Model Curriculum

QP Name: Digital Agriculture Extension Promoter

Electives: Farm Production/ Agri Supply Chain

QP Code: AGR/Q1010

Version: 1.0

NSQF Level: 5.5

Model Curriculum Version: 1.0

Agriculture Skill Council of India || Unit No. 101, First Floor, Greenwoods Plaza,
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Training Parameters

Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Precision Farming (Agriculture information management)
Country	India
NSQF Level	5.5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3142.9900
Minimum Educational Qualification and Experience	UG Degree or Equivalent* OR UG diploma* with 1.5-year relevant experience in Agriculture and allied sectors OR Completed 3-year diploma* after 10th with 3-years relevant experience in Agriculture and allied sectors OR 12th or equivalent with 4.5-years relevant experience in Agriculture and allied sectors OR Previous relevant Qualification of NSQF Level 5 with 1.5-year experience in Agri-information management, Agri Suply chain management and related activities OR Previous relevant Qualification of NSQF Level 4.5 with 3-years experience in Agriculture and allied sectors **Agriculture/Horticulture/Forestry/ Agriculture Engineering/Veterinary Sciences and Animal Husbandry/Diary Technology*
Pre-Requisite License or Training	NA
Minimum Job Entry Age	NA
Last Reviewed On	30/04/2024
Next Review Date	30/04/2027
NSQC Approval Date	30/04/2024
QP Version	1.0
Model Curriculum Creation Date	30/04/2024
Model Curriculum Valid Up to Date	30/04/2027

Model Curriculum Version	1.0
Minimum Duration of the Course	570 Hours (450+120)
Maximum Duration of the Course	690 Hours (450+120+120)

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:

- Discuss the job role of a Digital Agriculture Extension Promoter
- Evaluate need for agricultural technology
- Identify the scope and use of digital tools for crop management/precision farming
- Deploy various digital applications for crop management/ precision farming
- Identify the scope and use of digital tools in Post-Harvest Management, Supply Chain Management including traceability, E-commerce and Financial Inclusion
- Deploy various digital tools for Post-Harvest Management, Supply Chain Management including traceability, E-commerce and Financial Inclusion
- Determine the type and extent of data to be collected
- Access and collate data
- Evaluate data
- Manage and retrieve data
- Identify, access and apply agricultural data
- Interpret and explain agricultural data
- Demonstrate analysis of agricultural data
- Identify and address data gaps
- Demonstrate use of agricultural data
- Demonstrate Presenting data/findings
- Review and reporting of agricultural data
- Identify the knowledge gap for content creation
- Create content and disseminate through various media
- Identify the Digital Extension needs and gap
- Apply Digital Extension methodologies and strategies
- Establish partnerships and collaboration for mass outreach
- Demonstrate the employability skills required 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/N1044: Evaluate available agricultural technologies to enhance production	20:00	10:00	0:00	0:00	30:00

Version- 1.0 **NSQF Level- 5.5**					
Module 1: Introduction to the role of a Digital Agriculture Extension Promoter	05:00	0:00	0:00	0:00	05:00
Module 2: Agricultural technology for enhancing farm production	15:00	10:00	0:00	0:00	25:00
AGR/N1045: Create and manage digital content **NOS Version- 1.0** **NSQF Level- 5.5**	**20:00**	**40:00**	**0:00**	**0:00**	**60:00**
Module 3: Development and Management of digital content	20:00	40:00	0:00	0:00	60:00
AGR/N1046: Apply digital extension strategies for mass outreach **NOS Version- 1.0** **NSQF Level- 5.5**	**10:00**	**20:00**	**0:00**	**0:00**	**30:00**
Module 4: Application of digital extension strategies for mass outreach	10:00	20:00	0:00	0:00	30:00
AGR/N1047: Collect and handle data **NOS Version- 1.0** **NSQF Level- 5.5**	**20:00**	**40:00**	**0:00**	**0:00**	**60:00**
Module 5: Collection and handling of data	20:00	40:00	0:00	0:00	60:00
AGR/N1048: Analyse and use agricultural data **NOS Version- 1.0** **NSQF Level- 5.5**	**10:00**	**50:00**	**0:00**	**0:00**	**60:00**
Module 6: Analysis and use of agricultural data	10:00	50:00	0:00	0:00	60:00
Employability Skills **NOS Version-1.0** **NSQF Level-5**	**90:00**	**00:00**	**0:00**	**0:00**	**90:00**

