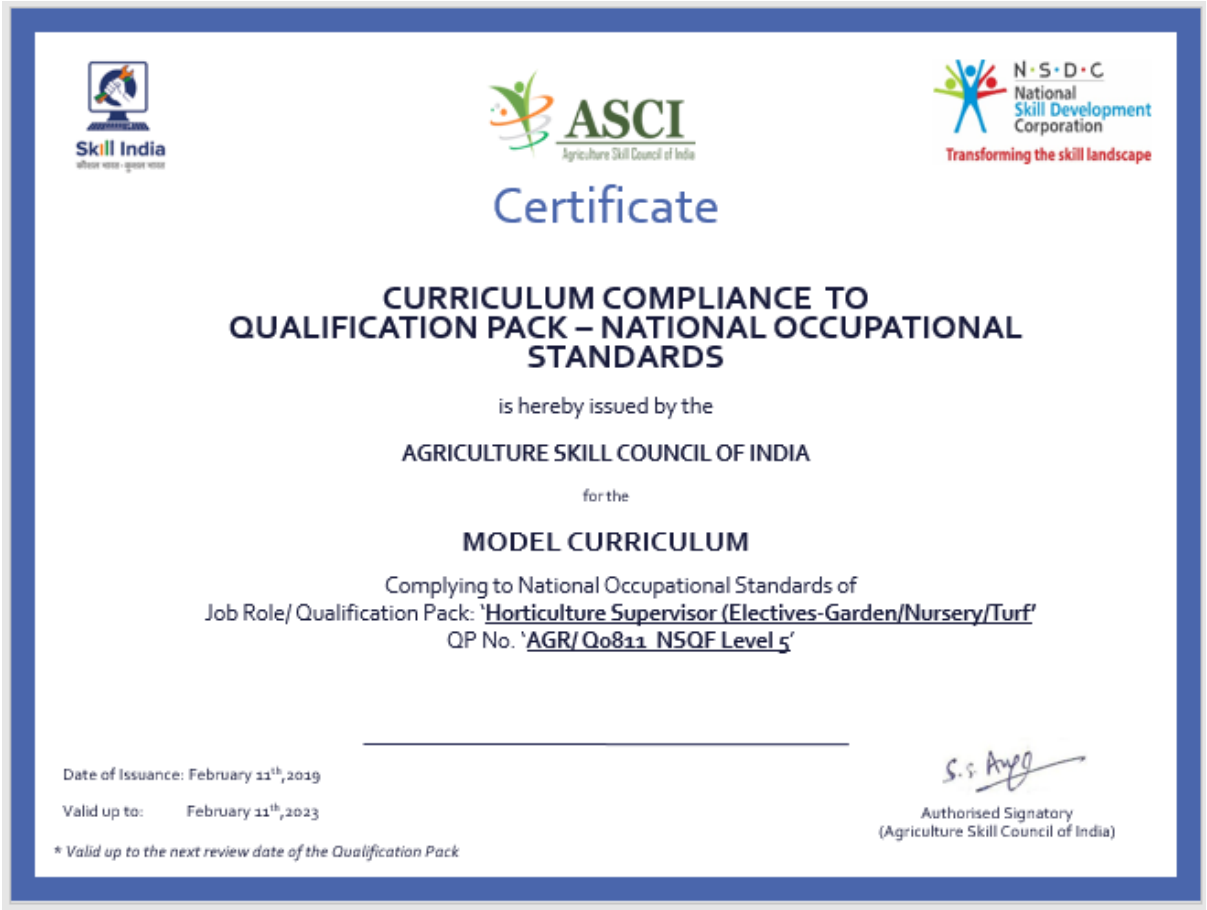
Model Curriculum

Horticulture Supervisor

(Electives: Garden / Nursery / Turf)

SECTOR:	**Agriculture and Allied Industry**
SUB-SECTOR:	**Agriculture Crop Production**
OCCUPATION:	**Landscaping, Gardening and Urban Farming**
REF ID:	**AGR/Q0811, V1.0**
NSQF LEVEL:	**5**



Skill India

ASCI
Agriculture Skill Council of India

N·S·D·C
National Skill Development Corporation
Transforming the skill landscape

Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

AGRICULTURE SKILL COUNCIL OF INDIA

for the

MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: 'Horticulture Supervisor (Electives-Garden/Nursery/Turf'
QP No. 'AGR/ Q0811 NSQF Level 5'

Date of Issuance: February 11th,2019

Valid up to: February 11th,2023

* *Valid up to the next review date of the Qualification Pack*

Authorised Signatory
(Agriculture Skill Council of India)

TABLE OF CONTENTS

Horticulture Supervisor (Electives: Garden / Nursery / Turf)

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a "Horticulture Supervisor", in the "Agriculture" Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Horticulture Supervisor		
Qualification Pack Name & Reference ID	AGR/Q0811, V1.0		
Version No.	1.0	**Version Update Date**	22/08/2019
Pre-requisites to Training	• 10th Std. • L-4 Certificate in related field or 2 years of experience of horticulture; No experience required if Graduate in Agriculture/Horticulture		
Training Outcomes	**After completing this programme, participants will be able to:** **Compulsory:** • Set up the ground/layout. • Carry out irrigation activities as per requirements. • Lead the workers and handle their queries, concerns. • Monitor completion of work as per expected standards. • Identify requirements for work completion. • Mobilise the required resources. • Communicate positively with client. • Maintain overall presentation of the site for the visitors. • Adhere to personal hygiene practices and ensure cleanliness around workplace. • Adhere to safety guidelines and render appropriate emergency procedures. • Prepare land/field to receive plants and plant them as per plan. **Elective 1: Garden** • Promote and maintain healthy growth. • Control and prevent weeds, plant pests, diseases and disorders. • Perform pruning operations. • Prepare for propagation activities. • Perform propagate of plants using seeds and vegetative methods. • Perform post propagation operations. **Elective 2: Nursery** • Prepare for propagation activities. • Perform propagation of plants using seeds and vegetative methods. • Perform post propagation operations.		

	• Monitor proper functioning of a nursery. • Perform seedling care operations. • Promote and maintain healthy growth. • Control and prevent weeds, plant pests, diseases and disorders. • Carry out compost making. • Carry out nursery business activities such as sales\, sales fulfilment and accounting activities. **Elective 3: Turf** • Carry out establishment of a turf. • Implement a grassed area maintenance program. • Carry out repair of a sports turf.

This course encompasses 5 out of 5 Compulsory NOS (National Occupational Standards), 6 out of 6 Elective NOS of "Horticulture Supervisor" Qualification Pack issued by "Agriculture Skill Council of India".

COMPULSORY NOS:

Sr. No.	Module	Key learning outcomes	Equipment Required
1	**Introduction** **Theory Duration** (hh:mm) 05:00 **Practical Duration** (hh:mm) 00:00 **Corresponding NOS Code** AGR/N0831	• Describe the horticulture industry and its various segments. • Describe the current size and scope of gardening, nursery, landscaping and turf domains in India. • State the various job roles in the gardening, nursery, landscaping and turf domains. • Describe the role and responsibilities of a Horticulture supervisor. • State various sources for additional information pertaining to work. • Describe various types of garden, nursery or landscape. • Describe the common structures, features, plants and trees in a garden, nursery or landscape.	Training Kit (Presentations, Trainer Guide).
2	**Layout/Ground Setup** **Theory Duration** (hh:mm) 10:00 **Practical Duration** (hh:mm) 25:00 **Corresponding NOS Code** AGR/N0831	• State the importance of setting up the ground/layout as per plan for development of garden, nursery or landscape. • Interpret design template, symbols and features used in scaled plans for gardens and nurseries. • Describe the division of gardens and nurseries in zones and sectors. • Describe the various methods of marking lines and curves onto the ground/layout. • Describe the techniques used for setting out of lines, shapes and levels from scale plans. • Describe various tools and materials used for marking lines, curves and positions; along with their benefits and limitations. • Describe different types of levelling implements and their uses, benefits and limitations. • Identify from the scaled plan, the dimensions, shapes and positions to be marked on the ground/layout and features to be produced. • Transfer dimensions and positions accurately from the scaled plan onto	Training Kit (Presentations, Trainer Guide); Scaled plans for gardens, nurseries and landscapes; Tools and materials for marking lines: tapes, ranging poles/rods, bamboo canes, sand, spray marker/paint, pegs; Tools and materials for marking curves: spade, V drill, hose pipe, rope, sand, pegs; levelling implements, personal protective equipment (PPE)

