# Model Curriculum

**Micro Credential:   Essentials of Agri Services and Input Retailing**

**MCr Code: AGR/MCr-0012**

**Version: 1.0**

**NSQF Level: 4**

**Model Curriculum Version: 1.0**

Agriculture Skill Council of India || Unit No. 101, First Floor, Greenwoods Plaza, Block 'B', Greenwoods City, Sector 45, Gurugram -122009, Haryana.

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# Training Parameters

| | |
|---|---|
| Sector | Agriculture |
| Sub-Sector | Agriculture Industries |
| Occupation | Agri Entrepreneurship & Rural Enterprises |
| Country | India |
| NSQF Level | 4 |
| Aligned to NCO/ISCO/ISIC Code | NA |
| Minimum Educational Qualification and Experience | 12th or equivalent with 1 year of relevant experience in PMKSKs in-charges OR agriculture and allied sectors. OR 10th Grade Pass with 3-year of relevant experience in PMKSKs in-charges OR agriculture and allied sectors. OR Previous relevant Qualification of NSQF Level 3.5 with 1.5-year of relevant experience in PMKSKs in-charges OR agriculture and allied sectors. OR Previous relevant Qualification of NSQF Level 3-year of relevant experience in PMKSKs in-charges OR agriculture and allied sectors. |
| Pre-Requisite License or Training | NA |
| Minimum Job Entry Age | 18 |
| Last Reviewed On | 22-10-2024 |
| Next Review Date | 22-10-2027 |
| NSQC Approval Date | 22-10-2024 |
| MCr Version | 1.0 |
| Model Curriculum Creation Date | 22-10-2024 |
| Model Curriculum Valid Up to Date | 22-10-2027 |
| Model Curriculum Version | 1.0 |
| Minimum Duration of the Course | 22:30 Hours |
| Maximum Duration of the Course | 22:30 Hours |

# Program Overview

This section summarises 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 about soil & nutrients and their importance in crop production.
- Explain about the importance of organic fertilizers for maintaining Organic Carbon in Indian Soils and promoting nutrient management, its significance in soil health and agricultural productivity
- Explain about the importance of the judicious use of fertilizers /agri-inputs to promote fertilizer use efficiency and sustainable practices through products and best practices with an aim to maximize the crop production while maintaining the agricultural sustainability.
- Explain about the latest technological advances in the field of agriculture like - drone technology & other modes of input application into the crops & growing techniques.
- Promote the use and benefits of organic fertilisers, Biofertilizers and alternative fertilisers such as Nano fertilizers, FOM, PROM, PDM etc.
- Disseminate information on latest technologies and various Government schemes available for the farmers.

## Compulsory Modules

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

| NOS and Module Details | Theory Duration | Practical Duration | On-the-Job Training Duration (Mandatory) | On-the-Job Training Duration (Recommended) | Total Duration |
|---|---|---|---|---|---|
| **AGR/MCr-0012: Essentials of Agri Services and Input Retailing** <br> **MCr Version-1.0** <br> **MCr Level-4** | **14:30** | **8:00** | **0:00** | **0:00** | **22:30** |
| Module: Essentials of Agri Services and Input Retailing | 14:30 | 8:00 | 0:00 | 0:00 | 22:30 |
| **Total Duration** | **14:30** | **8:00** | **0:00** | **0:00** | **22:30** |

# Module Details

## Module: Essentials of Agri Services and Input Retailing
### *Mapped to AGR/MCr-0012*

**Terminal Outcomes:**

- Explain about soil & nutrients and their importance in crop production.
- Explain about the importance of organic fertilizers for maintaining Organic Carbon in Indian Soils and promoting nutrient management, its significance in soil health and agricultural productivity
- Explain about the importance of the judicious use of fertilizers /agri-inputs to promote fertilizer use efficiency and sustainable practices through products and best practices with an aim to maximize the crop production while maintaining the agricultural sustainability.
- Explain about the latest technological advances in the field of agriculture like - drone technology & other modes of input application into the crops & growing techniques.
- Promote the use and benefits of organic fertilisers, Biofertilizers and alternative fertilisers such as Nano fertilizers, FOM, PROM, PDM etc.
- Disseminate information on latest technologies and various Government schemes available for the farmers.

| Duration: 14:30 | Duration: 8:00 |
|---|---|
| **Theory – Key Learning Outcomes** | **Practical – Key Learning Outcomes** |
| <ul><li>Explain the basic concepts of soil, plant nutrition, and soil fertility</li><li>Describe about the Essential plant nutrients -Macro (primary & secondary) & Micro nutrients and their significance in agriculture.</li><li>Explain the sign and symptoms of plant nutrient deficiency and corrective measures</li><li>Explain the different soil types, their properties with reference to the presence and availability of various nutrients for different types of crops</li><li>Explain the importance of soil sampling- method of collection of soil samples, Soil Health Card and Soil Test based Fertilizer recommendation.</li><li>State the Role of organic manure/ fertilisers in maintaining the soil organic carbon (OC), soil structure, water holding capacity, nutrient availability and microbial activity.</li><li>Explain the concept of balanced fertilization & its importance in sustainable Agriculture.</li><li>Explain about the importance of drone usage and other latest technologies in agriculture and their training to the farmers/ entrepreneurs.</li></ul> | <ul><li>Recommend Package & Practices of main *Kharif* and *Rabi* crops grown in different agro climatic regions.</li><li>Demonstrate the process of soil sample collection from the Agriculture field.</li><li>Interpret the soil test report to determine the nutrient/fertilizers requirements for the next crops</li><li>Identify the nutrient deficiencies and the input recommendations, if possible.</li><li>Identify different types of fertilizers, manures, biofertilizers & bio-stimulants their recommended doses, time and methods of application in the crops</li><li>Identify different new & innovative fertilizers- Nano fertilizers, Fermented Organic manure, (FOM), Potash derived from Molasses (PDM) etc.</li><li>Source information about new products and technology from relevant sources.</li><li>Demonstrate the use of the latest technologies in agriculture</li><li>Demonstrate preparation of solution for spraying the different fertiliser inputs / organics/ bio- stimulants.</li><li>show how to check the compatibility of fertilisers/ inputs combination in the single</li></ul> |