Module 7: Employability Skills	90:00	0:00	0:00	0:00	90:00
Module 8: OJT (Mandatory)	0:00	0:00	120:00	0:00	120:00
Total Duration	**170:00**	**160:00**	**120:00**	**0:00**	**450:00**

Elective Module

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

Elective 1: Farm Production

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
AGR/N1049: Facilitate deployment of digital applications in crop management and precision farming **NOS Version- 1.0** **NSQF Level- 4**	**40:00**	**80:00**	**0:00**	**0:00**	**120:00**
Module 9: Deployment of digital applications in crop management and precision farming	40:00	80:00	0:00	0:00	120:00
Total Duration	**40:00**	**80:00**	**0:00**	**0:00**	**120:00**

Elective 2: Agri Supply Chain

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
AGR/N1050: Facilitate deployment of digital applications in Post-harvest management, Supply Chain Management and Financial Inclusion **NOS Version- 1.0** **NSQF Level- 4**	**40:00**	**80:00**	**0:00**	**0:00**	**120:00**

Module 10: Deployment of digital applications in Post-harvest management, Supply Chain Management and Financial Inclusion	40:00	80:00	0:00	0:00	120:00
Total Duration	**40:00**	**80:00**	**0:00**	**0:00**	**120:00**

Module Details

Module 1: Introduction to the role of a Digital Agriculture Extension Promoter

Bridge Module, Mapped to AGR/N1044 v1.0

Terminal Outcomes:

- Discuss the job role of a Digital Agriculture Extension Promoter

Duration: 05:00	**Duration: 0:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the size and scope of the agriculture and its sub-sectors. • Discuss the role and responsibilities of a Digital Agriculture Extension Promoter • Identify various employment opportunities for a Digital Agriculture Extension Promoter	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
NA	

Module 2: Agricultural technology for enhancing farm production

Mapped to AGR/N1044 v1.0

Terminal Outcomes:

- Evaluate need for agricultural technology

Duration: 20:00	Duration: 10:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the trends and developments in technology relevant to agriculture • List the sources of information related to agricultural technology • Discuss the role of digital technologies in transforming farming practices, enhancing agricultural productivity, sustainability, and resilience, and contributing to the overall development of the agricultural sector in India. • State the farmers' need, their current practices and the gaps that require technological interventions • Describe the commonly used digital technologies in agriculture, such as precision farming tools, sensor-based monitoring systems, and remote sensing technologies. • Describe the functionalities and applications of digital tools and platforms in optimizing agricultural processes, decision-making, and resource management. • Discuss the emerging trends and advancements in agricultural technology, including artificial intelligence, machine learning, and blockchain, and their potential impact on farming practices. • List the potential benefits and limitations of digitalization in agriculture, considering its impact on efficiency, productivity, profitability, environmental sustainability, and social equity. • Explain the importance of data management, interoperability, and connectivity in maximizing the value and impact of digital solutions on farm operations and decision-making processes. • Describe the basic principles of cost-benefit analysis • Explain potential barriers to learning to use technological applications, and strategies to address these • Describe range of technology options available to support farm activities	• Identify and evaluate farm/organisational tasks and processes that could be supported by technological applications • Assess opportunities and limitations for operational improvements that may result from adopting specific technological applications • Study the real-world examples and case studies where digital solutions have improved crop yields, reduced resource usage, and enhanced farm profitability, both globally and within the Indian context. • Research the commonly discussed digital agriculture projects in India, including key initiatives, stakeholders, challenges, and opportunities. • Evaluate equipment, tools and resource requirements and select most appropriate options • Evaluate cost-benefit aspect of using technology • Develop a plan to incorporate use of technology to improve operational efficiency, productivity and sustainability •

