



Model Curriculum

QP Name: Assistant Developer- Microforest

QP Code: AGR/Q6110

Version: 1.0

NSQF Level: 2

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	Forestry, Environment and Renewable Energy Management
Occupation	Agro-Forestry Management
Country	India
NSQF Level	2
Aligned to NCO/ISCO/ISIC Code	NCO-2015/2132.1000
Minimum Educational Qualification and Experience	No formal education
Pre-Requisite License or Training	NA
Minimum Job Entry Age	NA
Last Reviewed On	29/09/2023
Next Review Date	29/09/2026
NSQC Approval Date	29/09/2023
QP Version	1.0
Model Curriculum Creation Date	31/08/2023
Model Curriculum Valid Up to Date	29/09/2026
Model Curriculum Version	1.0
Minimum Duration of the Course	210 Hours
Maximum Duration of the Course	210 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:

- Discuss the job role of an Developer- Microforest.
- Explain various concepts of urban forest making.
- Explain various activities involved in making Urban forest.
- Discuss various methods including ancient methods of making urban forest making
- Describe the process of harvesting tea crop
- Explain the significance of forest itself and its impact on environment
- Explain factors to be considered in site selection
- Design the site map with required features
- Explain rules and regulation to be followed for making urban forest
- Demonstrate activities involved in preparation of soil
- Determine soil nutrition and measures to improve soil fertility
- Demonstrate activities from germination to transplantation
- Explain various factors to be considered in transplantation
- Demonstrate maintenance activities involved in Urban forest
- Demonstrate measures to make urban forest self-sustainable
- Demonstrate various cultural operation of urban forest
- Demonstrate basic repair and maintenance of forest tools and equipment
- Demonstrate preparation of manures by various methods
- Demonstrate preparation of organic/Natural manures

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/N6139: Understand the basic components of making an urban forest NOS Version- 1.0 NSQF Level- 2	25:00	05:00	0:00	0:00	30:00
Bridge Module Module 1: Introduction to the role of a Developer- Microforest	05:00	0:00	0:00	0:00	05:00

Module 2: Understand basic concepts of making an urban forest	20:00	05:00	0:00	0:00	25:00
AGR/N6140: Follow the process of making a man-made forest Version- 1.0 NSQF Level- 2	20:00	40:00	0:00	0:00	60:00
Module 3: Carryout steps and processes for making a manmade urban forest	20:00	40:00	0:00	0:00	60:00
AGR/N6141: Maintain an urban forest Version- 1.0 NSQF Level- 2	30:00	30:00	0:00	0:00	60:00
Module 4: carryout activities to make urban forest self-sustaining	30:00	30:00	0:00	0:00	60:00
AGR/N6142: Follow procedures to prepare natural manure and nutrients Version- 1.0 NSQF Level- 2	10:00	20:00	0:00	0:00	30:00
Module 5: Preparation of natural manure and nutrients	10:00	20:00	0:00	0:00	30:00
DGT/VSQ/N0101 Employability Skills NOS Version-1.0 NSQF Level-2	30:00	00:00	0:00	0:00	30:00
Module 6: Employability Skills	30:00	00:00	0:00	0:00	30:00
Total Duration	115:00	95:00	0:00	0:00	210:00

Module Details

Module 1: Introduction to the role of a Developer- Microforest

Bridge Module, Mapped to AGR/N6139 v1.0

Terminal Outcomes:

- Discuss the job role of a Developer- Microforest.

