

QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR AGRICULTURE

Contents

1. Introduction and Contact1
2. Qualification Pack 2
3. OS Units2
4. Glossary of Key Terms & Nomenclature.3



What are Occupational Standards(OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

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Introduction

Qualifications Pack - Gardener

SECTOR: AGRICULTURE

SUB-SECTOR: Horticulture

OCCUPATION: Landscape and Gardening

REFERENCE ID: AGR/ Q 0202

Gardener in the agriculture industry is a very important job role related to landscaping and gardening activity, in hindi it is commonly known as 'Mali'. The job role involves a lot of technical knowhow. He works in familiar, unpredictable, routine, situations of clear choice.

Brief Job Description: Gardener is responsible for taking care of beautification of lawns and gardens for private Houses, Parks, and Hotels in order to attract customers.

Personal Attributes: This job requires the individual to work independently and be comfortable in making decisions pertaining to his/her area of work. The individual should be result oriented. The individual should also be able to demonstrate skills of identifying crops, maintaining garden, use of various tools and decision making for instant problem solving.

Job Details	Qualifications Pack Code	AGR / Q 0202		
	Job Role	Gardener This job role is valid for both national as well as international scenarios		
	Credits(NVEQF/NVQF/NSQF) [OPTIONAL]		Version number	1.0
	Sector	Agriculture	Drafted on	12/06/13
	Sub-sector	Horticulture	Last reviewed on	08/08/13
	Occupation	Landscape and Gardening	Next review date	10/02/14

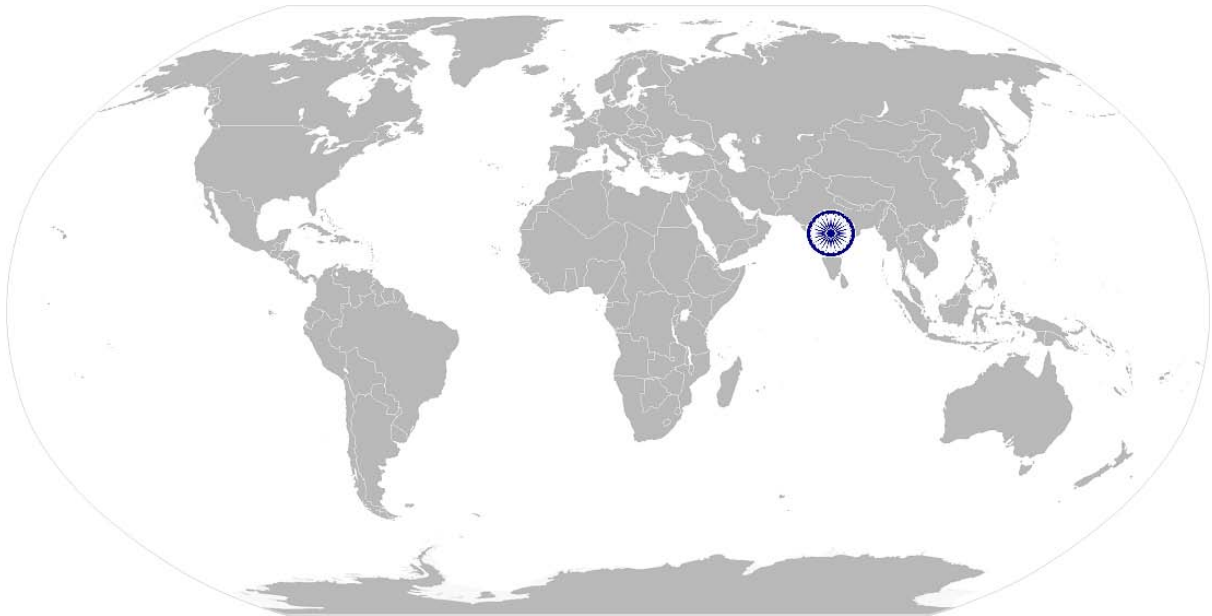
Job Role	Gardener (‘Mali’ in Hindi)
Role Description	A Gardener who is responsible for tending lawns, trees, shrubs, ground covers. He needs to be aware of the soil and nutrition requirements of plants, pests and diseases & their control and drainage. Gardeners also need to acquire skills in grafting, pruning, weeding and harvesting of flowers, fruits and vegetables. Needs to know use of basic tools and hand powered machinery such as pruners, brush cutters, lawn mowers etc
NVEQF/NVQF level	4
Minimum Educational Qualifications*	5 th Standard Appeared or Pass
Maximum Educational Qualifications*	Not Applicable
Training (Suggested but not mandatory)	Basic knowledge of garden and experience in gardening for one year
Experience	6 months to 1 year of experience in working in garden or nursery
Applicable National Occupational Standards (NOS)	Compulsory: 1. AGR / N 0014 - Nursery Management and Propagation of Plant Material 2. AGR / N 0015 - Designing of Garden Components 3. AGR / N 0016 - Plantation, Maintenance and Care of Garden
Performance Criteria	As described in the relevant OS units