• Discuss strategies that can be used to evaluate technology use	
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Drone, different types of Sensors, GPS, IoT & AI based farm based appliances, weather and agri-market related apps	

Module 3: Development and management of digital content

Mapped to AGR/N1045 v1.0

Terminal Outcomes:

- Identify the knowledge gap for content creation
- Create content and disseminate through various media

Duration: 20:00	**Duration: 40:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the trends and developments in digital content technologies • List the sources of information on farmers' problems, felt and unfelt, issues related to agriculture • List the basic need assessment tools • Describe different types of digital tools for content development • Explain the importance of treatment of content for suitability to various digital media • Describe the potential barriers in using various digital media tools • Describe the strategies for selection of appropriate media • Explain the training and technical support options available to develop skills in the use of technology	• Identify existing knowledge gap and services required by farmers • Assess and prioritize the identified needs • Collect and review the required content from various sources using digital media tools • Create content suitable for various digital media • Customize the content to suit various digital media and audience • Demonstrate the method of treatment of content to enhance user engagement • Demonstrate the validation process of the designed content with various stakeholders • Review and proofread the content • Finalize the content in appropriate digital media for dissemination through various media tools • Store and retrieve content for use
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Various digital platforms/apps, Computer/laptop	

Module 4: Digital Extension Strategies for Mass Outreach

Mapped to AGR/N1046 v1.0

Terminal Outcomes:

- Identify the Digital Extension needs and gap
- Apply Digital Extension methodologies and strategies
- Establish partnerships and collaboration for mass outreach

Duration: 15:00	**Duration: 15:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the trends and developments in digital extension approaches and strategies • List the sources of information on farmers' problems, felt and unfelt, issues related to agriculture • Describe the Basic need assessment tools • Describe Different types of digital media platforms/applications, its applications, features and its usage • Describe the approaches and strategies for different types of digital media tools • Explain the context in which various digital tools can be deployed • Describe the potential barriers in using various digital media platforms/apps • Describe the strategies for selection of appropriate digital media • List the training and technical support options available to develop skills in the use of technology	• Identify existing digital extension knowledge gaps and needs • Assess and prioritize needs and need assessment tools • Collect data on users, user preference, application of digital tools • Leverage data analytics and performance metrics for strategic decision making • Select appropriate digital media platforms/applications/tools to meet the required objective • Utilize multichannel approach such as websites, mobile app., social media, and other social networking platforms for sharing the digital content • Identify partners and collaborators for enhancing digital presence • Demonstrate ways to develop strategic partnerships to amplify reach and co-create content in digital space
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Various digital platforms/apps	

Module 5: Collection and handling of data

Mapped to AGR/N1047 v1.0

Terminal Outcomes:

- Determine the type and extent of data to be collected
- Access and collate data
- Evaluate data
- Manage and retrieve data

Duration: 20:00	**Duration: 40:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Define the type and extent of data required • Describe about sensitive data collection, access and storage techniques • Discuss privacy or sensitive data concerns and appropriate methods to address these concerns • Explain about data recording, data storage, retrieval methods and evaluation techniques • Define data collection methods and techniques relative to data requirements • Explain the data requirements to staff involved in data collection • Explain the workplace health and safety hazards and risks associated with data collecting • Illustrate data reporting and presentation formats. • Describe data analysis and interpretive techniques • Explain the data collection techniques and procedures	• Identify data sources • Demonstrate how to access and acquire satellite imagery and data from reliable sources • Demonstrate data analysis and interpretive techniques of the collected data • Demonstrate formatting techniques of data to assist collection • Demonstrate collection of data from field sources • Demonstrate collation of data by appropriate electronic means • Monitor appropriateness of data and record during collection • Demonstrate appropriate methods and technologies to review information • Demonstrate organising and reviewing the data • Demonstrate storing and retrieving of data by appropriate electronic means • Create and present data using appropriate graphical aids and techniques
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Computer/Laptop	

