervision of the agriculture machinery repair and maintenance service centre

Mapped to AGR/N1154 v1.0

Terminal Outcomes:

- Describe the process of effective personnel management at the agriculture machinery repair and maintenance service centre.
- Demonstrate the process of inspecting the repair and maintenance activities.
- Demonstrate various practices for effective resource optimization and waste disposal.

Duration: 20:00	Duration: 70:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the importance of carrying out regular repair and maintenance of various agricultural machineries, tools and equipment. • Explain the importance and process of conducting training for mechanics and workers. • Describe the process of preparing a work-plan and allocating tasks to mechanics and workers. • Explain team management • Explain the process of inspecting the repair and maintenance of various agricultural machineries, tools and equipment. • Describe the troubleshooting methods to diagnose issues • Describe the method of maintenance of various agricultural machineries' engines and their cooling and fuel system • Describe the process of lubricating, removing blockages and changing the oil and filter • Describe the process of carrying out maintenance of the lifting equipment • Describe the process of light metal machining and welding • Describe the maintenance of hydraulic and transmission systems • Explain Key Performance Indicators (KPIs) and ways to assign KPIs • Describe various performance evaluation methods • Describe basic data analysis methods 	<ul style="list-style-type: none"> • Prepare a catalogue of sample inventory items with detailed information • Show how to optimise inventory storage and handling process • Analyze inventory turnover and carrying costs in a case study • Prepare a sample work plan and checklist for mechanics and workers. • Show how to assess the requirements of the mechanics and workers in a case study. • Show how to manage conflicts among mechanics/workers in a case study • Demonstrate adherence to safety protocols in a repair and maintenance service centre • Demonstrate effective inspection and management practices. • Prepare preventive maintenance schedules based on manufacturer recommendations • Show ways to monitor the progress of repairs to ensure they are completed on time and are performed to the highest standards • Assess the need for new equipment as per the advancement in the new technologies. • Show how to track key performance indicators (KPIs) such as repair time, equipment downtime, and maintenance costs. • Analyze repair and maintenance data to identify trends, patterns, and areas for improvement • Prepare the maintenance and repair

<ul style="list-style-type: none"> • Describe the methods of customer and vendor management • Explain the concept of continuous improvement • Prepare a list of relevant new technologies • Describe the laws and regulations applicable to agricultural machinery repair and maintenance centre • Explain the importance of adhering to the established quality standards along with the safety requirements in repair and maintenance activities. • Explain the importance of following the environmental and ecological best practices • Explain the methods of effective resource optimisation and waste disposal. 	<p>expenses.</p> <ul style="list-style-type: none"> • Prepare a detailed equipment history records, including repair history, maintenance schedules, and component replacements. • Show the ways to evaluate the performance of repair and maintenance technicians • Demonstrate ways to gather feedback from end-users • Demonstrate various practices to optimise the usage of various resources such as water and electricity. • Demonstrate the process of recycling and disposing different types of waste in compliance with the applicable laws and regulations.
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Classroom Aids

Training kit (Trainer guide, Presentations)

Tools, Equipment and Other Requirements

Tools such as screwdriver set, pliers set, hammer set, set of chisels, set of files, hand hacksaw, set of spanners, set of sockets, set of pullers, pipe wrench, adjustable screw wrench, chisel set, tongs, hand grease gun, bench vice, micrometer, vernier calipers, screw jack, hydraulic jack, air compressor, washing machine, welding machine, bearing pullers, anvil, cotton jute, etc., exhaust fan power cutter, Drill machine

Module 5: Quality assurance and maintaining digitized business records

Mapped to NOS AGR/N1155 v1.0

Terminal Outcomes:

- Explain the importance and benefits of using e-payment methods and computer.
- Demonstrate the process of using computer and e-payment methods.
- Demonstrate the process of maintaining financial and operational records.