Duration: 05:00	Duration: 0:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe the size and scope of the Forestry and its sub-sectors. • Discuss the role and responsibilities of a Developer- Microforest. • Identify various employment opportunities for a Developer- Microforest. 	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
NA	

Module 2: Understand basic concepts of making an urban forest

Mapped to AGR/N6139 v1.0

Terminal Outcomes:

- Explain various concepts of urban forest making.
- Explain various activities involved in making Urban forest.
- Discuss various methods including ancient methods of making urban forest making
- Describe the process of harvesting tea crop
- Explain the significance of forest itself and its impact on environment

Duration: 20:00	Duration: 05:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the meaning of forest, their constituents, types, benefits of forests- direct and indirect • Classify forests - High forests, coppice forests, virgin forest and second growth forests, pure and mixed forests etc. • Explain Elements of a Forest: Biotic and Abiotic, • Define Forest as per FAO • Discuss Agroforestry - farm forestry, social forestry, joint forest management - concepts, programmes and objectives • Describe Natural forest and the types, Characteristics and Layers of a Natural-Forest, interaction between their components, nurturing of forest and evolution of forest • Explain about self-sustenance, interdependent and self-reviving ecosystem of natural forest • Explain the concept of made Forest and various techniques of Manmade-Forests • Differentiate between (1) Manmade Forest Vs Natural Forest (2) Ancient and Modern Techniques of forest making (3) Agro-forestry Plantation and Forest-Making • Describe Panch-Tatva: Element of Forests- Earth, Air, Water, Sunlight 	<ul style="list-style-type: none"> • Identify native and local trees of various Indian states and UTs • Demonstrate Ancient and Modern Techniques of forest making • Select different varieties of native, local and original trees of the area based on the local conditions to ensure bio-diversity • Demonstrate planting of the tree saplings in very close proximity preferably 2-3 trees in the 1 square meter to support each other in growing through exchange of food and nutrients • Create an eco-system where big trees should be complemented by small and auxiliary trees, shrubs or creepers • Demonstrate establishing urban forest in natural environment without/least human-interference • Examine the site for survey of research for potential natural vegetation • Select a community of variety of local trees for planting and collect a large number of various native seeds, locally or nearby in a comparable geo-climatic context • Demonstrate propagation of the seed in local area or germination in a local nursery

<p>and Space</p> <ul style="list-style-type: none"> • Explain Ancient Indian techniques of Forest-making-- Vedic-Van, Nakshatras-Van, Navagrahas-Van, Rashi-Van, Vrikshayurveda, Panchvati-forests • Explain Modern technique of Forest Making: Miyawaki, Its basic tenets, Its application, Limitations of Miyawaki • Discuss about five basic elements of the Forest being a micro-cosmos of the planet-earth • Explain about the interaction of the five basic-elements of forest and their effects • Explain about the inhabitants of forest as per modern environmental-science • Discuss about biotic and abiotic inhabitants of forest • Explain about niche of various species of plants and animals and their co-existence, co-operation and competition • Explain Global warming - forestry options for mitigation and adaptation - carbon sequestration • Explain the significance of natural vegetation in restoration of degraded land • Explain how Forests are self-sustaining eco-zones • Describe forest food-chain and Biodiversity of forest • Explain how Forests serve as a buffer in natural disasters like flood and rainfalls • Explain the benefits offered by forest such as watershed protection, prevent soil erosion and mitigate climate change • Explain General problems of forest development and economy. • Explain Forest based industries in the 	<ul style="list-style-type: none"> • Demonstrate preparing the soil cover if it is very degraded by adding local bio mass in the soil and Soil should have perforators and retainers • Show how to cover and protect the roots by mulching the soil cover with organic material • Demonstrate plantation of young seedlings with mature and robust root system • Examine the roots of the seedlings for any presence of symbiotic bacteria and fungi • Demonstrate the plantation of the seedlings in a randomly distributed manner in such as way at the edge of the natural forest
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<p>developed and developing countries</p> <ul style="list-style-type: none"> • Explain Urban forestry – definition and scope – uses of urban forests • Describe Management of urban Forest-Arboriculture and its importance in urban forestry • Explain various National and state level programmes on degraded lands/ wasteland development • Explain how the forests naturally originate – Primary succession and secondary succession • Enlist different native and local trees of various Indian states and UTs • Cite Reasons for deforestation in the world and their impact • Explain the terms reforestation and afforestation and their impact on surrounding environment • Describe about three distinct layers in any Natural-forest viz, Forest-canopy, Forest-floor and Forest-soil. 	
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Seedling Tray, sacks, polythene, watering cans and equipment, plant labels, labellers, spade, khurpi	