Module 6: Analysis and use of agricultural data

Mapped to AGR/N1048 v1.0

Terminal Outcomes:

- Identify, access and apply agricultural data
- Interpret and explain agricultural data
- Demonstrate analysis of agricultural data
- Identify and address data gaps
- Demonstrate use of agricultural data
- Demonstrate Presenting data/findings
- Review and reporting of agricultural data

Duration: 20:00	Duration: 40:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss workplace business objectives, goals and farming system with business/farm owner or farm manager to determine purpose of information being sought • Explain the importance of agricultural data into business operations and determine if corrective action is required and take appropriate action • Discuss the concept of farming as a system, including the interconnection of plants, soil, water, environment, weather, finance, production systems • Explain the principles and practices for interpreting and using agricultural data • Explain the importance of standardised data in generating whole of farm data analysis • Describe types of data systems relevant to agricultural production, including GNSS, relevant vegetation indices and their use, UAV imagery • Discuss the sources of data to assist with monitoring plants, soil, water, environment, salinity, erosion, weeds, biodiversity	• Identify existing sources of agricultural data available in the workplace to support workplace business objectives • Review and select appropriate software programs or applications (app) to meet workplace business objectives • Demonstrate accessing agricultural and enter into software program or app • Create maps and summary reports using existing data • Interpret maps or reports to identify opportunities and limitations for operational improvements that support business objectives • Conduct field work to ground truth data and record interpretations of data for future use • Demonstrate documentation requirements of data results using appropriate interpretation and presentation techniques • Present the data results and information to business/farm owner or farm manager • Collect and analyse data to determine significance of results • Demonstrate simple statistical analysis to detect data outliers, imbalances in generated data sets and identify erroneous data points, including determining spatial density of the

	managed data set • Demonstrate preparing variability maps from suitable data sets • recommend solutions utilising agricultural data, and present to business/farm owner or farm manager for approval • examine the validity and reliability, and gaps in existing agricultural data • Identify solutions to address data gaps utilising existing sources • Create maps and reports for agricultural activities for review and discussion with key business personnel
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Computer/Laptop, Data Analysis software	

Module 7: 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. Discuss the importance of Employability Skills in meeting the job requirements

Constitutional values - Citizenship Duration: 3 Hours

2. Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen.
3. Show how to practice different environmentally sustainable practices

Becoming a Professional in the 21st Century Duration: 3 Hours

4. Discuss 21st century skills.
5. Display positive attitude, self -motivation, problem solving, time management skills and continuous learning mindset in different situations.

Basic English Skills Duration: 6 Hours

6. Use appropriate basic English sentences/phrases while speaking

Communication Skills Duration: 12 Hours

7. Demonstrate how to communicate in a well -mannered way with others.
8. Demonstrate working with others in a team

Diversity & Inclusion Duration: 3 Hours

9. Show how to conduct oneself appropriately with all genders and PwD
10. Discuss the significance of reporting sexual harassment issues in time

Financial and Legal Literacy Duration: 12 Hours

11. Discuss the significance of using financial products and services safely and securely.
12. Explain the importance of managing expenses, income, and savings.
13. Explain the significance of approaching the concerned authorities in time for any exploitation as per legal rights and laws

Essential Digital Skills Duration: 8 Hours

14. Show how to operate digital devices and use the associated applications and features, safely and securely
15. Discuss the significance of using internet for browsing, accessing social media platforms, safely and securely

Entrepreneurship Duration: 22 Hours

16. Discuss the need for identifying opportunities for potential business, sources for arranging money and potential legal and financial challenges

Customer Service Duration: 12 Hours

17. Differentiate between types of customers

18. Explain the significance of identifying customer needs and addressing them
19. Discuss the significance of maintaining hygiene and dressing appropriately