		the ground/layout, using triangulation, running lines and offsets. • Mark lines onto the ground/layout as per the plan using various tools and materials such as tapes, ranging poles/rods, bamboo canes, sand, spray marker/paint, pegs. • Mark curves onto the ground/layout as per the plan using various tools and materials such as spade, V drill, hose pipe, rope, sand, pegs. • Construct a right angle on the ground/layout by intersecting arcs using Pythagoras' theorem (3, 4, 5 triangle). • Set out geometric shapes such as rectangles, circles, hexagons and ellipses on the ground/layout as per plan. • Set out irregular shapes on the ground/layout as per plan. • Mark and label the positions of all plants, structures (e.g. Sheds, glasshouses), and features (e.g. Paths, steps, benches, pergolas) as per plan. • Set out levelled areas and contoured areas as per plan.	
3	**Irrigation** **Theory Duration** (hh:mm) 08:00 **Practical Duration** (hh:mm) 22:00 **Corresponding NOS Code** AGR/N0832	• Explain the soil, plant and water relationships. • State the effects of irrigation techniques on the plant growth. • Describe how water requirements of plants and crops depend on climatic and environmental considerations. • Interpret routine soil moisture test reports. • State the visual symptoms of plant nutrient deficiencies, water stress and frost. • Define the critical measures for moisture availability including evapotranspiration, field capacity, infiltration rates, readily available water, water holding capacity and wilting point. • Identify various plants and trees in the area and their moisture requirement in various seasons. • Estimate watering requirements by analysing seasonal rain and atmospheric moisture patterns in the area in consultation with client or management. • Describe the environmental impacts,	Training Kit (Presentations, Trainer Guide), watering cans; hose pipe; sprinkler irrigation system, low volume drip irrigation system; pressurised irrigation system; water pumps; water timers and controllers

		hazards and controls for irrigation. • Select suitable irrigation methods based on water requirements, efficient use of manpower and time and client preference. • Subdivide the irrigated area into the smallest units capable of individual irrigation and note irrigation method for each. • Define the water requirement and irrigation related constraints for each unit. • Combine units requiring similar irrigation to form a shift that does not exceed the water delivery capacity of the property irrigation infrastructure. • Determine the water volume required to meet irrigation needs over specified period. • Explain the principles of irrigation and the water cycle. • Describe various types of irrigation systems and their benefits and constraints • Describe irrigation strategies. • List the energy efficiency indicators and benchmarks for low volume irrigation. • Describe general irrigation methods for low volume systems. • Describe the main components of low volume and sprinkler irrigation systems. • Determine irrigation calendar and shifts. • Coordinate resources and brief personnel to carry out irrigation activities. • Check if the irrigation activities are occurring as per schedule and plan. • Inspect plants for growth rate and signs of stress. • Implement measures to ensure water use efficiency. • Adjust irrigation program in response to the plant condition, rainfall events and changes to evapo-transpiration rates. • Describe the precautions and operation of pressurised irrigation system. • State various electrical hazards during irrigation including contact with pumps, motors, other live components; short circuits; standing	

		laterals to remove blockages; and water spray onto power lines. • Describe the pump types used in irrigation systems and their operation. • Describe the shutdown sequence and flushing procedures. • Describe the equipment maintenance and operation processes. • Check accuracy of and calibrate equipment used in irrigation. • Operate various types of irrigation systems as per manufacturers guidelines. • Ensure that the irrigation tools and equipment are stored and maintained as per the manufacturer's guidelines. • Describe the measures that can be taken to enhance water use efficiency. • Describe the environmental impacts of irrigation using water from any ground/layout or underground source.	
4	**Lead the workers** **Theory Duration** (hh:mm) 04:00 **Practical Duration** (hh:mm) 06:00 **Corresponding NOS Code** AGR/N9915	• Explain the importance of briefing the team members on the work plan, their roles and responsibilities and risks and precautions. • Create work plan and schedule for the workers, depending on work priorities, availability of manpower, equipment and weather conditions. • Identify ways of providing ongoing support, encouragement and information to project team members. • Assign work taking full account of each team member's abilities and developmental needs. • Explain team plan to team members and confirm if they have understood. • Instruct the workers regarding their respective tasks. • List key parameters of tasks to be complied with for successful execution. • Establish and enforce operating procedures and work standards. • Train the workers through on-the-job training whose performance does not meet the standards. • Perform personnel-related activities,	Training Kit (Presentations, Trainer Guide), presentation aids and materials.

		such as hiring workers, assessing staff performance, or taking disciplinary action.	
5	**Completion of work as per expected standards** **Theory Duration** (hh:mm) 04:00 **Practical Duration** (hh:mm) 06:00 **Corresponding NOS Code** AGR/N9915	• State the importance of site inspection and how to plan them. • Conduct routine check of the work-site to check the work status. • Explain the importance of regular monitoring, key parameters and methods for monitoring. • State the importance of regular and timely briefings and considerations for effective staff communication. • Monitor project activities to ensure that instructions and schedules are followed, and targets are met. • State the importance of stage-wise and final quality guidelines and inspection at each stage. • Compare the outcomes with the expected outcomes and identify gaps in quantity and quality of work, and adherence to schedule and budgets. • Identify the importance of evaluating and monitoring performance and providing timely and constructive feedback to individuals and teams. • Take feedback from workers to identify causes for any lag in performance as well as possible solutions to bridge the gap. • Identify training methods and considerations for effective on-site learning. • Prepare a work assessment report along with suggestions for corrective action and share with workers. • Identify the importance and method of process review, evaluation. • Implement routine changes to ensure completion of work as per standards. • Provide feedback on individual work performance to each team member for improvement in work quality.	Training Kit (Presentations, Trainer Guide).
6	**Queries, concerns and welfare of workers** **Theory Duration (hh:mm)** 04:00	• Identify complaints handling procedures and considerations. • Investigate work-related complaints to verify problems and record responses. • Describe of routine administrative tasks and duties and related	Training Kit (Presentations, Trainer Guide)

	Practical Duration (hh:mm) 06:00 **Corresponding NOS Code** AGR/N9915	procedures. • Perform administrative duties, such as authorising leaves or processing time sheets. • Explain effective reporting, related tools and considerations. • Document work hours or activities of workers. • State the importance and methods to onboard, orient and instruct workers. • Perform personnel-related activities, such as hiring workers, evaluating staff performance, or taking disciplinary action when performance problems occur. • List internal and client documentation requirements. • Review contracts or work assignments to determine service, machine, or workforce requirements for jobs. • Perform resource estimation and planning methods and considerations. • Prepare or maintain required records, such as work activity or personnel reports. • List ways of identifying and managing potential risks in relation to the work. • Deal with conflicts amongst the team members in a professional manner.	
7	**Management and Client Interaction** **Theory Duration (hh:mm)** 05:00 **Practical Duration (hh:mm)** 15:00 **Corresponding NOS Code** AGR/N9916	• Clarify scope of work, budgets and timelines with client and/or manager • Identify limits of own responsibility and reporting requirements. • Carry out site inspection in order to identify resources, constraints, existing status of work, health and safety conditions, etc. • Identify personnel, implements and material resource requirements as per the scope of work. • Identify workplace health and safety related measures required. • Share requirements identified for work completion with client and/or manager and obtain approval. • Procure materials and hire implements and machinery as authorised by the client and/or	Training Kit (Presentations, Trainer Guide); telephone

		manager. • Co-ordinate with suppliers for delivery of materials, implements and machinery to site as outlined in the order of activities. • Organise for adequate personnel to be on the site when they are required as authorised by the client and/or manager. • Ensure use and maintenance of proper personal protective equipment according to the type of work site activities to be undertaken. • Ensure that enough supplies are available, and items are in usable condition. • Identify and use clients' preferred communication styles and methods. • Apply communication techniques to establish rapport and promote two-way communication. • Take client and management feedback in consultation with appropriate personnel and analyse when improving work practices. • Identify customer service complaints and make adjustments to ensure continued service quality. • Communicate adjustments to all those involved in service delivery within appropriate time frames. • Coordinate and manage delivery of services or products to ensure they effectively and efficiently meet agreed quality standards. • Manage team and vendors to ensure customer needs are addressed. • Seek feedback from clients and use it to improve customer satisfaction. • Maintain contacts and participate in formal and informal networks that support the business and enhance personal knowledge of the market. • Maintain records of customer interaction in accordance with organisational guidelines. • Instruct garden workers to clean garden surroundings of any garbage, clean walkways. • Instruct garden workers to maintain personal hygiene e.g. Clean uniform and shoes, hair properly combed	

		etc. • Equip oneself and garden workers with the information required to answer queries from visitors. • Co-ordinate with manager to get details of the expected visitors and their interests. • Arrange for drinks and refreshments for visitors. • Receive visitors with courtesy and take them on garden tour. • Answer their questions and seek help from manager, if necessary. • Request feedback from visitors to assess if they received the information they were looking for and their level of experience. • Relay the feedback to management for appropriate action to be taken.	
8	**Adherence to personal hygiene practices and cleanliness around workplace** **Theory Duration** (hh:mm) 05:00 **Practical Duration** (hh:mm) 10:00 **Corresponding NOS Code** AGR/N9911	• Comply with organization's health and hygiene policies and procedures. • Identify safe disposal methods for waste. • Adhere to garbage and trash disposal guidelines. • Explain general duties under the relevant health and safety legislation. • Follow health and safety guidelines as laid down by the organization. • Identify and report poor organizational practices with respect to hygiene and cleanliness. • Identify personal hygiene and fitness requirements. • Ensure personal hygiene as well as grooming and adhere to the dress code of the organization. • Explain importance of good housekeeping in the workplace. • Ensure cleanliness of respective workstation at beginning and at the end of day. • Identify different types of breaches in health, safety and security and how and when to report these. • Inform reporting manager on personal health issues related to injuries and infectious diseases. • Share knowledge of health and hygiene related guidelines with team members.	Training Kit (Presentations, Trainer Guide), recordkeeping systems.
9	**Adherence to safety**	• Explain methods for minimizing	Training Kit