Duration: 10:00	Duration: 20:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe the Quality Standardization Procedure • Explain the importance of quality audits • Describe the preventive and corrective measures for ensuring quality • Explain the importance of digitization of business records • List the relevant accounting and computer applications for maintaining the business accounts and records • Describe the legal and standard requirements and process with respect to business documentation and record-keeping • Describe relevant details to be recorded in business reports such as data on marketing, logistics, distribution and sale • Describe the methods of safe handling and storage of reports and documents • Describe the best practices for the protection of data and privacy • List different online cloud storage services for backing up business data and reports • Explain the importance and benefits of using e-payment methods for processing payments. • Explain the importance and benefits of using email for business communications. • Describe the process of registering for various e-payment methods. • List various financial and business records to be prepared and maintained at a repair and maintenance service centre. • Describe different types of financial statements generated in the process of 	<ul style="list-style-type: none"> • Develop performance metrics and quality standards for repair and maintenance activities. • Prepare checklists for inspections, repair and maintenance tasks • Prepare a standardized operating procedure (SOP) for common repair and maintenance tasks. • Demonstrate how to do audit to assess adherence to quality standards • Demonstrate how to use a computer for data entry and analysis • Prepare data formats for recording repair and maintenance activities • Show how to maintain records and prepare reports on equipment, repairs, and maintenance costs, etc • Demonstrate the use of email for business communications. • Demonstrate the process of registering for and processing payments through various e-payment methods. • Demonstrate the use of relevant accounting and computer software to create and maintain the financial and business records. • Demonstrate the process of organising data and creating its backup. • Demonstrate the process of digitally recording various operational activities. Prepare the financial statements i.e. income statement, balance sheet and cash flow statement in a case study • Assess financial performance and key

<p>maintaining the business accounts</p> <ul style="list-style-type: none"> • Explain the meaning and use of basic accounting terminology and classification of various transactions • Explain the key financial ratios 	<p>metrics of an enterprise</p>
<p>Classroom Aids</p>	
<p>Trainee’s training kit and guide, Power-Point presentation, computer, projector, black/whiteboard. Charts and videos on workplace communication.</p>	
<p>Tools, Equipment and Other Requirements</p>	
<p>PayPal, PayTM, Amazon Pay, Card machine etc., MS-office, Accounting software, Sample financial statements</p>	

Module 6: Hygiene and cleanliness

Mapped to NOS AGR/N9903 v3.0

Terminal Outcomes:

- Discuss how to adhere to personal hygiene practices.
- Demonstrate ways to ensure cleanliness around the workplace.

Duration: 03:00	Duration: 03:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the requirements of personal health, hygiene and fitness at work. • Describe common health-related guidelines laid down by the organizations/ Government at the workplace • Explain the importance of good housekeeping at the workplace. • Explain the importance of informing the designated authority on personal health issues related to injuries and infectious diseases. 	<ul style="list-style-type: none"> • Demonstrate personal hygiene practices to be followed at the workplace. • Demonstrate the correct way of washing hands using soap and water, and alcohol-based hand rubs. • Demonstrate the steps to follow to put on and take off a mask safely. • Show how to sanitize and disinfect one's work area regularly. • Demonstrate adherence to the workplace sanitization norms. • Show how to ensure cleanliness of the work area.
Classroom Aids	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements	
Personal Protective Equipment, cleaning equipment and materials, sanitizer, soap, mask	

Module 7: Safety and emergency procedures

Mapped to NOS AGR/N9903 v3.0

Terminal Outcomes:

- Describe how to adhere to safety guidelines.
- Show how to administer appropriate emergency procedures.

