CONSTRUCTION AND BUILDING TECHNOLOGY

Landscape Gardening

WorldSkills Occupational Standards

 WSC2021_WSOS37_Landscape_Gardening

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WorldSkills Occupational Standards (WSOS)

General notes on the WSOS

The WSOS specifies the knowledge, understanding, and specific skills that underpin international best practice in technical and vocational performance. It should reflect a shared global understanding of what the associated work role(s) or occupation(s) represent for industry and business (www.worldskills.org/WSOS).

The skill competition is intended to reflect international best practice as described by the WSOS, and to the extent that it is able to. The Standard is therefore a guide to the required training and preparation for the skill competition.

In the skill competition the assessment of knowledge and understanding will take place through the assessment of performance. There will only be separate tests of knowledge and understanding where there is an overwhelming reason for these.

The Standard is divided into distinct sections with headings and reference numbers added.

Each section is assigned a percentage of the total marks to indicate its relative importance within the Standards. This is often referred to as the "weighting". The sum of all the percentage marks is 100. The weightings determine the distribution of marks within the Marking Scheme.

Through the Test Project, the Marking Scheme will assess only those skills that are set out in the Standards Specification. They will reflect the Standards as comprehensively as possible within the constraints of the skill competition.

The Marking Scheme will follow the allocation of marks within the Standards to the extent practically possible. A variation of up to five percent is allowed, provided that this does not distort the weightings assigned by the Standards.

WorldSkills Occupational Standards

Section		Relative importance (%)
1	**Work organization and management**	**10**

The individual needs to know and understand:

- How gardens need to be designed to fit into their environment and may be constrained by size, the built environment, position, weather conditions, and the physical environment
- That garden use living materials and are dynamic and changing environments
- Local planning and construction regulations and how they relate to and impact landscape gardening
- The range of urban and rural environments where gardens and open spaces can be planned and created
- Sustainability issues relating to landscape gardening especially relating to sourcing of materials and gardens' impact on their environments and wildlife
- Legal requirements and practices relating to health, safety, and environment
- The importance of sustainability and recycling materials
- The range of tools used by landscape gardeners and their use and maintenance
- The range of materials used by landscape gardeners
- The importance of working within prescribed budgets
- The importance of working effectively as part of teams
- How to interpret complex technical diagrams and design drawings
- Mathematical calculations and geometry as they relate to landscape gardening
- Dimensions, elevations, and spatial awareness

The individual shall be able to:

- Safely and properly use appropriate tools such as hammers, chisels, table-mounted stone saws, and hand powered tools
- Ensure cleanliness and security of sites
- Organize work patterns, sequences, and logistics
- Take account of ergonomics, health and safety and personal protection
- Apply work processes in order to promote health and wellbeing
- Interpret complex technical diagrams and design drawings
- Source materials such as stone, trees, plants, and other natural materials
- Work effectively as part of teams and with other professions
- Deliver landscape gardening projects within agreed timescales and budgets

Section		Relative importance (%)
2	**Customer service and communications**	5

The individual needs to know and understand:

- The importance of effective and positive customer relations
- The importance of good teamwork and good working relationships with other professions

The individual shall be able to:

- Follow clients' briefs
- Provide advice and guidance to customers on the design and creation of projects and restrictions such as budgets, planning, and environmental concerns
- Provide advice and guidance on ongoing maintenance
- Solve problems
- Provide excellent customer service

3	**Garden design and garden design interpretation**	15

The individual needs to know and understand:

- Principles of good garden design
- International and cultural characteristics of garden design
- The environmental impact of gardens and open spaces in city and urban areas, and of functional organisms that support city life and improve people's quality of life
- Use of gardens as meditative and sensory spaces
- Practicalities of hard landscaping, plumbing, electrical installation
- Various types of sports surfaces, their uses and installations
- The variety of public open spaces that require planning, such as playgrounds, sports areas, country parks, urban parks, and recreation grounds
- Types of soil and how they support plants, shrubs, and trees
- Environmental factors that impact on garden design such as weather, terrain, facing direction, and location
- The planned use and users of gardens or open spaces and how these impacts on the design
- Modern trends in garden design

The individual shall be able to:

- Design gardens to meet clients' briefs
- Design gardens that reflect the environmental character and to make best use of terrain, location, expected weather conditions, quality of soil, and natural environment, etc.
- Design gardens and open spaces that meet the needs of the planned users

Section		Relative importance (%)
4	**Shape and place stones, slabs and precast units**	**15**

The individual needs to know and understand:

- The various installation methods required for each type of structure and the manner in which the assemblies' pieces are best worked
- The range of stones, slabs, granite, and pre-cast units available and their uses
- The range and uses for cements, adhesives, and supporting materials
- The equipment used to calculate and measure levels, uprights, angles and areas
- The importance of accuracy
- Mathematics principles that need to be applied to garden design and implementation
- Sources of supply for hard landscaping materials

The individual shall be able to:

- Assess the stability of the ground to ensure structural stability of finished products
- Prepare surfaces for hard-core and foundations by using earthmoving and excavation equipment, or by using hand tools
- Calculate hard-core requirements and implement onto planned areas
- Install aggregate bases of various descriptions for structures, including base materials in various layers and compact as prescribed
- Dispose of excavation debris and rubble in a sustainable manner, recycling where possible, and making appropriate consideration for the environment
- Read plans and dimensions and measure to scale from plans
- Chop, shape, and cut natural or man-made materials to required sizes and/or shapes
- Place single items and/or assemble multiple items as prescribed, for example steps, walls, walks, patios, and paths
- Construct hard landscaping with both loose or fitted methodologies
- Use appropriate cements, adhesives, and supporting materials correctly and in the most appropriate setting
- Follow instructions to create desired hard landscaping
- Translate measurements to full scale and mark on materials for cutting with appropriate marking instruments, or on site for layout with string-line
- Install structural elements, for example paving, steps, decks, turf, and "flat" areas, horizontally level or sloped as prescribed
- Install structural elements vertically level (plumb), for example fence posts
- Create surface drainage through slopes and related manipulation of grades of finished surfaces
- Protect surrounding environments and other living things
- Apply appropriate logistical strategies for storage, handling, moving, and security of materials

Section		Relative importance (%)
5	**Cut materials and assemble vertical and horizontal structures not made of hard landscaping materials**	**15**

The individual needs to know and understand:

- Angles, square-cut, bevel, mitre, and other manners of cutting and joining timber/wood elements as prescribed in drawings/specifications
- The equipment used to calculate and measure levels, uprights, angles, and areas
- The importance of accuracy
- Mathematics principles that need to be applied to garden design and implementation
- Types of wood and their uses in garden structures
- Long term maintenance of wood used in gardens
- The range of materials used in garden structures including metal frames, glass, and safety surfaces

The individual shall be able to:

- Read plans and dimensions and measure to scale from plans
- Translate measurements to full scale and mark on materials for cutting with appropriate marking instruments, or on site for layout with string-line
- Measure and accurately cut timber/wood pieces as prescribed
- Assemble timber/wood members using fasteners such as nails, screws, bolts, lags, brackets, and fittings
- Finish timber/wood assemblies through sanding and/or smoothing, staining, or other special treatments
- Install structural elements horizontally level or sloped as prescribed, for example paving, steps, decks, turf, and "flat" areas
- Install structural elements vertically level (plumb), for example, fence posts
- Create surface drainage through slopes and related manipulation of grades of finished surfaces
- Advise on, source and install outside and garden equipment such as playground equipment, barbeques, garden furniture, sheds, summer houses, etc.
- Install fencing, boundary units, and gates
- Utilize the best materials in the most appropriate environments, considering the end use, environmental conditions, and sustainability

Section		Relative importance (%)
6	**Substrate, soil, and mulch**	5

The individual needs to know and understand:

- Various types and structures of soil and growing media
- How to assess and test soils to determine characteristics and uses
- The impact of various types of soil and growing mediums on planting
- The range of soil additives and their uses
- Environmental impacts from the use of natural products such a peat
- Habitat quality considering soil as a living organisms
- The functions of various soil additives, growing media, mulches, and composts

The individual shall be able to:

- Install soil and/or soil improvers for planting as prescribed
- Install organic and/or inorganic mulch materials for planting or other purposes
- Apply recommended uses for soil types and additives
- Correctly use soil additives, growing mediums, mulches, and composts
- Correctly prepare the ground for planting a full range of plants and trees
- Prepare the soil area, turfing, firming it and levelling it as prescribed
- Prepare soil area for seeding a lawn
- Test soil to determine and evaluate best use