	guidelines and rendering emergency procedures **Theory Duration** (hh:mm) 05:00 **Practical Duration** (hh:mm) 10:00 **Corresponding NOS Code** AGR/N9911	environmental damage during work. • Check various areas of the workplace and report leakages, water logging, pests, fire, etc. • Ensure prevention of accidents and damages at the workplace. • Attend fire drills and other safety related workshops organized at the workplace. • Use safety materials or equipment as applicable to the workplace. • Identify government agencies in the areas of safety, health and security and their norms and services. • Explain how to use the health, safety and accident reporting procedures and the importance of these. • Follow procedures for dealing with accidents, fires and emergencies, including communicating location and directions for emergency evacuation. • Report details of first aid administered in accordance with workplace procedures. • Identify emergency evacuation and first aid procedures defined by the organization. • Administer first aid as and when required. • Follow emergency procedures to company standard / workplace requirements. • Use emergency equipment in accordance with manufacturers' specifications and workplace requirements. • Identify how to summon medical assistance and the emergency services, where necessary. • Describe evacuation procedures for workers and visitors.	(Presentations, Trainer Guide), tools (for checking leakages, water logging, pests, fire, etc.), safety materials/equipment, first aid kit, equipment used in medical emergencies.
	COMPULSORY NOS: **Total Duration:** Theory Duration (hh:mm) 50:00 Practical Duration (hh:mm) 100:00	Unique Equipment Required: Scaled plans for gardens, nurseries and landscapes; Tools and materials for marking lines: tapes, ranging poles/rods, bamboo canes, sand, spray marker/paint, pegs; Tools and materials for marking curves: spade, V drill, hose pipe, rope, sand, pegs; levelling implements, personal protective equipment (PPE), watering cans; hose pipe; sprinkler irrigation system, low volume drip irrigation system; pressurised irrigation system; water pumps; water timers and controllers, tools (for checking leakages, water logging, pests, fire, etc.), safety materials/equipment, first aid kit, equipment used in medical emergencies.	

ELECTIVES (Choose any elective)

ELECTIVE 1: Garden

Sr. No.	Module	Key learning outcomes	Equipment Required
1	**Introduction to Garden and Landscapes** **Theory Duration** (hh:mm) 04:00 **Practical Duration** (hh:mm) 00:00 **Corresponding NOS Code** AGR/N0833	• State the common aims and purposes of building gardens. • List the common types of gardens or landscapes such as formal, informal, landscape, institutions, public gardens, parks, home gardens, feature garden, verandah garden, plant house, nursery garden, etc. • Describe common garden and orchard systems, such as an orchard with 5 to 10 or more assorted fruit trees or shrubs and small gardens of less than 100 sq meters. • Describe common garden and landscape features and elements. • Explain the impact of local climatic, geographical and biological conditions on garden and landscape features and elements. • Explain the meaning and usage of terms relating to plants characteristics, plant life-cycle as well as family, such as genus, species cultivar, variety and hybrid. • State the taxonomy and nomenclature of garden crops. • Identify common plants found in gardens using plant characteristics, plant anatomy and plant morphology. • Describe the habits, features and characteristics of plants and trees used in small gardens and orchard systems. • Describe the categories of plants and their appropriateness for specific purposes such as aesthetic, commercial, medicinal, functional, etc. • State the growing requirements of plants used in small gardens and orchard system. • Interpret a design template, symbols and features used in design; documents for gardens, nurseries and landscapes.	Training Kit (Presentations, Trainer Guide), garden design templates

		• Identify the time and frequency of irrigation for various plants, trees and vines as per industry. recommendations, suitability, and instructions. • Identify the means of water available for irrigation in the orchard or plantation. • Use irrigation systems safely and as per requirements. • Irrigate the target area as per requirements, instructions and standards, while avoiding wastage of water and over-irrigation. • Adjust irrigation schedules, and water quantity based on environmental factors.	
2	**Land preparation for a garden** **Theory Duration** (hh:mm) 04:00 **Practical Duration** (hh:mm) 09:00 **Corresponding NOS Code** AGR/N0833	• State the importance of land preparation for planting. • Explain the importance of identifying soil texture, structure, ph and land conditions of the planting site. • State how to identify soil texture, structure, ph and land conditions of the planting site. • Explain how tilth, soil structure, depth of preparation and seasonality and timing of cultivations affect the establishment of plants. • State the tools and techniques used for land preparation using primary and secondary cultivation methods. • Gather information about soil type, texture, structure, ph and land/field conditions of the planting site. • Determine soil improvement needs and identify hazards. • Select preparation techniques to prepare the land/field as per plan. • Clear the site of unwanted plant material and general debris. • Perform primary cultivation for preparing the land for planting in a safe manner and as per plan. Primary Cultivation: Cutting and inverting soil with relatively deep penetrating tools (15 cm to 75 cm); single digging; double digging; ploughing • Perform secondary cultivation methods for preparing the land for planting in safe manner and as per plan. Secondary Cultivation: levelling, firming the top 5 cm to 15 cm of soil; hoeing, raking, consolidation,	Training Kit (Presentations, Trainer Guide), personal protective equipment (PPE); manual and mechanized plough, rake, hoe, spade, khurpi; wheel barrow; hand gloves, masks, pair of shoes

		fertilising and mulching	
3	**Planting in a Garden** **Theory Duration** (hh:mm) 04:00 **Practical Duration** (hh:mm) 08:00 **Corresponding NOS Code** AGR/N0833	• Identify existing plants and trees and their location. • Identify client preference, priority and budget available. • Describe appropriate planting conditions for various plants. • State the importance of planting schedules and timelines based on seasons and plant/tree types. • Describe how to prepare planting schedules and timelines based on seasons and plant/tree types. • Identify from the plan, the plants and trees to be planted along with details such as location, timing, spacing, etc. • Select planting material that is in an appropriate condition for planting. Appropriate condition: Moist roots/root-ball, free from pests and diseases, free from physical damage, containerised and container grown plants, firm in the pot but not root-bound, correct size /even grade/ typical features, etc. • Plant a range of plants and trees using plant appropriate techniques, as per plan. • Explain the importance of planting depth and firming and immediate aftercare. • Provide immediate aftercare for new plantings. Immediate aftercare: Watering, supporting/staking, mulching, weed control as appropriate to requirements, soil conditions and time of year • State the permaculture principles and ethics. • Identify direction of North, South East, West (by sun). • Explain the need for information such as prevailing winds, fire aspect, winter and summer sun angles, best locations for sun-loving and shade-tolerant species and how to obtain it. • State what is microclimate information and how to obtain it. • Explain seed production, germination, viability and storage and various process involved in each.	Training Kit (Presentations, Trainer Guide), various types of seeds, seedlings, cuttings; seedling tray; trowel; rake; polybags; pots of various sizes and materials; jute balls; shade nets; hand cutter; long cutter; watering can

4	**Garden Features and Components** **Theory Duration** (hh:mm) 03:00 **Practical Duration** (hh:mm) 08:00 **Corresponding NOS Code** AGR/N0833	• Interpret basic landscaping and designs for the beautification of gardens like making gate, lawn, shrubbery, flower beds, borders, paths, hedges, edges, steps, statues, fountains, bird paths, streams, pools, waterfalls, rockery, arches, pergolas, hanging pots, bird paths (features of gardening) etc. • Prepare grass lawn using appropriate grass as per requirement of the lawn. • Ensure establishment of colour scheme, theme and features as required by the plan or management. • Establish garden components as per plan. Garden components: water supply, walks, paths, culvarts, borders, boundary, screening of structures, shrubs, specimen, hedges, edges, shade and wind-breaks, flower beds, lawn placements, etc. • Establish labels and signages for plants, walkways and features as per plan and theme.	Training Kit (Presentations, Trainer Guide), Tools and implements: hand tools, suitable tying material (twine, plastic tie); secateurs, loppers, pruning saw, personal protective equipment (PPE) like hand gloves, masks, pair of shoes; lawn mower; tags; paint; plant labels; sign boards; hedge cutters
5	**Promoting and Maintaining Health Growth** **Theory Duration** (hh:mm) 05:00 **Practical Duration** (hh:mm) 09:00 **Corresponding NOS Code** AGR/N0834	• Describe plant anatomy, morphology, physiology – photosynthesis, respiration, water relations, transpiration. • Explain the concepts of plant nutrition, growth and development • Explain the concepts of nutritional deficiency/excess • Describe the effects of seasonal weather conditions, effects of soil conditions, soil compaction and different soil types (e.g. Clay), reasons for feeding, mulching, irrigation and support of established plantings, powered and nonpowered maintenance implements, increase/decrease of pest and/or disease infestations, inappropriate soil. • Explain the importance of ph levels for plants present. • Describe the methods used to maintain/control plant growth. • State the range and use of tools, implements and machinery available to the enterprise for implementing the management measures. • State the work health and safety responsibilities for employees and	Training Kit (Presentations, Trainer Guide), watering cans, sprinkler system, drip irrigation system; fertilizers for garden plants; trowel, rake; sprayers; shade net; greenhouse/shade house; hand gloves; masks; pair of boots; apron

		employers. • Describe the correct use, maintenance and storage of personal protective equipment. • Maintain plants in compliance with environmental, health and safety legislation and codes of practice. • Ensure adequate watering of plants, using cost effective techniques that minimize wastage and are in line with client preferences. • Perform safe and adequate mulching to ensure optimum use of water. • Estimate fertilizer requirement in terms of type of fertilizer, quantity and quality. • Prepare fertilizer as per requirement using the formula suggested by manufacturer. • Apply fertilizer as per requirement taking necessary personal and environmental safety measures. • Provide irrigation as per requirement of the plant in the respective season. • Ensure adequate light, shade and temperature as per the requirement of plant.	
6	**Weeds, Pests, Diseases and Disorders** **Theory Duration** (hh:mm) 05:00 **Practical Duration** (hh:mm) 08:00 **Corresponding NOS Code** AGR/N0834	• Explain the basic principles of integrated pest management standards or industry code of practice. • Describe pest, disease and disorder and symptom recognition of host stress. • State the economic, aesthetic or environmental thresholds for a range of plant pests, diseases and disorders. • Describe chemical, biological and cultural methods and treatments available to the enterprise. • State the implications of choice of plant pest and disease control methods with site limitations, environmental implications, end market and production or environmental objectives for the site. • Explain how to recognise signs of damage or threats to plant health and the appropriate method of control. • Explain how seasonal weather conditions and soil condition affect plant growth and health.	Training Kit (Presentations, Trainer Guide), weedicide; pesticide; fungicide; sprayers; axe; sickle; weeder; hand gloves; masks; pair of boots; apron