Getting ready for apprenticeship & Jobs Duration: 6 Hours

20. Create a biodata
21. Use various sources to search and apply for jobs
22. Discuss the significance of dressing up neatly and maintaining hygiene for an interview
23. Discuss how to search and register for apprenticeship opportunities

Module 8: On-the-Job Training (OJT)

Mapped to AGR/Q1010 v1.0

Duration: 120:00

Key Learning Outcomes

1. Develop a plan to incorporate use of technology to improve operational efficiency, productivity and sustainability
2. Identify existing knowledge gap and services required by farmers
3. Create content suitable for various digital media
4. Finalize the content in appropriate digital media for dissemination through various media tools
5. Identify existing digital extension knowledge gaps and needs
6. Leverage data and performance metrics for strategic decision making
7. Utilize multichannel approach such as websites, mobile app., social media, and other social networking platforms for sharing the digital content
8. Demonstrate how to access and acquire satellite imagery and data from reliable sources
9. collect data from field sources
10. collate data by appropriate electronic means
11. Create and present data using appropriate graphical aids and techniques
12. Interpret maps or reports to identify opportunities and limitations for operational improvements that support business objectives
13. Collect and analyse data to determine significance of results and recommend solutions utilising agricultural data to farm needs

Module 9: Deployment of Digital Applications for Crop Management/ Precision Farming

Mapped to AGR/N1049 v1.0

Terminal Outcomes:

- Identify the scope and use of digital tools for crop management/precision farming
- Deploy various digital applications for crop management/ precision farming

Duration: 40:00	**Duration: 80:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the trends and developments in digital tools, especially, GIS, GPS, IoT, AI, Drones, Automated Weather Stations and mobile applications • Describe the nature of farm interventions, and scope for integrating, replacing the farm level operations with digital technologies • Explain the context in which various digital tools can be deployed • Describe various digital tools for crop management and precision farming, its applications, features and its usage • Describe the potential barriers in using various digital technologies • Discuss the technical and financial feasibility for implementing the digital technologies • Describe the strategies for selection of appropriate digital technologies for crop management and precision farming • List the training and technical support options available to develop skills in the use of technology	• Identify key interventions in crop production, crop management, plant protection and harvest • Assess the existing practices in crop production • Identify the scope for the use of digital applications in crop production • Prepare a deployment plan for the use of AI and mobile apps. for various field interventions • Prepare digital agriculture toolkit for crop monitoring and management • Demonstrate the process of deployment of GIS / GPS technologies for mapping and other operations • Demonstrate the process of deployment of IoT / AI applications for SMART irrigation management • Demonstrate the process of deployment of AI and mobile app. for farm management, plant protection and harvest • Show how to integrate various precision farming tools, technologies in crop management
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
GIS based sensors, GPS, GIS software	

Module 10: Deployment of Digital Applications for Post-harvest Management, Supply Chain Management and Financial Inclusion

Mapped to AGR/N1050 v1.0

Terminal Outcomes:

- Identify the scope and use of digital tools for Post-Harvest Management, Supply Chain Management including traceability, E-commerce and Financial Inclusion
- Deploy various digital applications for Post-Harvest Management, Supply Chain Management including traceability, E-commerce and Financial Inclusion