Keywords /Terms	Description
Sector	Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.
Job Role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
OS	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
NOS	NOS are Occupational Standards which apply uniquely in the Indian context.
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
Qualifications Pack	Qualifications Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code.
Unit Code	Unit Code is a unique identifier for an Occupational Standard, which is denoted by an 'N'.
Unit Title	Unit Title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard.
Organizational Context	Organizational Context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills or Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.

Acronyms

Vertical	Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry
Keywords /Terms	Description
OS	Occupation Standard
NOS	National Occupation Standard
NVEQF	National Vocational Education and Qualification Framework
Agr	Agriculture

National Occupational Standard



Overview

This unit is about a Gardener responsible for nursery management and propagation of planting materials for creation of Garden components.

AGR / N 0014 Nursery Management and Propagation of Plant Material

Unit Code	AGR / N 0014
Unit Title (Task)	Nursery Management and Propagation of Planting material
Description	This OS unit is about a Gardener who is responsible for propagation of plant and nursery management for preparation of planting materials for garden.
Scope	This unit/task covers the following: <ul style="list-style-type: none"> • Nursery management • Propagation techniques • Some other operations
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Nursery Management	To be competent, the individual on the job must be able to: <ul style="list-style-type: none"> PC1. Establish of physical infrastructure – shade house, mist chamber, irrigation system PC2. Prepare of soil mixtures PC3. Prepare of seed beds PC4. Transplant PC5. Take up Potting PC6. Take up Hardening
Propagation Techniques	<ul style="list-style-type: none"> PC7. Propagate of plants through cutting PC8. Practice layering and stooling (Guava) PC9. Practice grafting (Mango) PC10. Practice budding in rose / citrus PC11. Raise of root stocks for grafting and budding
Some other Operations	<ul style="list-style-type: none"> PC12. Use of Plastics for Nursery Operations PC13. Identify and grow indoor plants of their basic requirements PC14. Layout Nursery Area PC15. Identify and use of proper root stock and scion for propagation
Knowledge and Understanding (K)	
A. Garden	The individual on the job needs to know and understand: <ul style="list-style-type: none"> KA1. Effective working relationships and how to work effectively with others in the garden
B. Technical Knowledge	The individual on the job needs to know and understand: <ul style="list-style-type: none"> KB1. Basic botany KB2. Water, Media & Nutrition KB3. Growth & Propagation techniques KB4. Planting & Potting techniques KB5. Fertilizing KB6. Pest & Disease Management KB7. Irrigation KB8. Methods / Procedures for resource (water & Chemicals) conservation KB9. Safety methods in pesticides use & disposal KB10. Use garden tools and implements KB11. Maintaining cleanliness in nursery by sweeping trashes and pulling out dead plant parts etc.