		• Describe the signs of damage to leaves, roots, stems, flowers, yield/vigour, by physical means, pest and disease. • Identify appropriate prevention and/or control methods for infestations. • Describe the environmental threats such as frost, drought, water logging, humidity, heat, light/shade, chemical spray drift. • Identify a range of threats to plant health such as weeds, pests, diseases, disorders, unfavourable conditions. • Identify the scope, stage and size of the weed infestation that adversely impacts on the landscape or production. • Check plants and trees for any infestation of weeds, pests, disease or disorder and identify type of infestation. • Suggest appropriate solutions for infestation to client or manager. • Agree on the solution that resolves the infestation without hurting the plants and is in line with budget and preferences of client. • Implement measures to prevent weeds, pests, disease or disorder with approval from client or manager.	
7	**Pruning activities** **Theory Duration** (hh:mm) 05:00 **Practical Duration** (hh:mm) 08:00 **Corresponding NOS Code** AGR/N0834	• Explain the need for plant modification. • Describe the process of visual tree assessment. • State the relationship between pruning and plant species w.r.t timing of pruning, types of material for removal, method of pruning, positioning of cuts. • Explain the elements of tree health, growth habit, structure, stability and growing environment. • State the reasons for pruning, timing of pruning, types of material for removal, including suckers, reverted shoots, dead heading, dead, damaged, weak or diseased, method of pruning, positioning of cuts, formative and routine pruning, regenerative pruning. • Describe correct pruning techniques used to ensure required plant growth responses, shrubs- flowering	Training Kit (Presentations, Trainer Guide), shears; long cutters; cutters; hedge cutters; loppers; wheel barrow; secateurs; pruning saws; powered hedge trimmers

		on current. • Explain season's growth, flowering on previous season's growth and those grown for winter stems and summer foliage. • Explain tree and branch anatomy and attachments such as lateral branch collars, branch bark ridges, stem bark ridges. • Describe reduction cuts, need for the same and how to do it. • Explain tree response to pruning. • State correct and incorrect pruning cuts. • Describe rectifying cuts need for the same and how to do it. • Explain pruning hygiene. • Describe the correct procedure of disposal of plant debris in environmentally aware and sensitive manner. • State work health and safety procedures for pruning operations. • Determine type, extent and limit of pruning work in accordance with specifications, scope of works and client brief. • Identify plant parts to be pruned and select the appropriate pruning procedure. • Select and prepare appropriate tools and implements for pruning • Pruning tools and implements: secateurs, pruning saw, powered hedge trimmers • Prune plants using appropriate techniques, according to species, time of year, stage of development such as - for Shrubs(flowering on current season's growth, flowering on previous season's growth and those grown for winter stems and summer foliage, using clean secateurs and pruning saws as appropriate); for trees(removal of small branches from the ground with non-powered implements -pruning saws); for hedges (annual pruning, formal and informal, using secateurs and powered hedge trimmers, correct positioning of pruning cuts should be emphasised, correct time of year for operations, reasons for pruning). • Clean, maintain and store tools and implements.	

		• Collect and dispose of or recycle pruned material in a manner that causes minimal environmental damage.	
	ELECTIVE 1: **Total Duration:** 80 hrs Theory Duration (hh:mm) 30:00 Practical Duration (hh:mm) 50:00	Unique Equipment Required: Garden design templates, various types of seeds, seedlings, cuttings; seedling tray; trowel; rake; polybags; pots of various sizes and materials; jute balls; shade nets; hand cutter; long cutter; watering can, hand tools, suitable tying material (twine, plastic tie); secateurs, loppers, pruning saw, personal protective equipment (PPE) like hand gloves, masks, pair of shoes; lawn mower; tags; paint; plant labels; sign boards; hedge cutters, watering cans, sprinkler system, drip irrigation system; fertilizers for garden plants; trowel, rake; sprayers; shade net; greenhouse/shade house; hand gloves; masks; pair of boots; apron, weedicide; pesticide; fungicide; sprayers; axe; sickle; weeder; hand gloves; masks; pair of boots; apron, shears; long cutters; cutters; hedge cutters; loppers; wheel barrow; secateurs; pruning saws; powered hedge trimmers.	

ELECTIVE 2: Nursery

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	**Introduction to Nurseries** **Theory Duration** (hh:mm) 02:00 **Practical Duration** (hh:mm) 00:00 **Corresponding NOS Code** AGR/N0835	• Describe various types of plant nurseries and their purpose. • State various operations in a plant nursery.	Training Kit (Presentations, Trainer Guide),
2	**Propagation through seeds and Vegetative Methods** **Theory Duration** (hh:mm) 10:00 **Practical Duration** (hh:mm) 18:00 **Corresponding NOS Code** AGR/N0835	• Describe various types of plant propagation including seeds and vegetative methods. • Explain the principles and practices for implementing a propagation plan. • State the preferred types of propagation media for different species. • State the advantages and disadvantages of propagation from seed. • State the advantages and disadvantages of vegetative propagation. • State the preferred propagation methods for common types of plants in a nursery.	Training Kit (Presentations, Trainer Guide), various types of seeds, seedlings, cuttings; seedling tray; seed boxes; trowel; rake; polybags; pots of various sizes and materials; jute balls; shade nets; hand cutter; long cutter; digging fork; trowel; secateurs; budding or grafting knife; watering can

		• Describe the methods for collecting propagation material. • State the conditions required for effective establishment of propagation material. • Explain the propagation techniques required for a range of plants. • State the quality specifications for parent plants and propagation materials. • Describe the testing methods applied to propagation media. • Interpret workplace instructions and organise tasks to achieve daily work routine within time constraints. • Select and prepare appropriate tools, implements and machinery. • Identify work health and safety hazards, assess risks, implement control measures and report to the manager or client. • Select, use and maintain appropriate personal protective equipment (PPE). • Prepare growing environment to suit species and propagation method. • Identify potential parent plants and select propagation material according to health, vigour and desired characteristics such as seeds, seedlings, softwood, semi-ripe and hardwood cuttings, root cuttings, scion material for grafting: collect suitable material from deciduous and evergreen shrubs (semi-ripe and hardwood cuttings as appropriate), perennials, house plants or shrubs etc (softwood cuttings), some alpines, herbaceous and climbing plants, trees and shrubs (root cuttings), ornamental/fruit trees or shrubs (grafting). • Collect and store propagation material safely. • List the categories and sources of seeds. • State the timing and methods of sowing seed indoors and outdoors. • Explain the importance of hygiene in seed propagation. • Undertake hastening and germination of the seeds using appropriate methods as per the type of seed and climate. • Perform the standard practices of	

		preparing a germination pots and beds and germination medium. • Apply correct pre-treatment to the seed as per requirement of the seed type. Pre-treatments: Soaking seeds in hot or cold water; cracking the seed shell; nicking the seed slightly. • Sow seeds by broadcasting in pots or seed-beds maintaining required distance between them and depth in soil. • Provide relevant aftercare to seed and after germination of seeds. • Explain the use of division, cuttings and grafting as methods to propagate plants. • Propagate plants by division, cuttings and grafting safely and efficiently. • Handle plants to optimise success and minimise damage and waste. • State the aftercare requirements for a range of propagated plants. • Provide aftercare to suit the media conditions, plant requirements and propagation techniques employed. • Describe the problems that may occur performing propagation activities and preventative action. • State the enterprise hygiene standards required for propagation activities. • Clean work site using appropriate hygiene requirements. • Collect waste and dispose/recycle to minimise damage to the environment. • Complete and maintain records.	
3	**Nursery Operations** **Theory Duration** (hh:mm) 10:00 **Practical Duration** (hh:mm) 20:00 **Corresponding NOS Code** AGR/N0836	• Describe the common organisational procedures for arranging for materials, equipment and manpower for the nursery. • Explain the importance of planning and calendarizing nursery operations. • Prepare a calendar of events for all daily, weekly, seasonal and annual operations of the nursery. • Ensure all operations in the nursery occur in a timely and efficient manner. • Identify materials, equipment and manpower requirements for smooth operation of the nursery. • Organise for materials, equipment	Training Kit (Presentations, Trainer Guide), personal protective equipment (PPE); various types of seeds, seedlings, cuttings; seedling tray; trowel; rake; polybags; pots of various sizes and materials; jute balls; shade nets; hand cutter; long cutter; watering can; sprinkler system, drip irrigation system;