| | |
|---|---|
| <ul><li>Explain the factors responsible for the depletion of organic carbon and measures for enhancing it</li><li>Describe the importance of Integrated Nutrient Management (INM) and Site specific nutrient management (SSNM) for sustainable production.</li><li>Describe different types of fertilizers, manures, bio fertilizers, alternative fertilizers ( Nano fertilisers), bio decomposer PDM, FOM, PROM & bio-stimulants etc. and their application methods.</li><li>Explain the PM- PRANAM Scheme and other relevant Govt initiatives/schemes for the farmers</li><li>Describe various chemical, biological and mechanical methods for pest and disease control for regional crops</li><li>Explain the precautionary measures to be undertaken in procurement, handling & application of chemicals and other inputs</li><li>Describe the recommended antidotes and treatment methods to treat accidental chemical poisoning.</li></ul> | spray operation like- Jar test, compatible products list & efficacy of the products.<br><ul><li>Demonstrate the use of IT and social media platforms for dissemination of information on advancement in agriculture inputs, package of practices of crops, new innovative agricultural technologies, weather forecasting, crop pest infestation warning, Mandi Rates etc.</li></ul> |

**Classroom Aids**

White board, Marker, Overhead projector, Laptop, Internet access,

**Tools, Equipment and Other Requirements**

Different types of fertilizers, manures, biofertilizers, Nano fertilizers, Fermented Organic manure, (FOM), Potash derived from Molasses (PDM), PROM, bio stimulants, bio decomposer & other agro-chemicals, sprayer, duster, PPE kit, drone,

# Annexure

## Trainer Requirements

| | | Trainer Prerequisites | | | | |
|---|---|---|---|---|---|---|
| Minimum Educational Qualification | Specialization | Relevant Industry Experience | | Training Experience | | Remarks |
| | | Years | Specialization | Years | Specialization | |
| Graduation | Agriculture/ Horticulture/ Forestry and other related fields | 3 | Agri-market Development, Agri-marketing, Agri-extension service, R&D | - | - | - |
| Graduation | In fields other than Agriculture | 5 | Agri-market Development, Agri-marketing, Agri-extension service, R&D | - | - | - |
| Post-graduation | Masters in Agriculture and or allied/forestry/Agri Engineering/Agri-business Management/ Rural Development and related streams | 1 | Agri-market Development, Agri-marketing, Agri-extension service, R&D | - | - | - |
| Post-graduation | In fields other than Agriculture | 2 | Agri-market Development, Agri-marketing, Agri-extension service, R&D | - | - | - |
| PhD | Agronomy/Soil Science/ Agriculture Extension/ Rural Development and related streams | | | - | - | - |

| Trainer Certification | |
|---|---|
| Domain Certification | Platform Certification |
| Certified for MCr "**Essentials of Agri Services and Input Retailing**", mapped to MCr: "AGR/MCr-0012, 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 | | Training/Assessment Experience | | Remarks |
| | | Years | Specialization | Years | Specialization | |
| Graduation | Agriculture/ Horticulture/ Forestry and other related fields | 4 | Agri-market Development, Agri-marketing, Agri-extension service, R&D | - | - | - |
| Post-Graduation | Masters in Agriculture and or allied/forestry/Agri Engineering/Agri-business Management/ Rural Development and related streams | 2 | Agri-market Development, Agri-marketing, Agri-extension service, R&D | - | - | - |
| PhD | Agriculture and allied/Agriculture Extens ion/Rural Development and related streams | 1 | Agri-market Development, Agri-marketing, Agri-extension service, R&D | - | - | - |

| Assessor Certification | |
|---|---|
| **Domain Certification** | **Platform Certification** |
| Certified for MCr "**Essentials of Agri Services and Input Retailing**", mapped to MCr: "AGR/MCr-0012, 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. <u>Multiple Choice Questions</u>: To assess basic knowledge (Objective/Subjective)
2. <u>Viva:</u> To assess awareness on processes (Oral and/or written questioning)

3. <u>Practical:</u> 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 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 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 offers 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

- o Assessment checklist for assessor
- o Candidate Aadhar/ID card verification
- o Pictures of the classroom, labs to check the availability of adequate equipment's and tools to conduct the training and assessment
- o 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 |
| --- | --- |
| 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). |
| 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 |
| OJT | On-the-job Training |
| PwD | People with Disability |
| PPE | Personal Protective Equipment |