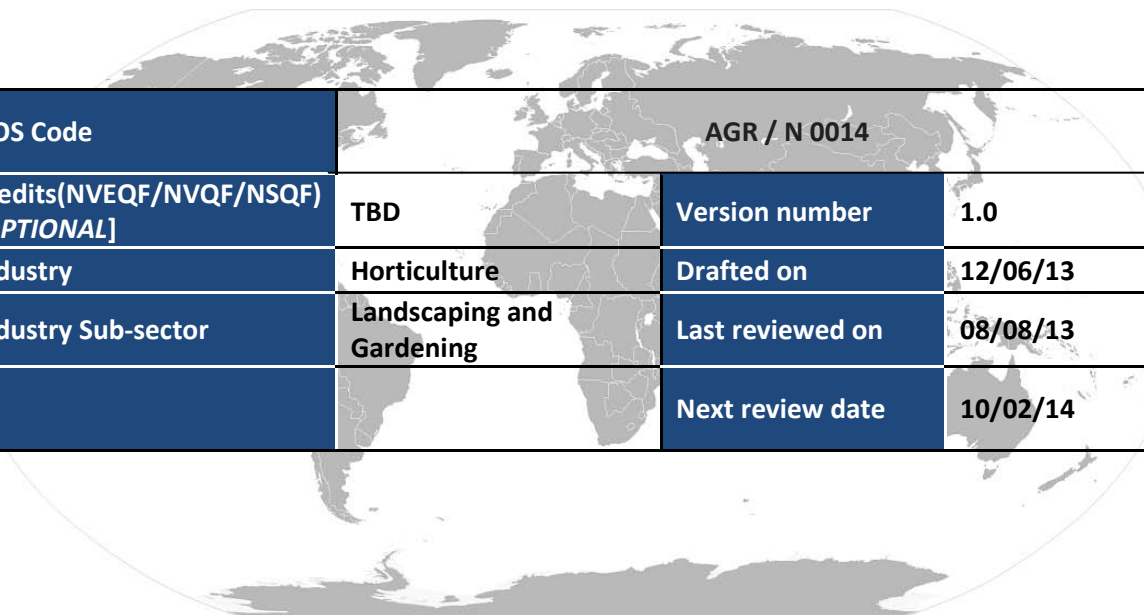
AGR / N 0014 Nursery Management and Propagation of Plant Material

Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Writing Skills
	The individual on the job needs to know and understand how to: SA1. Mention the data which are required for record keeping purpose SA2. Report problems to the appropriate personnel in a timely manner SA3. Write descriptions and details about incidents in reports
	Reading Skills
	The individual on the job needs to know and understand how to: SA1. Read instruction manuals for hand tool and equipments SA2. Read instructions on work orders and nursery drawings SA3. Read directions on pesticide and fertilizer labels for details of handling, mixing, and application and first aid procedures
	Oral Communication (Listening and Speaking skills)
The individual on the job needs to know and understand how to: SA1. Receive instructions and seek advice from supervisors and managers SA2. Lead staff meetings and worksite safety meetings SA3. Speak with suppliers and contractors to inquire about availabilities of materials and supplies	
B. Professional Skills	Decision Making
	The individual on the job needs to know and understand how to: SB1. Choose work procedures, installation and planting techniques and equipment SB2. Select appropriate hand tools and personal protection devices considering safety requirements, materials being used SB3. Follow basic arithmetic and algebraic principles
	Plan and Organize
	The individual on the job needs to know and understand how to: SB4. Use ideas in particular situations SB5. Implementation Planning: Develop approaches for implementing an idea
	Problem Solving
	The individual on the job needs to know and understand how to: SB6. Think through the problem, evaluate the possible solution(s) and take up an optimum / best possible solution(s) SB7. Equipment Selection: Determine the kind of tools and equipment needed to do a job / task SB8. Troubleshooting: Determine what is causing an operating error and deciding what to do about it
	Analytical Thinking
	The individual on the job needs to know and understand how to: SB9. Monitor and maintain the condition of tools and equipment SB10. Monitor the growing plants
	Critical Thinking
	The individual on the job needs to know and understand how to:

AGR / N 0014 Nursery Management and Propagation of Plant Material

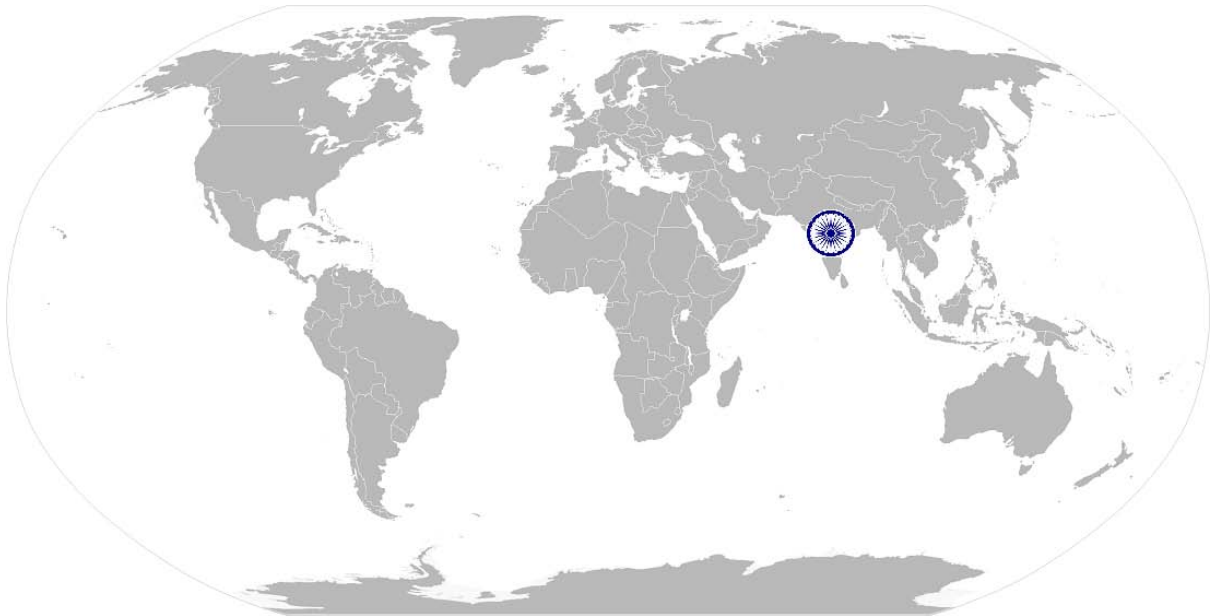
	SB11. Apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action SB12. Judge the safety of jobsites and quality of hand tools SB13. Assess the health and conditions of trees, shrubs, plants and other planting materials SB14. He is responsible for his own working and learning
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NOS Version Control



NOS Code	AGR / N 0014		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Horticulture	Drafted on	12/06/13
Industry Sub-sector	Landscaping and Gardening	Last reviewed on	08/08/13
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National Occupational Standard



Overview

This unit is about a **Gardener** responsible for creating and designing various components of the garden for beautification of garden and landscaping