		and manpower as per requirement following organisational procedures for the same. • State the range and use of tools, implements and machinery available to the enterprise for implementing the nursery operations. • List the work health and safety responsibilities for employees and employers. • Explain the correct use, maintenance and storage of personal protective equipment. • Explain what seeds, seedlings and plant nutrition, growth and development are. • Explain how to setup a polybag nursery. • Explain how to setup a ground nursery bed. • Organise for polybags filled with the right soil mixture for planting the germinated seeds. • Ensure the polybags are laid out as per guidelines for a polybag nursery. • Prepare the land to receive germinated seeds as per guidelines for a ground nursery. • Plant the germinated seeds in each hole for ground nursery or each bag for the polybag nursery with the radicles pointing downward. • Describe the process of maintenance of seedlings. • Explain the need for root pruning, root pruning process and precautions. • Explain the need for hardening treatment on seedlings, various hardening activities and precautions to be taken. • Describe various treatments on the seeding to make them strong enough to survive under harsh climate in the field after planting. • Explain the need to suppress growth of seedlings that are not bought by pruning the tips in order to postpone planting. • Perform root pruning to control root system development beyond the container without damaging the plant. • Perform hardening up treatments on the seeding to make them strong enough to survive under harsh	fertilizers for garden plants; shade net; greenhouse/shade house; shears; long cutters; cutters; hedge cutters; loppers; wheel barrow; secateurs; pruning saws; powered hedge trimmers; compost basket; compost pit; compost testing equipment; hand gloves; masks; pair of boots; apron

		climate in the field after planting. • Suppress growth of seedlings that are not bought by pruning the tips in order to postpone planting. • Label the seedlings to indicate their plant type and age. • Select and organise the seedlings that have to be kept on display with minimum damage or disturbance to the seedlings. • Ensure that the seedlings and cuttings are transplanted into pots correctly and when the seedlings are old enough to be transplanted. • Explain the concept of nutritional deficiency/excess for seedlings. • State the effects of seasonal weather conditions, effects of soil conditions, soil compaction and different soil types (e.g. Clay), reasons for feeding, mulching, irrigation and support of established plantings, powered and nonpowered maintenance implements, increase/decrease of pest and/or disease infestations, inappropriate soil. • Identify the ph levels for plants present. • Describe the methods used to maintain/control plant growth. • Maintain plants and seedlings in compliance with environmental, health and safety legislation and codes of practice. • Ensure adequate watering of plants as per the plant type, seedling age, amount of rain and sunlight and soil type. • Harvest water by developing micro-catchment and conduct it to seedlings. • Estimate fertilizer requirement in terms of type of fertilizer, quantity and quality. • Prepare fertilizer as per requirement using the formula suggested by manufacturer. • Apply fertilizer as per requirement taking necessary personal and environmental safety measures. • Organise for shades or sheds to protect the seedlings from direct sunlight or harsh weather conditions. • Organise for fences, walls, gates for	

		safety and security of the nursery plants. • Explain the basic principles of Integrated pest management standards or industry code of practice. • Describe nursery hygiene and seedling disease control. • Define pest, disease and disorder and symptom recognition of host stress. • State the economic, aesthetic or environmental thresholds for a range of plant pests, diseases and disorders. • Describe the chemical, biological and cultural methods and treatments available to the enterprise. • State the implications of choice of plant pest and disease control methods with site limitations, environmental implications, end market and production or environmental objectives for the site. • Explain how to recognise signs of damage or threats to plant health and the appropriate method of control. • Explain how seasonal weather conditions and soil condition affect plant growth and health. • State the signs of damage to leaves, roots, stems, flowers, yield/vigour, by physical means, pest and disease. • Define what is infestation. • Identify appropriate prevention and/or control methods. • Describe the environmental threats: frost, drought, water logging, humidity, heat, light/shade, chemical spray drift. • Identify a range of threats to plant and seedling health such as weeds, pests, diseases, disorders, unfavourable conditions. • Identify the scope, stage and size of the weed infestation that adversely impacts on the landscape or production. • Check plants and trees for any infestation of weeds, pests, disease or disorder and identify type of infestation. • Suggest appropriate solutions for infestation to client or manager.	

		• Agree on a cost-effective solution that resolves the infestation without hurting the plants or seedlings. • Implement measures to prevent weeds, pests, disease or disorder with approval from client or manager. • Explain what compost is, and various types of compost. • Describe various methods of making compost, their advantages and disadvantages. • State the types of organic materials used in compost making and the right mixture of soil and additives to be added. • Explain how to test readiness of compost. • State the precautions to be taken while preparing compost. • Arrange for collection of organic materials from the nursery that can be converted into compost. • Select appropriate method of compost making as per the budgets, land availability, climate and type of compost required. Methods of compost making: Heap method, pit method, traditional basket methods, rotating drums, composting bin systems. • Ensure the receiving area or container for the organic materials is prepared correctly. • Ensure mixing of organic materials with the right amount of soil and additives. • Test the compost around the time it is mature to check if it is ready by plant germination in the compost or compost extract. • Remove the compost when it is ready for use in the nursery or for sale.	
4	**Nursery Business Activities** **Theory Duration** (hh:mm) 08:00 **Practical Duration** (hh:mm) 12:00 **Corresponding NOS**	• State the various types of nursery product that is sold by nurseries as products. • Identify common channels for promotion of nurseries and their produce. • Identify type of nursery and target clientele. • Identify the nursery products, their features and benefits and price and margins. • Identify various promotion channels	Training Kit (Presentations, Trainer Guide), personal protective equipment (PPE). Accounting registers; sales registers; inventory registers; seedling packing materials; various types of pots

	Code AGR/N0837	and sales processes undertaken by the nursery management. • Ensure adequate product promotional and sales materials are available and placed as per organisational guidelines. • Describe various modes of accepting payment and processing of each type of payment mode. • Describe basic accounting procedures to be followed at point of sale • Inventory procedure. • State the best packaging practices for seeds, seedlings, plants, compost and other nursery produce. • Identify various accounting procedures to be followed in case of various modes of payments against sales. • Maintain inventory of seeds, seedlings, plants and other materials such as pots, compost available in the nursery. • Describe various sales procedures. • Escort visitors to show them the nursery, and nursery produce as per the interest expressed by the visitors. • Explain features, benefits and price for the various nursery produce and products to visitor. • Conduct the sales process as per organisational procedure. • Describe after sales and sales fulfilment procedures. • Ensure the purchases are correctly packaged so that the seeds, seedling, plant, compost or other nursery product is transported safely. • Process and secure the payment amount received following applicable accounting practices and as per organisational procedure. • Maintain records of all visitors received, sales conducted, and money received.	
	ELECTIVE 2: **Total Duration:** 80 hrs Theory Duration (hh:mm) 30:00	Unique Equipment Required: Various types of seeds, seedlings, cuttings; seedling tray; seed boxes; trowel; rake; polybags; pots of various sizes and materials; jute balls; shade nets; hand cutter; long cutter; digging fork; trowel; secateurs; budding or grafting knife; watering can, personal protective equipment (PPE); various types of seeds, seedlings, cuttings; seedling tray; trowel; rake; polybags; pots of various sizes and materials; jute balls; shade nets; hand cutter;	

	Practical Duration (hh:mm) 50:00	long cutter; watering can; sprinkler system, drip irrigation system; fertilizers for garden plants; shade net; greenhouse/shade house; shears; long cutters; cutters; hedge cutters; loppers; wheel barrow; secateurs; pruning saws; powered hedge trimmers; compost basket; compost pit; compost testing equipment; hand gloves; masks; pair of boots; apron, accounting registers; sales registers; inventory registers; seedling packing materials; various types of pots.

ELECTIVE 3: Turf

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	**Turf establishment and maintenance** **Theory Duration** (hh:mm) 20:00 **Practical Duration** (hh:mm) 30:00 **Corresponding NOS Code** AGR/N0838	• Explain what a turf is and what the various types of turf. • State the various uses of turfs. • Explain the principles and practices for establishing turf. • State the tools, implements and machinery for a turf establishment project. • Describe various turf establishment methods. • State the standards for turf surface appearance and quality. • Describe the structure of a sports turf soil profile. • Organise for testing site soil samples from a representative area. • Extract relevant information from test results to guide soil preparation for establishing turf. • Determine turf establishment methods and requirements. • Select tools and implements for the task being undertaken and use safe working practices. • Prepare planting site and sow seed or roll out lawn. • Perform turf establishment by sowing, turf laying, sprigging and chaffing/stolonization. • Water the newly planted turf as required. • Fertilise newly established turf. • Mow turf according to a specified pattern and height. • Monitor newly established turf, identify problems and report any changes. • Apply top dressing according to the establishment plan. • Explain turf grass physiology as it applies to grassed area maintenance. • State the types of turf and specific	Training Kit (Presentations, Trainer Guide), turf laying boards; landscaping rakes; weed control fabric; wheel barrow; lawn mower; half-moon cutter; turfing iron; levelling rake; hand gloves; masks; pair of boots; apron

		maintenance requirements. • Explain the principles and practices of grassed area maintenance. • Describe growth rates and cultural requirements of specific turf types. • Describe methods and practices for maintaining grassed areas. • State the range, use and availability of materials, implements and machinery that may be required for the project. • List the common weeds, pests and diseases. • Describe fertiliser use and application. • State the soils and turf nutrition. • Describe turf identification and growth characteristics. • Describe various turf watering practices. • Clarify with management requirements of the maintenance program. • Identify implements and material resource requirements according to the scope of the coordination work. • Identify the priorities for maintenance activities and time allocation. • Maintain and repair grassed areas. • Mow lawns and trim edges. • Undertake coring and scarifying as necessary. • Undertake top dressing and fertilising as required. • Spread fertiliser as necessary. • Undertake control measures for broad leaf weeds and grass weeds. • Perform repairs to irrigation systems as required. • Coordinate and report on grassed area maintenance activities. • Instruct machinery operators of appropriate use and their responsibilities in respect to operational maintenance requirements of machinery and implements. • Monitor personnel, activities, timelines and materials usage. • Recognise contingency situations and take corrective actions. • Prepare a report of work undertaken. • Explain principles and practices of turf renovation.	