Duration: 40:00	Duration: 80:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the trends and developments in digital tools, especially, Post-harvest Management, Traceability, Supply chain, FinTech (Financial Inclusion) and e-Commerce • Describe the nature of farm interventions, and scope for integrating, replacing the farm level Post harvest operations with digital technologies • Describe the challenges faced by farmers in accessing formal financial services • Explain the significance of capturing accurate and complete data at various stages of production for effective traceability • Describe the consumer demand and market specific traceability requirements • Explain the context in which various digital tools can be deployed • Describe various digital tools for post-harvest management, Supply Chain Management including traceability, E-commerce and financial inclusion, its applications, features and its usage • Describe the potential barriers in using various digital technologies • Discuss the technical and financial feasibility for implementing the digital technologies • Describe the strategies for selection of appropriate digital technologies for post-harvest management, Supply Chain Management including traceability, E-commerce and financial inclusion • List the training and technical support options available to develop skills in the use of technology	• Identify key interventions in Post-harvest management, Supply Chain Management including traceability, E-commerce • Identify the scope of financial inclusion for agricultural development • Assess the digital technologies / tools suitable for PHM, Supply Chain Management including traceability, E-commerce and financial inclusion • Prepare a deployment plan for the use of digital applications for PHM, Supply Chain Management including traceability, E-commerce and Financial Inclusion • Prepare digital agriculture toolkit for Post-harvest management, Supply chain management and Financial Inclusion • Demonstrate the process of deployment of digital tools for Post-harvest Management and Traceability • Demonstrate the process of deployment of digital tools for Financial Inclusion and e-Commerce • Demonstrate the process of deployment of various fintech solutions for digital payment, transactions, farm financing and investment.
Classroom Aids	

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop
Tools, Equipment and Other Requirements
NA

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Diploma	Diploma in agriculture	4	Agriculture Precision farming & AI (Data Management)	0		
Any Graduate	Graduate	3	Agriculture Precision farming & AI (Data Management)	0		For school Program minimum qualification of Trainer should be Graduate. Their Teaching experience will be considered industry experience
Graduate	Graduate (Agriculture / Horticulture)	1	Agriculture Precision farming & AI (Data Management)	0		
Post-Graduate	Post-Graduate (Agriculture / Horticulture/ Agriculture Statistics)	0.5	Agriculture Precision farming & AI (Data Management)	0		

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role "**Digital Agriculture Extension Promoter**", mapped to QP: "AGR/Q1010, v1.0", 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". The minimum accepted score as per MEPSC guidelines is 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduate	Graduate (Agriculture / Horticulture)	2	Agriculture Precision farming & AI (Data Management)	0		
Post-Graduate	Post-Graduate (Agriculture / Horticulture/ Agriculture Statistics)	1	Agriculture Precision farming & AI (Data Management)	0		

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for Job Role " **Digital Agriculture Extension Promoter**", mapped to QP: "AGR/Q1010, v1.0", Minimum accepted score is 80%	Certified for the Job Role: "Assessor (Vet and Skills)", mapped to the Qualification Pack: "MEP/Q2701, v2.0", with a minimum score of 80%.

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.

An individual must have adequate knowledge and skills to perform a specific task, weightage for different aspects of the assessment is 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 empaneled 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 the assessment location.

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

- Multilingual assessments (ASCI is conducting the assessments in 13 + languages pan India)
- Rubric driven assessments in Practical/Viva sections and responses recorded accordingly
- All responses, data, records and feedback are 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 practice 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 questions, 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 a greater 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 is 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 that 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 the 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 that will maintain the standardization of the marking scheme.

Type of Evidence and Evidence Gathering Protocol:

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

- GeoTagging 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 tools to conduct the training and assessment
- Pictures and videos of Assessment, training feedback and infrastructure.

- Apart from the Assessor, a Technical assistant is 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 the assessor and proctor are 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 the assessment on part of the AA/SSC team. If calls are not connected, an 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 into our internal app which is Geotagged. Any deviation with the centre address needs to be highlighted to the assessment team on a real-time basis.

Method for assessment documentation, archiving, and Access:

- ASCI have a 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 were captured and stored in the

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 is downloaded by our internal backend team and saved in Repository. The repository consists of scheme-wise folders. These scheme-wise folders have two 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 candidates shall be stored and available for review (retained for 5 years/ till the conclusion of the project or scheme)

References

Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
Key Learning Outcome	The 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 task. It is the ability to work or produce a tangible work output by applying cognitive, affective or psychomotor skills.
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	The 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
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
AI	Artificial Intelligence
GIS	Geographic Information Systems
GPS	Global Positioning System
IoT	Internet of Things
PwD	People with Disability
PPE	Personal Protective Equipment