Designing of Garden Components

Unit Code	AGR / N 0015
Unit Title (Task)	Designing of Garden Components
Description	This OS unit is about a Gardener who is responsible for creating and designing the various garden components in the field for beautification of garden and landscape.
Scope	This unit/task covers the following: <ul style="list-style-type: none"> • Features of Garden • Types of Garden • Actual Design and Layout of Gardens
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Features of Garden	To be competent, the individual on the job must be able to: PC1. Design various components of Garden like hedge, edge, shrubbery, pergolas, flower bed, lawn, etc. PC2. Visualise various components according to actual field PC3. Use various components available in the garden area
Type of Gardens	PC4. Design different types of gardens PC5. Utilise the available space effectively for different type of gardens
Actual Design and Layout of Gardens	PC6. Measure area for layout of garden components PC7. Layout for components of garden in the field PC8. Plan field design PC9. Maintain the plants according to design
Knowledge and Understanding (K)	
A. Garden Level	The individual on the job needs to know and understand: KA1. Effective working relationships and how to work effectively with others in the gardening contexts
B. Technical Knowledge	The individual on the job needs to know and understand: KB1. Types of gardens - Formal, informal, landscape, institutions, public gardens, parks, Hindu, Mughal, Japanese and English gardens etc KB2. 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
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Writing Skills
	The individual on the job needs to know and understand how to: SA1. Mention the layout in the field with help of rope SA2. Report problems to the appropriate personnel in a timely manner SA3. Write descriptions and details about incidents in reports SA4. Take care of safety, Health & Environment
	Reading Skills
	The individual on the job needs to know and understand how to: SA5. Read instruction manuals for hand tool and equipments

Designing of Garden Components

	SA6. Read instructions on work orders and landscape drawings
	Oral Communication (Listening and Speaking skills)
	The individual on the job needs to know and understand how to: SA7. Receive instructions and seek advice from supervisors and managers SA8. Provide direction and instructions to other workers SA9. Lead staff meetings and worksite safety meetings SA10. Speak with suppliers and contractors to inquire about availabilities of materials and supplies
B. Professional Skills	Decision Making
	The individual on the job needs to know and understand how to: SB1. Choose work procedures, installation and planting techniques and equipment SB2. Select appropriate hand tools and personal protection devices considering safety requirements, materials being used and project specifications SB3. Follow basic arithmetic and algebraic principles
	Plan and Organize
	The individual on the job needs to know and understand how to: SB4. Plan & organize various tasks of garden designs SB5. Develop approaches for the implementing of design, idea etc
	Problem Solving
	The individual on the job needs to know and understand how to: SB6. Think through the problem, evaluate the possible solution(s) and take up an optimum /best possible solution(s) SB7. Equipment Selection: Determine the kind of tools and equipment needed to do a job SB8. Troubleshooting: Determine what is causing an operating error and deciding what to do about it
	Analytical Thinking
	The individual on the job needs to know and understand how to: SB9. Monitor and maintain the condition of tools and equipment SB10. Operations Analysis: Analyze needs and product requirements to create a design SB11. Integrate of various components of a garden to make a design
	Critical Thinking
	The individual on the job needs to know and understand how to: SB12. Apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action SB13. Judge the safety of jobsites and quality of hand tools SB14. Take up his own working and learning