		• Describe various field measurement techniques such as infiltration rate, organic fines, hardness, traction, surface smoothness, and turf sward height. • Explain turf nutrition requirements and plant growth regulators. • State the planting, care and renovation scheduling requirements of grass species and cultivars. • Describe specialist turf renovation practices to achieve high performance turf. • Explain why it is important to renovate and repair surfaces to the required standard and the consequences of not doing so. • Explain how to identify surfaces in need of renovation and repair. • Explain how to select the appropriate renovation and repair method according to degree of damage and the surface itself. • Explain the importance of thorough and appropriate preparation prior to renovation and repair and how to do so. • Prepare, check and calibrate turf renovation machinery and implements. • Identify and assess surfaces in need of renovation and repair. • Select renovation and repair methods that are appropriate to the damage and the type of sports surface. • Select and use tools and implements that are suitable for the repair job. • Prepare the surface and use the selected renovation and repair methods safely and correctly. • Reinstate the surface so that it meets the requirements of the sport and the standard of the event. • Clean and store implements securely and correctly. • Explain how to ensure that the surface meets the requirements of the sport and the standard for the event. • Describe how to clean and store the necessary tools and implements securely and correctly and the importance of doing so.	

		• Describe work schedule programming. • State work health and safety issues.	
	ELECTIVE 3: **Total Duration:** 50 hrs Theory Duration (hh:mm) 20:00 Practical Duration (hh:mm) 30:00	Unique Equipment Required: Turf laying boards; landscaping rakes; weed control fabric; wheel barrow; lawn mower; half-moon cutter; turfing iron; levelling rake; hand gloves; masks; pair of boots; apron.	

	GRAND Total Duration **Minimum Duration for the QP= 200 hrs** **Theory: 70 hrs** **Practical: 130 hrs** **Maximum Duration for the QP= 360 hrs** **Theory: 130 hrs** **Practical: 230 hrs**	Unique Equipment Required for the QP: Training Kit (Presentations, Trainer Guide); scaled plans for gardens, nurseries and landscapes; Tools and materials for marking lines: tapes, ranging poles/rods, bamboo canes, sand, spray marker/paint, pegs; Tools and materials for marking curves: spade, V drill, hose pipe, rope, sand, pegs; levelling implements, watering cans; sprinkler irrigation system, low volume drip irrigation system; pressurised irrigation system; water pumps; water timers and controllers; garden design templates; manual and mechanized plough, rake, hoe, spade, khurpi; wheel barrow; various types of seeds, seedlings, cuttings; seedling tray; trowel; polybags; pots of various sizes and materials; jute balls; shade nets; hand cutter; long cutter; suitable tying material (twine, plastic tie); secateurs, loppers; pruning saw; lawn mower; tags; paint; plant labels; sign boards; hedge cutters; fertilizers for garden plants; sprayers; shade net; greenhouse/shade house; weedicide; pesticide; fungicide; sprayers; axe; sickle; weeder; shears; long cutters; cutters; hedge cutters; wheel barrow; pruning saws; powered hedge trimmers; seed boxes; digging fork; budding or grafting knife; compost basket; compost pit; compost testing equipment; hand gloves; masks; accounting registers; sales registers; inventory registers; seedling packing materials; turf laying boards; landscaping rakes; weed control fabric; wheel barrow; lawn mower; half-moon cutter; turfing iron; levelling rake; hand gloves; masks; pair of boots; apron

*(This syllabus/ curriculum has been approved by **Agriculture Skill Council of India)***

Trainer Prerequisites for Job role: " Horticulture Supervisor" mapped to Qualification Pack: " AGR/Q0811 v1.0"

Sr. No.	Area	Details
1	**Description**	The trainer is responsible for educating the trainees – supervise the setup and maintenance of gardens, nurseries, landscapes and turfs with a team of workers.
2	**Personal Attributes**	The trainer should be a Subject Matter Expert. He/ she should have good communication, leadership, observation and practical oriented skills.
3	**Minimum Educational Qualifications**	10+2
4a	**Domain Certification**	Certified for Job Role: "Horticulture Supervisor" mapped to QP: "AGR/Q0811, v1.0". Minimum accepted score is 80%
4b	**Platform Certification**	Recommended that the Trainer is certified for the Job Role: "Trainer", mapped to the Qualification Pack: "MEP/Q2601". Minimum accepted as per respective SSC guidelines is 80%.
5	**Experience**	• 10+2 with total experience of 5 years and 2 years of relevant experience • Diploma in (landscaping/Agriculture/Horticulture) [after 10+2] with total experience of 4 years and 3 years of relevant experience • Graduate with total experience of 4 years and 3 years of relevant experience • Graduate degree holder in (Agriculture / Horticulture) with total experience of a year and 6 months of relevant experience • Post graduate degree holder in (Agriculture / Horticulture / Botany) with total experience and relevant experience 6 months each

Annexure: Assessment Criteria

Job Role: Horticulture Supervisor
Qualification Pack: AGR/Q0811, v1.0
Sector Skill Council: Agriculture Skill Council of India

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion.
6. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
7. In case of *unsuccessful completion*, the trainee may seek reassessment on the Qualification Pack.

Compulsory NOS				Marks Allocation	
Total Marks: 500					
Assessment outcomes	**Assessment Criteria for outcomes**	**Total Marks**	**Out of**	**Theory**	**Skills Practical**
1.AGR/N0831 Setup the ground/layout as per plan for development of garden, nursery or landscape	PC1. identify the dimensions, shapes and positions to be marked on the ground/layout and features to be produced from the scaled plan	**100**	12	5	7
	PC2. transfer the dimensions and positions accurately from the scaled plan onto the ground/layout, using triangulation, running lines and offsets		12	5	7
	PC3. supervise the marking of lines and curves onto the ground/layout as per the plan using various tools and materials		12	5	7
	PC4. construct a right angle on the ground/layout by intersecting arcs using Pythagoras' theorem (3, 4, 5 triangle)		14	6	8
	PC5. set out regular and irregular geometric shapes such as rectangles, circles, hexagons and ellipses on the ground/layout as per plan		24	10	14
	PC6. mark and label the positions of all plants, structures (e.g. sheds, glasshouses), and features (e.g. paths, steps, benches, pergolas) as per plan		13	5	8

	PC7. set out levelled areas and contoured areas on the land as per plan		13	4	9
		Total	**100**	**40**	**60**
2.AGR/N0832 Supervise irrigation activities	PC1. identify various plants and trees in the area and their moisture requirement in various seasons and estimate the watering requirements for the same in consultation with client or management	**100**	12	5	7
	PC2. select suitable irrigation methods based on water requirements, efficient use of manpower, time and client preference		6	2	4
	PC3. subdivide the irrigated area into the smallest units capable of individual irrigation and note irrigation method for each		6	3	3
	PC4. define the water requirement and irrigation related constraints for each unit		7	3	4
	PC5. determine the water volume required to meet irrigation needs over specified period		6	2	4
	PC6. determine irrigation calendar and shifts that do not exceed the water delivery capacity of the property irrigation infrastructure while combine units requiring similar irrigation		12	5	7
	PC7. coordinate with resources and brief the personnel to carry out irrigation activities		7	3	4
	PC8. check if the irrigation activities are occurring as per schedule and plan		6	2	4
	PC9. inspect plants for growth rate and signs of stress		7	3	4
	PC10. implement measures to ensure water use efficiency		7	3	4
	PC11. adjust irrigation program in response to plant condition, rainfall events and changes to evapo-transpiration rates		6	2	4
	PC12. check accuracy of and calibrate equipment used in irrigation		6	2	4
	PC13. operate various types of irrigation systems as per manufacturer's guidelines		6	3	3
	PC14. ensure that the irrigation tools and equipment are stored and maintained as per manufacturer's guidelines		6	2	4
		Total	**100**	**40**	**60**
3.AGR/N9915 Organise and supervise the workers to	PC1. create work plan and schedule for the workers, depending on work priorities, availability of manpower, equipment and weather conditions	**100**	6	3	3