Duration: 12:00	Duration: 12:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • List the Personal Protective Equipment (PPE) required at the workplace. • Describe the commonly reported hazards at the workplace. • Describe the hazards caused due to chemicals/pesticides/fumigants. • Describe the basic safety checks to be done before the operation of any equipment/machinery. • Describe the common first aid procedures to be followed in case of emergencies. • State measures that can be taken to prevent accidents and damage s at the workplace. • Explain the importance of reporting details of first aid administered, to the reporting officer/doctor, in accordance with workplace procedures • State common health and safety guidelines to be followed at the workplace. 	<ul style="list-style-type: none"> • Check various areas of the workplace for leakages, water-logging, pests, fire, etc. • Demonstrate how to safely use the PPE and implements as applicable to the workplace. • Display the correct way of donning, doffing and discarding PPE such as face masks, hand gloves, face shields, PPE suits, etc. • Sanitize the tools, equipment, and machinery properly. • Demonstrate the safe disposal of waste. • Demonstrate procedures for dealing with accidents, fires and emergencies. • Demonstrate emergency procedures to the given workplace requirements. • Demonstrate the use of emergency equipment in accordance with manufacturers' specifications and workplace requirements. • Demonstrate the administration of first aid. • Prepare a list of relevant hot-line/emergency numbers.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements	
Personal protective equipment, first aid kit, equipment used in medical emergencies.	

Module 8: Employability Skills (90 hours)

Mapped to NOS DGT/VSQ/N0103 v1.0

Duration: 90:00

Key Learning Outcomes

Introduction to Employability Skills Duration: 3 Hours

After completing this programme, participants will be able to:

1. Outline the importance of Employability Skills for the current job market and future of work
2. List different learning and employability related GOI and private portals and their usage
3. Research and prepare a note on different industries, trends, required skills and the available opportunities

Constitutional values - Citizenship Duration: 1.5 Hours

4. Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen
5. Demonstrate how to practice different environmentally sustainable practices

Becoming a Professional in the 21st Century Duration: 5 Hours

6. Discuss relevant 21st century skills required for employment
7. Highlight the importance of practicing 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life
8. Create a pathway for adopting a continuous learning mindset for personal and professional development

Basic English Skills Duration: 10 Hours

9. Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
10. Read and understand text written in basic English
11. Write a short note/paragraph / letter/e -mail using correct basic English

Career Development & Goal Setting Duration: 4 Hours

12. Create a career development plan
13. Identify well-defined short- and long-term goals

Communication Skills Duration: 10 Hours

14. Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette
15. Write a brief note/paragraph on a familiar topic
16. Explain the importance of communication etiquette including active listening for effective communication
17. Role play a situation on how to work collaboratively with others in a team

Diversity and Inclusion Duration: 2.5 Hours

18. Demonstrate how to behave, communicate, and conduct appropriately with all genders and PwD
19. Discuss the significance of escalating sexual harassment issues as per POSH act

Financial and Legal Literacy Duration: 10 Hours

20. Discuss various financial institutions, products, and services

21. Demonstrate how to conduct offline and online financial transactions, safely and securely and check passbook/statement
22. Explain the common components of salary such as Basic, PF, Allowances (HRA, TA, DA, etc.), tax deductions
23. Calculate income and expenditure for budgeting
24. Discuss the legal rights, laws, and aids

Essential Digital Skills Duration: 20 Hours

25. Describe the role of digital technology in day-to-day life and the workplace
26. Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
27. Demonstrate how to connect devices securely to internet using different means
28. Follow the dos and don'ts of cyber security to protect against cyber crimes
29. Discuss the significance of displaying responsible online behavior while using various social media platforms
30. Create an e-mail id and follow e-mail etiquette to exchange e-mails
31. Show how to create documents, spreadsheets and presentations using appropriate applications
32. utilize virtual collaboration tools to work effectively

Entrepreneurship Duration: 7 Hours

33. Explain the types of entrepreneurship and enterprises
34. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
35. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
36. Create a sample business plan, for the selected business opportunity

Customer Service Duration: 9 Hours

37. Classify different types of customers
38. Demonstrate how to identify customer needs and respond to them in a professional manner
39. Discuss various tools used to collect customer feedback
40. Discuss the significance of maintaining hygiene and dressing appropriately