Module 3: Carryout steps and processes for making a manmade urban forest

Mapped to AGR/N6140 v1.0

Terminal Outcomes:

- Demonstrate activities involved in preparation of soil
- Determine soil nutrition and measures to improve soil fertility
- Demonstrate activities from germination to transplantation
- Explain various factors to be considered in transplantation

Duration: 20:00	Duration: 40:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain silviculture its objectives and scope and modern silvicultural tools • Discuss selected site factors - climatic, edaphic, physiographic, biotic and their interactions • Explain about texture and nature of forest soils • Explain about various trees and their distinguishing features, growth and development • Explain different methods of propagating plants • Discuss about root growth- fine root/functional root production • Describe maintenance requirements of plantlets before transplanting • Enlist and explain about various ingredients used for preparing potting soil and their recommended quantity • Enlist ideal soil conditions for the healthy growth of plants • Explain the correct method of planting various types of plants, trees, shrubs and grass • Explain relevant treatments to improve nutrient levels in the soil • Discuss about water and temperature requirements of plants in the urban forest • Discuss about irrigation and drainage systems requirements in the urban 	<ul style="list-style-type: none"> • create appropriate drainage channels in the field for the effective drainage of water • show how to coordinate with an authorised soil testing lab to determine suitability of the soil for urban forest establishment • Examine the selected site for availability of water, if not, arrange for the necessary water requirement • Evaluate the fertility, strength and nutritional value of the soil • Examine the soil for texture, its acidity, alkalinity to ascertain whether suitable for plantation or not • Examine the selected site inclination wrt water source and mark specific area for a small water pond • Demonstrate the preparation of soil for propagation by applying the necessary treatment • Demonstrate preparation of mixture of coir peat, vermiculite, compost, worm castings/ vermicompost and its application to the field • Show the correct way to rake the soil to break any lumps and aerate it • Demonstrate erosion and sediment control measures • Demonstrate soil and water protection practices • Demonstrate digging upper crust for

<p>forest</p> <ul style="list-style-type: none"> • Explain about relevant tools, implements, PPE and their correct use • Discuss when to carryout plantation • Explain the significance of growing a forest with the richness in biodiversity that it attracts • Explain the importance of weeding and effective techniques for carrying out same • Explain the importance of environmental and ecological best practices to minimise the impact on the environment • Discuss about relevant occupational and environmental hazards and appropriate ways of dealing with them • Explain benefits of resource optimization • Discuss ways of efficiently managing various materials used in the urban forest • Explain Direct and indirect benefits-biophysical interactions • Explain the term Carbon sequestration and the potential of carbon sequestration of forests • Explain about weather and climatic conditions required for making urban forest • Explain the process of soil testing • Discuss soil physical and chemical properties • Discuss about fertility, strength and nutritional value of the soil • Explain the term land reclamation and the measures for reclamation • Explain the importance of drainage channels in an urban forest • Explain the importance of organic manures and their recommended 	<p>2 feet using manual labour or earth augur, or JCB for big piece of land</p> <ul style="list-style-type: none"> • Demonstrate the use of perforators like biomass, stubble, rise-husk etc., retainers, cow-dung or local biomass and maintain the ratio 1/5 of the soil • Demonstrate transplanting of planning materials using the relevant machinery and tools or manually as per the case, maintaining the recommended planting density for the selected planting materials to ensure its healthy growth as per planned layout dividing the Plants in four categories viz, Canopy trees, Trees, bushes, creepers and climbers • Demonstrate plantation in set of plant-group which should include 1 canopy-tree, 1 tree, 1 bush and 1 creeper. • Show how to cover the planted saplings with stubble up to 5 inches which will help in retaining water and moisture as well as help in checking the growth of grass and weeds. • Calculate the no of plants required to be planted taking in to account the total area of the site. • Demonstrate segregation of waste into different categories • Demonstrate waste disposal methods in an environmental friendly manner • Show how to recycle the recyclable waste appropriately • Demonstrate usage of electrical tools and equipment safely and its storage • Demonstrate application of water and fertilizers in the recommended quantity • Demonstrate application of pesticides/ insecticides to protect the plantlets from pests/ insects and diseases • Show how to set up appropriate irrigation and drainage systems in the urban forest
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<p>dose</p> <ul style="list-style-type: none"> • Explain the method of transplanting of sapling • Discuss pesticides/ fertilizer requirements and their dose • Explain the use of the relevant PPE during the operations 	<ul style="list-style-type: none"> • Demonstrate maintenance requirements to the guide • Demonstrate measures for protection from any health and safety hazards in and around the urban forest • Show how to support the plants with bamboo-sticks with cotton thread for each plant-sapling. • Examine the transplanted plantlets for any dead plantlets and replace with a new healthy and disease free sapling • Demonstrate weeding if there is grass or weed in urban forest • Demonstrate use of PPE during the operations
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Kassi / Spade, Khurpi, Weeder, Side shear, Broom, Rake, Watering Can, Hand hose, Bucket, Plant Pruner, Wheel Barrow, Hand Sprayer, Budding & Grafting Set, Earthen Pots, Hedge Cutter, Polythene Bags (Garbage), Seed Packets, Gunny bags, Tags-labels, shears, loppers, sprayers, plant labels, waterpumps and equipment, watering timers etc.	