achieve work objectives	PC2. allocate the work, taking full account of team member's abilities and developmental needs		5	2	3
	PC3. explain the team plan to the team members and confirm if they have understood		6	3	3
	PC4. provide detailed instructions to the workers for their respective tasks		5	2	3
	PC5. establish and enforce operating procedures and work standards		6	3	3
	PC6. train the workers on-the-job on tasks where their competence is not upto the mark		5	2	3
	PC7. perform personnel-related activities, such as hiring workers, evaluating staff performance, or taking disciplinary actions		6	3	3
	PC8. conduct inspection of site (s) where the work is being carried out to identify work status		5	2	3
	PC9. monitor project activities to ensure that instructions are followed, deadlines are met, and schedules are maintained		6	3	3
	PC10. compare the work completed to expected outcomes and identify the gaps in the quantity, quality and adherence to schedule and budgets		5	2	3
	PC11. take feedback from workers to identify the causes for lag in performance as well as possible solutions to bridge the gap		5	2	3
	PC12. prepare a work assessment report along with a suggestive plan for corrective action and share with workers		6	3	3
	PC13. implement procedural changes to ensure completion of work as per standards		5	2	3
	PC14. provide feedback on individual work performance to each team member for improvement in work output		6	3	3
	PC15. investigate work-related complaints to verify problems and to determine responses		6	3	3
	PC16. perform administrative duties, such as authorizing leaves or processing time sheets for wage/salary payments		6	2	4
	PC17. deal with conflicts within the team members in a professional manner		5	2	3
	PC18. prepare or maintain required records, such as work activity or personnel reports		6	3	3
		Total	**100**	**45**	**55**

4.AGR/N9916 Co-ordinate with client and management to ensure customer satisfaction	PC1. clarify the scope of work, budgets and timelines with client and/or manager	**100**	4	2	2
	PC2. identify limits of own responsibility and reporting requirements		3	1	2
	PC3. carry out site inspection in order to identify resources, constraints, existing status of work, health and safety conditions, etc.		4	2	2
	PC4. identify personnel, implements and material resource requirements as per the scope of work		3	1	2
	PC5. identify workplace health and safety related measures required		3	1	2
	PC6. share requirements identified for work completion with client and/or manager and obtain approval		3	1	2
	PC7. procure materials and hire implements and machinery as authorised by the client and/or manager		5	2	3
	PC8. co-ordinate with suppliers for delivery of materials, implements, machinery and personal protective equipment to site as outlined in the order of activities		5	2	3
	PC9. organise adequate personnel to be on site when they are required as authorised by the client and/or manager		4	2	2
	PC10. ensure that enough supplies are available, and items are in usable condition		3	1	2
	PC11. identify and use clients' preferred communication styles and methods		3	1	2
	PC12. apply communication techniques to establish rapport and promote two-way communication		4	2	2
	PC13. take client and management feedback in consultation with appropriate personnel and analyse when improving work practices		3	1	2
	PC14. identify customer service complaints and make adjustments to ensure continued service quality		3	1	2
	PC15. communicate adjustments to all those involved in service delivery within appropriate time frames		3	1	2

	PC16. coordinate and manage delivery of services or products to ensure they effectively and efficiently meet agreed quality standards		3	1	2
	PC17. manage team and vendors to ensure customer needs are addressed		3	1	2
	PC18. seek feedback from clients and use it to improve customer satisfaction		3	1	2
	PC19. maintain contacts and participate in formal and informal networks that support the business and enhance personal knowledge of the market.		4	2	2
	PC20. maintain records of customer interaction in accordance with organisational guidelines		4	2	2
	PC21. ensure garden surroundings are clear of garbage and have clean walkways		3	1	2
	PC22. instruct garden workers to maintain personal hygiene e.g. clean uniform and shoes, hair properly combed etc.		4	2	2
	PC23. equip oneself and garden workers with the information required to answer queries from visitors		4	2	2
	PC24. co-ordinate with manager to get details of the expected visitors and their interests		3	1	2
	PC25. arrange for drinks and refreshments for visitors		3	1	2
	PC26. receive visitors with courtesy and take them on garden tour		3	1	2
	PC27. answer their questions and seek help from manager, if necessary		4	2	2
	PC28. request feedback from visitors to assess if they received the information they were looking for and their level of experience		3	1	2
	PC29. relay the feedback to management for appropriate action to be taken		3	1	2
		Total	**100**	**40**	**60**
5.AGR/N9911 Adhere to health and safety	PC1. comply with the organization's health and hygiene policies and procedures	**100**	6	2	4
	PC2. adhere to garbage and trash disposal guidelines		6	1	5

guidelines at the workplace	PC3. identify and report organisational practices with respect to hygiene and cleanliness that need to be changed		7	2	5
	PC4. ensure personal hygiene as well as grooming and adhere to the dress code of the organisation		6	2	4
	PC5. ensure cleanliness of respective workstation at beginning and end of day		6	2	4
	PC6. inform reporting manager on personal health issues related to injuries and infections		7	2	5
	PC7. share knowledge of health and hygiene-related guidelines with team members		6	2	4
	PC8. check various areas of the workplace and report leakages, water logging, pests, fire, etc.		6	2	4
	PC9. prevent accidents and damages at the workplace through regular monitoring		6	2	4
	PC10. attend fire drills and other safety-related workshops organized at the workplace		6	1	5
	PC11. use safety materials or equipment applicable to the workplace		6	2	4
	PC12. follow procedures for dealing with accidents, fires, and emergencies, including communicating location and directions for emergency evacuation		7	2	5
	PC13. follow emergency procedures as per workplace requirements		6	2	4
	PC14. use emergency equipment in accordance with manufacturers' specifications and workplace requirements		7	2	5
	PC15. administer first aid as and when required		6	2	4
	PC16. report details of first aid administered in accordance with workplace procedures		6	2	4
		Total	**100**	**30**	**70**

ELECTIVES					
Elective 1: Garden					
Total Marks: 200				**Marks Allocation**	
Assessment outcomes	**Assessment Criteria for outcomes**	**Total Marks**	**Out of**	**Theory**	**Skills Practical**
1.1.AGR/N0833 Establish the garden or	PC1. gather information about soil type, texture, structure, pH and land/field conditions of the planting site	**100**	7	3	4

landscape as per plan	PC2. determine soil improvement needs and identify the hazards		7	3	4
	PC3. select preparation techniques to prepare the land/field as per plan		7	3	4
	PC4. clear the site of unwanted plant material and general debris		6	2	4
	PC5. perform primary cultivation for preparing the land for planting in a safe manner and as per plan		8	2	6
	PC6. perform secondary cultivation methods for preparing the land for planting in safe manner and as per plan		8	2	6
	PC7. identify from the plan, the plants and trees to be planted along with details such as location, timing, spacing, etc.		8	4	4
	PC8. select planting material that is in an appropriate condition for planting		7	3	4
	PC9. plant a range of plants and trees using plant appropriate techniques, as per plan		8	4	4
	PC10. provide immediate aftercare for new plantings		6	2	4
	PC11. prepare grass lawn using appropriate grass as per requirement of the lawn		6	2	4
	PC12. ensure establishment of colour scheme, theme and features as required by the plan or management		8	4	4
	PC13. establish garden components as per plan		7	3	4
	PC14. establish labels and signages for plants, walkways and features as per plan and theme		7	3	4
		Total	**100**	**40**	**60**
1.2.AGR/N0834 Maintain the garden or landscape	PC1. maintain plants in compliance with environmental, health and safety legislation and codes of practice	**100**	5	2	3
	PC2. ensure adequate watering of plants, using cost effective techniques that minimize wastage and are in line with client preferences		5	2	3
	PC3. perform safe and adequate mulching to ensure optimum use of water		5	2	3
	PC4. estimate fertilizer requirement in terms of type of fertilizer, quantity and quality		5	2	3
	PC5. prepare fertilizer as per requirement using the formula suggested by manufacturer		5	2	3

	PC6. apply fertilizer as per requirement taking necessary personal and environmental safety measures		5	2	3
	PC7. provide irrigation as per requirement of the plant in the respective season		5	2	3
	PC8. ensure adequate light, shade and temperature as per the requirement of plant		5	2	3
	PC9. identify a range of threats to plant health such as weeds, pests, diseases, disorders, unfavourable conditions		5	2	3
	PC10. identify the scope, stage and size of the weed infestation that adversely impacts on the landscape or production		5	2	3
	PC11. check plants and trees for any infestation of weeds, pests, disease or disorder and identify type of infestation		5	2	3
	PC12. suggest appropriate solutions for infestation to client or manager		5	2	3
	PC13. agree on the solution that resolves the infestation without hurting the plants and is in line with budget and preferences of client		5	2	3
	PC14. implement measures to prevent weeds, pests, disease or disorder with approval from client or manager		5	2	3
	PC15. determine type, extent and limit of pruning work in accordance with specifications, scope of works and client brief		5	2	3
	PC16. identify plant parts to be pruned and select the appropriate pruning procedure		5	2	3
	PC17. select and prepare appropriate tools and implements for pruning		5	2	3
	PC18. prune plants using appropriate techniques, according to species, time of year, stage of development		5	2	3
	PC19. clean, maintain and store tools and implements		5	2	3
	PC20. collect and dispose of, or recycle pruned material in a manner that causes minimal environmental damage		5	2	3
		Total	**100**	**40**	**60**