Getting ready for apprenticeship & Jobs Duration: 8 Hours

41. Draft a professional Curriculum Vitae (CV)
42. Use various offline and online job search sources to find and apply for jobs
43. Discuss the significance of maintaining hygiene and dressing appropriately for an interview
44. Role play a mock interview
45. List the steps for searching and registering for apprenticeship opportunities

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
12th Class	Class 12th with Science and having any Certificate in course in Farm Mechanization from recognized institutes	5	Agriculture Farm Machinery	0		Ex-Service-Man including Ex-Paramilitary personnel: Minimum Qualification is 10+2 with an Honourable Discharge/Pension. SC would consider a relaxation/waiver of sector-specific experience on a case-to-case basis.
Diploma	Diploma (Mechanical / Agriculture engineering)	3	Agriculture Farm Machinery	0		
ITI	ITI (Mechanical / Agriculture engineering)	3	Agriculture Farm Machinery	0		
Graduate	Graduate (Agriculture)	1	Agriculture Farm Machinery	0		For school Program minimum qualification of Trainer should be Graduate (Agriculture / Physics). Their Teaching experience will be considered industry experience
B. Tech	B Tech in Mechanical / Agriculture engineering.	0		0		

Trainer Certification	
Domain Certification	Platform Certification
Certified for Job Role “ Repair and Maintenance Supervisor (Farm Machinery) ”, mapped to QP: “AGR/Q1111, v4.0”, Minimum accepted score is 80%	Recommended that the Trainer is certified for the Job Role: “Trainer (Vet and Skills)”, mapped to the Qualification Pack: “MEP/Q2601, v2.0”. Minimum accepted score as per MEPSC guidelines is 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduation	B. Tech (Agriculture/ Agriculture Engineering/Mechanical Engineering/Farm Machinery)	5	Agriculture/Farm Machinery/Mechanical Engineering and related streams	0		Practical skills and knowledge required in the maintenance of farm machinery
Graduation	B.Sc. (Agriculture / Agriculture Engineering and related streams)	5	Agriculture/Farm Machinery/Mechanical Engineering and related streams	0		Practical skills and knowledge required in the maintenance of farm machinery
Post-graduation	M. Tech (Agriculture/ Agriculture Engineering/Mechanical Engineering/Farm Machinery)	2	Agriculture/Farm Machinery/Mechanical Engineering and related streams	0		Practical skills and knowledge required in the maintenance of farm machinery
Post-graduation	M.Sc. (Agriculture / Agriculture Engineering and related streams)	2	Agriculture/Farm Machinery/Mechanical Engineering and related streams	0		Practical skills and knowledge required in the maintenance of farm machinery
PhD	PhD (Agriculture / Agriculture Engineering/Farm engineering and related streams)	1	Agriculture/Farm Machinery/Mechanical Engineering and related streams	0		Practical skills and knowledge required in the maintenance of farm machinery

Assessor Certification	
Domain Certification	Platform Certification
<p>“Repair and Maintenance Supervisor (Farm Machinery)”, “AGR/Q1111,v4.0”, Minimum accepted score is 80%</p>	<p>Certified for the Job Role: “Assessor (Vet and Skills)”, mapped to the Qualification Pack: “MEP/Q2701, v2.0”, with a minimum score of 80%.</p>

Assessment Strategy

Assessment System Overview

In Agriculture Sector it is of ultimate importance that individuals dealing with crop production or livestock have the requisite knowledge and competencies to undertake the task. Based on the Assessment Criteria, SSC in association with empaneled AAs, define the test structure for the given job roles to cover the required skills and competencies. Assessment strategy consists of the following:

1. Multiple Choice Questions: To assess basic knowledge (Objective/Subjective)
2. Viva: To assess awareness on processes (Oral and/or written questioning)
3. Practical: To evaluate skills and identify competencies. (Observation)

Assessments for knowledge and awareness on processes may be conducted through 'real-time' internet-based evaluation or by conducting the same 'offline' through TABs. Skills and competencies are to be assessed by conducting 'practical' on the ground through qualified and ToA certified assessors.