Module 4: Carryout activities to make urban forest self-sustaining

Mapped to AGR/N6141 v1.0

Terminal Outcomes:

- Demonstrate maintenance activities involved in Urban forest
- Demonstrate measures to make urban forest self-sustainable
- Demonstrate various cultural operation of urban forest
- Demonstrate basic repair and maintenance of forest tools and equipment

Duration: 30:00	Duration: 30:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain principles of forest management and Sustainable forest management-criteria and indicators • Discuss Modern tools in forest management • Explain Basics of Forest Mensuration • Explain the use of different types of hand/ power tools and equipment used in microforest operations • Explain how to carry out minor repair and maintenance of the microforest tools and equipment • Discuss about storage requirements of the relevant tools and equipment • Explain indicators of pest and disease infestation on plants/ trees/ shrubs • Explain about safe use of the recommended pesticides, insecticides and fertilizers • Explain the importance of pruning and training and different methods of training and pruning of plants/trees/shrubs • Explain different types of weeds and the process of their removal • Explain how to maintain optimum moisture and temperature in the microforest • Discuss about the practice of plant rotation and shifting • Explain different techniques to enhance microforest aesthetics • Explain the importance and 	<ul style="list-style-type: none"> • Inspect the mini-forest once in 15 days for minimum 1 year to check the growth of the saplings • Count the number of saplings that have survived, and record the data • Demonstrate preparation of record of observations for carrying maintenance • Demonstrate watering the urban plants/ trees/ shrubs with the recommended quantity of water • Demonstrate use of hose piper for watering in summer and winters as per the respective schedule • Demonstrate measures to maintain the prescribed level of moisture and soil temperature and drain out excess water from the urban forest appropriately • Demonstrate the application of recommended quantity of fertilizers and manure to the plants/ trees/ shrubs • Demonstrate pruning in case of overshadowed and has wild growth during the first 2 years and rake the urban forest to remove dead leaves and debris • Demonstrate removal of the weeds and wilted plants/ tree/ shrubs as per the Standard Operating Procedure • Demonstrate methods of plant rotation and shifting for the healthy growth of plants/ trees/ shrubs