Elective 2: Nursery					
Total Marks: 300				**Marks Allocation**	
Assessment outcomes	**Assessment Criteria for outcomes**	**Total Marks**	**Out of**	**Theory**	**Skills Practical**

2.1.AGR/N0835 Implement plant propagation plan in a nursery	PC1. interpret workplace instructions and organise tasks to achieve daily work routine within time constraints	**100**	6	3	3
	PC2. select and prepare appropriate tools, implements and machinery		5	2	3
	PC3. identify work health and safety hazards, assess risks, implement control measures and report to the manager or client		5	2	3
	PC4. select, use and maintain appropriate personal protective equipment (PPE)		5	2	3
	PC5. prepare growing environment to suit species and propagation method		6	2	4
	PC6. identify potential parent plants and select propagation material according to health, vigour and desired characteristics		5	2	3
	PC7. collect and store propagation material safely		6	3	3
	PC8. undertake hastening and germination of the seeds using appropriate methods as per the type of seed and climate		5	2	3
	PC9. perform the standard practices of preparing germination pots and beds and germination medium		5	2	3
	PC10. apply correct pre-treatment to the seed as per requirement of the seed type		5	2	3
	PC11. sow seeds by broadcasting in pots or seed-beds maintaining required distance between them and depth in soil		5	2	3
	PC12. provide relevant aftercare to seed and after germination of seeds		6	3	3
	PC13. propagate plants by division, cuttings and grafting safely and efficiently		6	3	3
	PC14. handle plants to optimise success and minimise damage and waste		6	3	3
	PC15. provide aftercare to suit the media conditions, plant requirements and propagation techniques employed		6	3	3
	PC16. clean work site using appropriate hygiene requirements		6	3	3
	PC17. collect waste and dispose/recycle to minimise damage to the environment		6	3	3
	PC18. complete and maintain records		6	3	3
		Total	**100**	**45**	**55**
2.2.AGR/N0836 Supervise nursery	PC1. prepare a calendar of events for all daily, weekly, seasonal and annual operations of the nursery	**100**	4	2	2

operations	PC2. ensure all operations in the nursery occur in a timely and efficient manner		3	1	2
	PC3. identify materials, equipment and manpower requirements for smooth operation of the nursery		3	1	2
	PC4. organise for materials, equipment and manpower as per the requirement, following organisational procedures for the same		4	2	2
	PC5. organise for polybags filled with the right soil mixture for planting the germinated seeds		3	1	2
	PC6. ensure the polybags are laid out as per guidelines for a polybag nursery		2	1	1
	PC7. prepare the land to receive germinated seeds for a ground nursery		3	1	2
	PC8. plant the germinated seeds in each hole for ground nursery or each bag for the polybag nursery with the radicles pointing downward		3	1	2
	PC9. perform root pruning to control root system development beyond the container without damaging the plant		3	1	2
	PC10. perform hardening up treatments on the seedling to make them strong enough to survive under harsh climate in the field after planting		3	1	2
	PC11. suppress growth of seedlings that are not purchased in time, by pruning the tips in order to postpone planting		3	1	2
	PC12. label the seedlings to indicate their plant type and age		3	1	2
	PC13. select and organise the seedlings that must be kept on display with minimum damage or disturbance to the seedlings		3	1	2
	PC14. ensure that the seedlings and cuttings are transplanted into pots correctly and when the seedlings are old enough to be transplanted		2	1	1
	PC15. maintain plants and seedlings in compliance with environmental, health and safety legislation and codes of practice		3	1	2
	PC16. ensure adequate watering of plants as per the plant type, seedling age, amount of rain, sunlight and soil type		2	1	1
	PC17. harvest water by developing micro-catchment and conduct it to seedlings		3	1	2
	PC18. estimate fertilizer requirement in terms of type of fertilizer, quantity and		3	1	2

	quality				
	PC19. prepare fertilizer as per requirement using the formula suggested by manufacturer		3	1	2
	PC20. apply fertilizer as per requirement taking necessary personal and environmental safety measures		3	1	2
	PC21. organise for shades or sheds to protect the seedlings from direct sunlight or harsh weather conditions		3	1	2
	PC22. organise for fences, walls, gates for safety and security of the nursery plants		4	2	2
	PC23. identify a range of threats to plant and seedling health such as weeds, pests, diseases, disorders, unfavourable conditions		4	2	2
	PC24. identify the scope, stage and size of the weed infestation that adversely impacts on the landscape or production		2	1	1
	PC25. check plants and trees for any infestation of weeds, pests, disease or disorder and identify type of infestation		4	2	2
	PC26. suggest appropriate solutions for infestation to client or manager		3	1	2
	PC27. agree on a cost-effective solution that resolves the infestation without hurting the plants or seedlings		3	1	2
	PC28. implement measures to prevent weeds, pests, disease or disorder with approval from client or manager		3	1	2
	PC29. arrange for collection of organic materials from the nursery that can be converted into compost		2	1	1
	PC30. select appropriate method of compost making as per the budgets, land availability, climate and type of compost required		2	1	1
	PC31. ensure the receiving area or container for the organic materials is prepared correctly		2	1	1
	PC32. ensure mixing of organic materials with the right amount of soil and additives		3	1	2
	PC33. test the readiness of the compost for use by the plants		4	2	2
	PC34. store the compost when it is ready for use in the nursery or for sale		2	1	1
		Total	**100**	**40**	**60**

2.3.AGR/N0837 Undertake nursery business activities	PC1. identify type of nursery and target clientele	**100**	8	3	5
	PC2. identify the nursery products, their features, benefits, price and margins		8	3	5
	PC3. identify various promotion channels and sales processes undertaken by the nursery management		8	3	5
	PC4. ensure adequate product promotional and sales materials are available and placed as per organisational guidelines		8	3	5
	PC5. identify various accounting procedures to be followed in case of various modes of payments against sales		8	3	5
	PC6. maintain inventory of seeds, seedlings, plants and other materials such as pots, compost available in the nursery		10	4	6
	PC7. escort visitors to show them the nursery, and nursery produce as per the interest expressed by the visitors		8	4	4
	PC8. explain features, benefits and price for the various nursery produce and products to visitor		9	4	5
	PC9. conduct the sales process as per organisational procedure		8	3	5
	PC10. ensure the purchases are correctly packaged so that the seeds, seedling, plant, compost or other nursery product is transported safely		5	2	3
	PC11. process and secure the payment amount received following applicable accounting practices and as per organisational procedure		10	4	6
	PC12. maintain records of all visitors received, sales conducted, and money received		10	4	6
		Total	**100**	**40**	**60**

Elective 3: Turf					
Total Marks: 100				**Marks Allocation**	
Assessment outcomes	**Assessment Criteria for outcomes**	**Total Marks**	**Out of**	**Theory**	**Skills Practical**
3.1.AGR/N0838 Establish, maintain and repair a sports turf as per requirement	PC1.organise for testing site soil samples from a representative area	**100**	4	2	2
	PC2.extract relevant information from test results to guide soil preparation for establishing turf		4	2	2

	PC3.determine turf establishment methods and requirements		3	1	2
	PC4.select tools and implements for the task being undertaken and use safe working practices		3	1	2
	PC5.prepare planting site and sow seed or roll out lawn		3	1	2
	PC6.perform turf establishment by sowing, turf laying, sprigging and chaffing/stolonization		3	1	2
	PC7.water the newly planted turf as required		3	1	2
	PC8.fertilise newly established turf		3	1	2
	PC9.mow turf according to a specified pattern and height		3	1	2
	PC10.monitor newly established turf, identify problems and report any changes		3	1	2
	PC11.apply top dressing according to the establishment plan		3	1	2
	PC12.clarify with management, the requirements of the maintenance program		3	1	2
	PC13.identify implements and material resource requirements according to the scope of the coordination work		3	1	2
	PC14.identify the priorities for maintenance activities and time allocation		2	1	1
	PC15.maintain and repair grassed areas		3	1	2
	PC16.mow lawns and trim edges		3	1	2
	PC17.undertake coring and scarifying as necessary		3	1	2
	PC18.undertake top dressing and fertilising as required		3	1	2
	PC19.spread fertiliser as necessary		3	1	2
	PC20.undertake control measures for broad leaf weeds and grass weeds		3	1	2
	PC21.perform repairs to irrigation systems as required		4	2	2
	PC22.coordinate and report on grassed area maintenance activities		2	1	1
	PC23.instruct machinery operators of appropriate use and their responsibilities in respect to operational maintenance requirements of machinery and implements		3	1	2
	PC24.monitor personnel, activities, timelines and materials usage		3	1	2
	PC25.recognise contingency situations and take corrective actions		3	1	2

	PC26.prepare a report of work undertaken		4	2	2
	PC27.prepare, check and calibrate turf renovation machinery and implements		4	2	2
	PC28.identify and assess surfaces in need of renovation and repair		2	1	1
	PC29.select renovation and repair methods that are appropriate to the damage and the type of sports surface		2	1	1
	PC30.select and use tools and implements that are suitable for the repair job		2	1	1
	PC31.prepare the surface and use the selected renovation and repair methods safely and correctly		4	2	2
	PC32.reinstate the surface so that it meets the requirements of the sport and the standard of the event		4	2	2
	PC33.clean and store implements securely and correctly		2	1	1
		Total	**100**	**40**	**60**