While it is important that an individual has adequate knowledge and skills to perform a specific task, weightage for different aspects of assessment are given as follows:

- Multiple Choice Questions: 20%-30%, depending on the specific QP
- Viva: 20%
- Practical: 50% - 60% (Involves demonstrations of applications and presentations of procedures/tasks and other components)
- Assessment will be carried out by certified assessors through empanelled assessment partners. Based on the results of the assessment; ASCI will certify the learners/candidates

Testing Environment

Assessments are conducted on laptops, Mobiles and android tablets via both offline and online mode depending on the internet connectivity at assessment location.

In remote locations/villages, assessments get delivered through tablets without the requirement of the Internet.

- Multilingual assessments (ASCI is conducting assessments in 13 + languages pan India)
- Rubric driven assessments in Practical/Viva sections and responses recorded accordingly
- All responses, data, records and feedback stored digitally on the cloud
- Advanced auto-proctoring features – photographs, time-stamp, geographic-tagging, toggle- screen/copy-paste disabled, etc.
- Android-based monitoring system

- End to end process from allocation of a batch to final result upload, there is no manual intervention
- Assessment will normally be fixed for a day after the end date of the training / within 7 days of completion of training.
- Assessment will be conducted at the training venue
- The room where assessment is conducted will be set with proper seating arrangements with enough space to curb copying or other unethical activities
- Question bank of theory and practical will be prepared by ASCI /assessment agency and approved ASCI. Only from approved Question Bank assessment agency will prepare the question paper. Theory testing will include multiple-choice questions, pictorial question, etc. which will test the trainee on his theoretical knowledge of the subject.
- The theory, practical and viva assessments will be carried out on the same day. In case of more number of candidates, the number of assessors and venue facilitation be increased and facilitated

Assessment			
Assessment Type	Formative or Summative	Strategies	Examples
Theory	Summative	MCQ/Written exam	Knowledge of facts related to the job role and functions. Understanding of principles and concepts related to the job role and functions
Practical	Summative	Structured tasks/Demonstration	Practical application /Demonstration /Application tasks
Viva	Summative	Questioning and Probing	Mock interviews on the usability of job roles/advantages /importance of adherence to procedures. Viva will be used to gauge trainee's confidence and correct knowledge in handling the job situation

The question paper pre-loaded in the computer /Tablet and it will be in the language as requested by the training partner.

Assessment Quality Assurance framework

Assessment Framework and Design:

Based on the Assessment Criteria, SSC in association with AAs will define the test structure for the given roles to cover the required skills and competencies. ASCI offer a bouquet of tools for multi-dimensional evaluation of candidates covering language, cognitive skills, behavioural traits and domain knowledge.

Theoretical Knowledge - Item constructs and types are determined by a theoretical understanding of the testing objectives and published research about the item-types and constructs that have shown statistical validity towards measuring the construct. Test item types which have been reported to be coachable are not included. Based on these, items are developed by domain experts. They are provided with comprehensive guidelines of testing objectives of each question and other quality measures.

Type – Questions based on Knowledge Required, Case-based practical scenario questions and automated simulation-based questions.

Practical Skills - The practical assessments are developed taking into consideration two aspects: what practical tasks is the candidate expected to perform on the job and what aspects of the job cannot be judged through theoretical assessments. The candidates shall be asked to perform either an entire task or a set of subtasks depending on the nature of the job role

Type – Standardized rubrics for evaluation against a set of tasks in a demo/practical task

Viva Voce - Those practical tasks which cannot be performed due to time or resource constraints are evaluated through the viva mode. Practical tasks are backed up with Viva for thorough assessment and complete evaluation

Type – Procedural questions, dos and don'ts, subjective questions to check the understanding of practical tasks.

The assessor has to go through an orientation program organized by the Assessment Agency. The training would give an overview to the assessors on the overall framework of QP evaluation. The assessor shall be given a NOS and PC level overview of each QP as applicable. The overall structure of assessment and objectivity of the marking scheme will be explained to them. The giving of marks will be driven by an objective framework which will maintain standardization of marking scheme.