<p>appropriate ways of draining out water from an microforest</p> <ul style="list-style-type: none"> • Explain different methods of recycling and disposing waste • Discuss common sources of pollution and ways to minimise it • Explain the purpose of urban forest management 	<ul style="list-style-type: none"> • Demonstrate spraying of natural fermented liquid like Jeevamrit twice a month if the forest is not growing in a proper way due to lack of nutrients • Demonstrate application of nature based fertilisers like neem-turmeric paste if there is issue of termite • Show how to maintain the record of fertilizers, pesticides and insecticides used in the urban forest • Show how to co-ordinate with an expert for any complex issues and maintenance activities required in urban forest • Examine the growth of forest like the height of the plants, colour of the leaves and increasing activities of the microorganism • Demonstrate measures to keep the forest off from any inorganic waste like plastic, paper, chemical or metal • Inspect the bamboo sticks supported to saplings for any damage till the time saplings attain good straight posture of a tree and an overall shape and growth of the forest. • Calculate the mortality rate of plant only after 3-4 months of planting • Demonstrate use of natural, organic and bio-degradable mulch like stubbles, leaf-residue etc. • Demonstrate measures to control stray animals • Demonstrate surveying of the forest resources • Set up administration for forest resource management • Demonstrate various methods of cutting viz clear cutting, selective cutting and shelter wood cutting • Demonstrate measures and arrangements for control of forest fire • Demonstrate reforestation and afforestation on the denuded area as
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	<p>per the case to maintain eco-balance</p> <ul style="list-style-type: none"> • select the trees according to local geographical conditions for afforestation and take care during initial growth of the trees. • Demonstrate erecting fence to protect the urban forest from unorganised grazing • Demonstrate measures to maintain cleanliness in the micro forest • examine various urban forest hand/power tools and equipment for any wear and tear or damage • Demonstrate basic repair and maintenance of the tools and equipment • Demonstrate storage of the tools and equipment as per the manufacturer's instructions
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Kassi / Spade, Khurpi, Weeder, Side shear, Broom, Rake, Watering Can, Hand hose, Bucket, Plant Pruner, Wheel Barrow, Hand Sprayer, Budding & Grafting Set, Earthen Pots, Hedge Cutter, Polythene Bags (Garbage), Seed Packets, Gunny bags, Tags-labels, Budding-tape, Sutli, Moss-grass, etc.	

Module 5: Preparation of natural manure and nutrients

Mapped to AGR/N6142 v1.0

Terminal Outcomes:

- Demonstrate preparation of manures by various methods
- Demonstrate preparation of organic/Natural manures

Duration: 10:00	Duration: 20:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the impact of not following the health, hygiene, safety and quality standards on consumers and the business • Explain the use of appropriate personal protective equipment suitable to the type of work • Discuss about Nutrients requirements in urban forest • Discuss the advantage and disadvantages of nature-based manure • Explain the Method of preparation of manure by pit composting / trench composting • Explain the Method of preparation of Natural cow-dung manure • Discuss different types of organic wastes and their uses • Explain the importance of maintaining correct proportion of substrates in a composting unit • Explain the length of time allowed for decomposition of organic wastes • Explain the Properties of Manure and nutrients composition in natural manure • Explain the importance of Manure as a Source of Crop Nutrients and Soil Amendment 	<ul style="list-style-type: none"> • select the appropriate area for digging the pit/trench and demonstrate digging the pit/trench of appropriate size and width required for the composting considering the amount of organic matter to be added • Demonstrate chopping the compost materials finely by appropriate tools and equipment before being thrown in the hole so that exposed area for the compost materials can be maximized • Demonstrate adding organic materials to the compost pit and mix well the materials together with a shovel so that they decompose as evenly as possible • Demonstrate mixing carbon-rich materials (e.g. dried leaves) thoroughly with nitrogen rich materials (like vegetable scraps and fresh grass clippings) • Show how to Cover the hole with a board if compost pit is not full and more organic materials are required to be added and cover the compost with soil when it is full to the level with the surrounding soil • Show how to water the compost area with appropriately with garden hose or with suitable watering equipment Improve the underground compost decomposition • Inspect regularly the compost decomposition for harvesting to use in planting area

	<ul style="list-style-type: none"> • Demonstrate the process of Jeevamrut by adding appropriate quantity of water, local cow dung, cow urine, jiggery, pulses flour and soil in a barrel • Inspect the barrel regularly for proper fermentation for usage in the field
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Ingredients for the Manure preparation, Kassi / Spade, Khurpi, Weeder, Side shear, Broom, Rake, Watering Can, Hand hose, Bucket etc.	