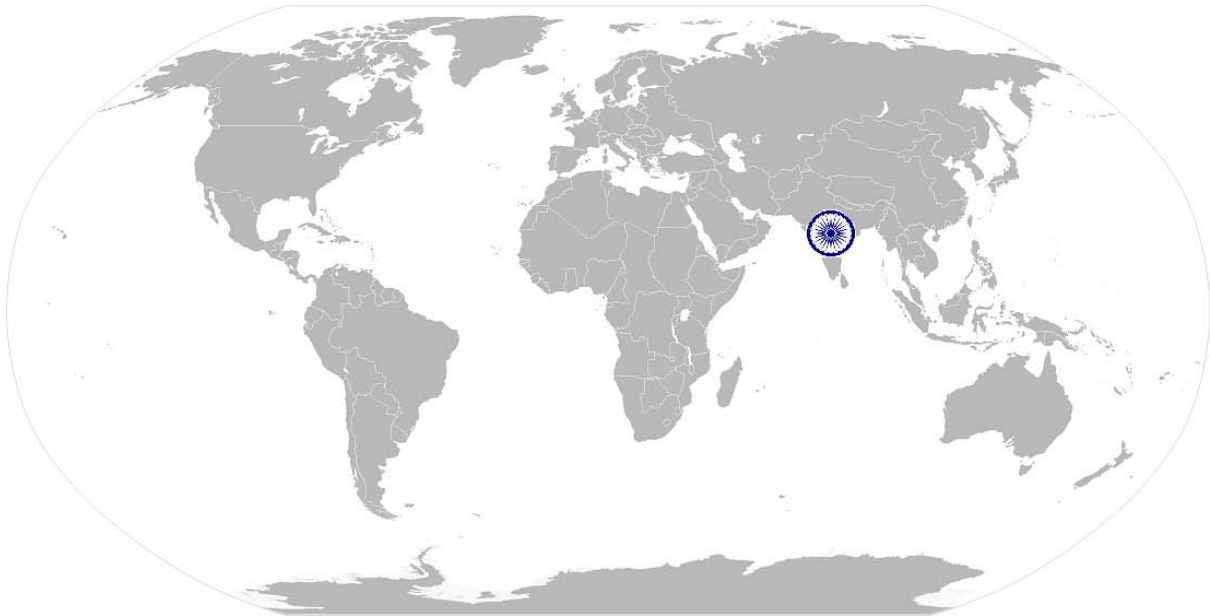
Designing of Garden Components

NOS Version Control

NOS Code	AGR / N 0015		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Horticulture	Drafted on	12/06/13
Industry Sub-sector	Landscape and Gardening	Last reviewed on	08/08/13
		Next review date	10/02/14



National Occupational Standard



Overview

This unit is about a Gardener responsible for planting, maintaining and taking care of the garden for the beautification of lawns and gardens

Plantation, Maintenance and Care of Garden

Unit Code	AGR / N 0016
Unit Title (Task)	Plantation, Maintenance and Care of Garden
Description	This OS unit is about a Gardener who is responsible for planting, maintenance and taking care garden for the beautification of lawns and gardens
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • Seasonal Gardening and Ground maintenance • Soil and Soil Management • Planting and Culture of Floral Display • Training and Pruning • Irrigation • Pest and Disease management • Other Operations
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Seasonal Gardening And Ground Maintenance	<p>To be competent, the individual on the job must be able to:</p> <p>PC1. Maintain Lawn and Turf</p> <ul style="list-style-type: none"> • Mowing • Fertilizing • Weeding • Irrigation • Aeration • Renovation <p>PC2. Plant and Culture of Trees</p> <ul style="list-style-type: none"> • Tree Selection – type of tree based on location • Pit digging • Tree Placement – use of crane & mechanical methods • Back filling • Staking • Incubating for replanting • Fertilizing • Irrigation • Shaping & Pruning • Tree Protection - pest and diseases, cattle, animals <p>PC3. Plant and Culture Trees shrubs and plant covers</p> <ul style="list-style-type: none"> • General Planting Procedures • General Plant Maintenance and Care
Soil and Soil Management	<p>PC4. Maintain texture and structure</p> <p>PC5. Take care of Water and Water Movement</p> <p>PC6. Take up Soil Nutrient Management</p> <p>PC7. Control Erosion</p>