Type of Evidence and Evidence Gathering Protocol:

During the assessment the evidence collected by AAs and ASCI are:

- Geo Tagging to track ongoing assessment
- AA's coordinator emails the list of documents and evidence (photos and videos) to the assessor one day before the assessment. The list is mentioned below:
 - Signed Attendance sheet
 - Assessor feedback sheet
 - Candidate feedback sheet
 - Assessment checklist for assessor
 - Candidate Aadhar/ID card verification
 - Pictures of the classroom, labs to check the availability of adequate equipment's and tool to conduct the training and assessment
 - Pictures and videos of Assessment, training feedback and infrastructure.
- Apart from the Assessor, Technical assistant popularly known as Proctor also ensures the proper documentation and they verify each other's tasks.
- To validate their work on the day of the assessment, regular calls and video calls are done.
- On-boarding and training of assessor and proctor is done on a timely basis to ensure that the quality of the assessment should be maintained.
- Training covers the understanding of QP, NSQF level, NOS and assessment structure

Methods of Validation

- Morning Check (Pre-Assessment): Backend team of AA calls and confirms assessor/technical SPOC event status. Assessor/Technical SPOC are instructed to reach the centre on time by 9:30 AM / as decided with TC and delay should be highlighted to the Training Partner in advance.
- Video Calls: Random video calls are made to the technical SPOC/assessor so as to keep a check on assessment quality and ensure assessment is carried out in a fair and transparent manner
- Aadhar verification of candidates
- Evening Check (Post Assessment): Calls are made to the ground team to ensure the event is over by what time and the documentation is done properly or not.
- TP Calling: To keep a check on malpractices, an independent audit team calls the TP on a recorded line to take confirmation if there was any malpractice activity observed in assessment on part of AA/SSC team. If calls are not connected, email is sent to TP SPOC for taking their confirmation
- Video and Picture Evidence: Backend team collects video and pictures for assessment on a real-time basis and highlights any issue such as students sitting idle/ trainer helping the candidates during the assessment.
- Surprise Visit: Time to time SSC/AA Audit team can visit the assessment location and conduct a surprise audit for the assessment carried out by the ground team.
- Geo Tagging: On the day of the assessment, each technical SPOC is required to login in our internal app which is Geotagged. Any deviation with centre address needs to be highlighted to the assessment team on a real-time basis.

Method for assessment documentation, archiving, and Access:

- ASCI has fully automated result generation process in association with multiple AAs
- Theory, Practical and Viva marks form the basis of the results and encrypted files generated to avoid data manipulation. All responses captured and stored in System with Time-Stamps at the end of AAs and SSC. NOS-wise and PC-wise scores can be generated.
- Maker Checker concept: One person prepares the results and another audit result which is internally approved by AA at first and then gets vetted at the end of SSC
- All softcopies of documents are received from the on-ground tech team over email. The same are downloaded by our internal backend team and saved in Repository. The repository consists of scheme-wise folders. These scheme-wise folders have job role specific folders. These specific folders have Year wise and Month wise folders where all documents are saved in Batch specific folders. All Hard copies are filed and stored in the storeroom.

Result Review & Recheck Mechanism –

- Time-stamped assessment logs
- Answer/Endorsement sheets for each candidate
- Attendance Sheet
- Feedback Forms: Assessor feedback form, Candidate feedback form, TP feedback form
- The results for each of the candidate shall be stored and available for review (retained for 5 years/ till the conclusion of the project or scheme)

References

Glossary

Term	Description
Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests
Key Learning	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

Term	Description
AGR	Agriculture
NOS	National Occupational Standard (s)
NSQF	National Skills Qualifications Framework
OJT	On-the-job Training
QP	Qualifications Pack
PwD	People with Disability
PPE	Personal Protective Equipment