7	**Planting and care of plants and trees**	25

The individual needs to know and understand:

- The classifications and botanical names of plants, shrubs, vegetables, herbs, fruits, and trees and how and when they are best used
- Plant growth and development and the impact on garden design and in a dynamic living environment
- Conditions that suit various plants, shrubs, and trees
- Different types of grass and lawn materials and their best uses
- Maintenance regimes for various plants, shrubs, and trees
- Diseases and pests that harm plants, shrubs, and trees
- Treatments for pests and diseases
- Sustainable, natural treatments for pests and diseases
- Safe handling, use and storage of chemicals used in landscape gardening
- Environmental and sustainable factors related to the use of chemicals

Section		Relative importance (%)
	The individual shall be able to: • Prepare plants and trees for planting by removing packaging and protective coverings and ensuring the plants are in good condition • Prepare soil and planting areas • Handle and plant trees and/or shrubs • Handle and plant perennials, annuals and/or ground cover in prepared planning beds • Plant selected plants appropriately spaced to account for growth patterns and visual impact • Design and plant areas that will look mature and natural on completion • Handle and plant vegetables and herbs for both crop and decoration • Maintain ongoing care of plants • Install sods/turfs or slabs with joints as prescribed • Finish turf areas by rolling or flattening for firm contact between root mass and soil, and eliminate bumps or hollows and spaces • Seed lawns • Provide on-going care and maintenance for lawns or turfed areas	
8	**Garden technology (plumbing, electrical, drainage, and irrigation)**	**5**
	The individual needs to know and understand: • Principles of plumbing and drainage in garden settings • Principles of and types of irrigation systems • The collection, storage, and use of rainwater • The use, installation, and maintenance of water butts, water storage solutions, and irrigation systems • Principles of electrical installation in a garden setting • Health and safety requirements for the use, installation and maintenance of electrical and plumbed products and features • Legislation that affects the installation and use of electrical and plumbed products and features	
	The individual shall be able to: • Install, connect, and test low-voltage system wiring, and components as prescribed for lighting, cooling, sound, and heat • Install drainage structures such as drain inlets, catch basins, underground piping, and/or storage basins as prescribed • Install systems for collecting and suing rainwater • Install, connect, test and troubleshoot in-ground irrigation system components as prescribed	

Section		Relative importance (%)
9	**Water features**	5
	The individual needs to know and understand: • The variety of ponds, water features, and fountains used in landscape gardening • How to install and maintain water features • The processes for installing swimming pools and hot tubs • Appropriate planting methods for ponds and water features • Ongoing cleaning and maintenance requirements of water features	
	The individual shall be able to: • Install flexible pond-liners and prefabricated ponds • Plant ponds and lakes with water plants • Install all types of water feature • Install swimming pools and hot-tubs • Install and check all related pumps, plumbing, cleaning systems, and electric • Provide ongoing care and maintenance for water features and ponds	
	Total	**100**

References for industry consultation

WorldSkills is committed to ensuring that the WorldSkills Occupational Standards fully reflect the dynamism of internationally recognized best practice in industry and business. To do this WorldSkills approaches a number of organizations across the world that can offer feedback on the draft Description of the Associated Role and WorldSkills Occupational Standards on a two-yearly cycle.

In parallel to this, WSI consults three international occupational classifications and databases:

- ISCO-08: (http://www.ilo.org/public/english/bureau/stat/isco/isco08/) ILO 6113
- ESCO: (https://ec.europa.eu/esco/portal/home)
- O*NET OnLine (www.**onet**online.org/)

This WSOS appears most closely to relate to *Landscape Gardener*:
http://data.europa.eu/esco/occupation/1009be17-7efd-45f1-a033-566bf179c588

O*net: roles are either basic or supervisory.
https://www.onetonline.org/link/summary/37-3011.00

Adjacent occupations can also be explored through these links.

The following table indicates which organizations were approached and provided valuable feedback for the Description of the Associated Role and WorldSkills Occupational Standards in place for WorldSkills Shanghai 2021.

There were no responses to the requests for feedback this cycle.