Plantation, Maintenance and Care of Garden

Planting and Culture of Floral Display	<p>PC8. Plan and preparation of Bed</p> <p>PC9. Plant & culture of annuals, bulbs etc</p> <p>PC10. Recommend plant Spacing</p> <p>PC11. Deheading of flowers as per the recommended procedures</p>
Training and Pruning	<p>PC12. Prune and trim trees, shrubs, and hedges, using shears, pruners, or chain saw etc</p> <p>PC13. Use techniques to shape trees and shrubs as per the recommended procedures</p>
Irrigation	<p>PC14. Install drip and sprinkler system as per the design</p> <p>PC15. Clean of filters & drips for optimum flow</p> <p>PC16. Understand Water requirements of different plants</p> <p>PC17. Use watering appliances like Drip & Sprinklers, Water can, Seedling water can, Bucket, Syring and Garden hose etc as per the need and procedure</p>
Pest & Disease Management	<p>PC18. Identify Pest and diseases</p> <p>PC19. Manage pest and diseases</p> <p>PC20. Use chemical & non-chemical methods of pest & disease control</p>
Other Operations	<p>PC21. Plant woody plants, bulbs and bedding plants, shrubbery, hedges and edges etc as per procedures</p> <p>PC22. Identify and growing of indoor plants as per the design layout</p> <p>PC23. Practice in making bonsai</p> <p>PC24. Prepare potting mixture, potting and repotting.</p> <p>PC25. Plant various fruits / crops as per the design and layout</p>
Knowledge and Understanding (K)	
A. Organizational Context	<p>The individual on the job needs to know and understand:</p> <p>KA1. Effective working relationships and how to work effectively with others in the garden</p>
B. Technical Knowledge	<p>The individual on the job needs to know and understand:</p> <p>KB1. Methods of planting & cultivate</p> <p>KB2. Procedures of garden maintenance</p> <p>KB3. Methods & advantages of integrated nutrient management</p> <p>KB4. Principles of Nutrient Management</p> <p>KB5. Floral display methods & procedures</p> <p>KB6. Training & Pruning methods, their advantages & limitations</p> <p>KB7. Laying & maintenance of drip & sprinkler</p> <p>KB8. Types and methods of irrigation</p> <p>KB9. Integrated pest & Disease Management</p> <p>KB10. Types of chemicals & fertilizers available – causes and effects</p> <p>KB11. Natural pesticides – causes & effects</p>
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	<p>Writing Skills</p> <p>The individual on the job needs to know and understand how to:</p> <p>SA1. Mention the data which are required for record keeping purpose</p> <p>SA2. Report problems to the appropriate personnel in a timely manner</p> <p>SA3. Write descriptions and details about incidents in reports</p> <p>SA4. Safety and Health care</p>

Plantation, Maintenance and Care of Garden

	Reading Skills
	The individual on the job needs to know and understand how to: SA5. Read instruction manuals for hand tool and equipments SA6. Read instructions on work orders and landscape drawings SA7. Read directions on pesticide and fertilizer labels for details of handling, mixing, and application and first aid procedures
	Oral Communication (Listening and Speaking skills)
	The individual on the job needs to know and understand how to: SA8. Receive instructions and seek advice from supervisors and managers SA9. Provide direction and instructions to other workers SA10. Lead staff meetings and worksite safety meetings SA11. Speak with suppliers and contractors to inquire about availabilities of materials and supplies
B. Professional Skills	Decision Making
	The individual on the job needs to know and understand how to: SB1. Choose work procedures, installation and planting techniques and equipment SB2. Select appropriate hand tools and personal protection devices considering safety requirements, materials being used and layouts
	Plan and Organize
	The individual on the job needs to know and understand how to: SB3. Execute the design & its maintenance
	Problem Solving
	The individual on the job needs to know and understand how to: SB4. Think through the problem, evaluate the possible solution(s) and take up an optimum /best possible solution(s) SB5. Equipment Selection: Determine kind of tools and equipment needed to do a job / task SB6. Troubleshooting: Determine what is causing an operating error and deciding what to do about it
	Analytical Thinking
	The individual on the job needs to know and understand how to: SB7. Monitor and maintain the condition of tools and equipment SB8. Monitor the growing plants daily and maintain by training/pruning methods
	Critical Thinking
	The individual on the job needs to know and understand how to: SB9. Apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action SB10. Judge the safety of jobsites and quality of hand tools SB11. Assess the health and conditions of trees, shrubs, plants and lawns SB12. Be responsible for own working and learning

NOS Version Control

NOS Code	AGR / N 0016		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	1.0
Industry	Agriculture	Drafted on	12/06/13
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