Module 6: Employability Skills (30 hours)

Mapped to NOS DGT/VSQ/N0101 v1.0

Duration: 30:00

Key Learning Outcomes

Introduction to Employability Skills Duration: 1 Hour

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: 1 Hour

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: 1 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: 2 Hours

6. Use appropriate basic English sentences/phrases while speaking

Communication Skills Duration: 4 Hour

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

Diversity & Inclusion Duration: 1 Hour

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: 4 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: 3 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: 7 Hours

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

Customer Service Duration: 4 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: 2 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

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Diploma	Agriculture/Horticulture and related streams	3	Urban forest & Miyawaki forest making/urban planning and other related fields			
Graduate	Graduate in any stream except Agriculture/ Botany/ Horticulture /Forestry and related streams	3	Urban forest & Miyawaki forest making/urban planning and other related fields			For the school Program minimum qualification of the Trainer should be Graduate (Agriculture / Horticulture / Botany/ Forestry) with minimum 3 years Teaching experience (will be considered industry experience)
B.Sc.	Agriculture/ Botany/ Horticulture/Forestry and related streams	1	Urban forest & Miyawaki forest making/urban planning and other related fields			
M.Sc.	Agriculture/ Botany/ Horticulture and related streams	0.5	Urban forest & Miyawaki forest making/urban planning and other related fields	0		

Trainer Certification	
Domain Certification	Platform Certification
Certified for Job Role “ Assistant Developer-Microforest ”, mapped to QP: “AGR/Q6110 , 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 – Urban Forest Developer

Minimum Educational Qualification	Specialization	Relevant Industry Experience		Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduation	Agroforestry & Silviculture / Environmental Science/Forestry/urban planning/Climate change & sustainability/Landscape architecture-design & planning/urban community forest management/Ecology / Civil Engineering/Urban & town Planning and other related streams	5	Urban forest & Miyawaki forest making/urban planning and other related fields	0		Practical skills and knowledge required in Urban forest & Miyawaki forest making
Post-graduation	Civil Engineering/Urban & town Planning /Agroforestry & Silviculture / Environmental Science/Forestry/urban planning/Climate change & sustainability/Landscape architecture-design & planning/urban community forest management/Ecology and related streams	2	Urban forest & Miyawaki forest making/urban planning and other related fields	0		Practical skills and knowledge required in Urban forest & Miyawaki forest making
PhD	Agroforestry & Silviculture / Environmental Science/Forestry/urban planning/Climate change & sustainability/Landscape architecture-design & planning/urban community forest management/Ecology and related streams	1	Urban forest & Miyawaki forest making/urban planning and other related fields	0		Practical skills and knowledge required in Urban forest & Miyawaki forest making

Assessor Certification

Domain Certification	Platform Certification
Certified for Job Role “ Assistant Developer-Microforest ”, mapped to QP: “AGR/Q6110, 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
DF	Dense Forest
PA	Protected Areas
NTFP	Non-Timber Forest Produce
MFFCM	Modern Forest fire Control Methods
JFM	Joint Forest Management
FSI	Forest Survey of India
FRI	Forest Research Institute
FFCM	Forest Fire Control & Management
CS	Conservation & Survey
CNFA	Cultivable Non-Forest Area
AFM	Advanced Forest Management
PPE	Personal Protective Equipment
WII	Wildlife Institute of India
OJT	On-the-job Training
PwD	People with Disability
PPE	Personal Protective Equipment