

Technical Description

Web Technologies

Information and Communication Technology



WorldSkills International, by a resolution of the Competitions Committee and in accordance with the Constitution, the Standing Orders and the Competition Rules, has adopted the following minimum requirements for this skill for the WorldSkills Competition.

The Technical Description consists of the following:

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1 INTRODUCTION

1.1 NAME AND DESCRIPTION OF THE SKILL COMPETITION

1.1.1 The name of the skill competition is

Web Technologies

1.1.2 Description of the associated work role(s) or occupation(s).

Web technology encompasses many different skills and disciplines in the design, development, production, and maintenance of websites. The skills required of a web developer are diverse, often to the point it is difficult for a developer to excel in all aspects. As a result, a team may cover the Web design process, with each member of the team having their own strengths, specialties, and role in the development process.

Web technologies involve implementing specific solutions by using web technologies that follow the business rules and objectives outlined by the client. Web developers develop a professional relationship with their clients, interacting with them in order to develop a deep understanding of the requirements, and convert these into a website specification. Strong design and communication skills, coupled with research techniques and a grasp of target audiences, markets and trends, will ensure initial client satisfaction.

Having completed the website content strategies, system architecture planning, user interface design, and user experience design, the Web developer then integrates the website with third party tools and platforms. During the development process Web developer implement the design, use their programming skills in order to create dynamic functionalities, test, and debug the website using a variety of devices. The current trend is to also integrate the website with social media to take advantage of the online marketing platforms available.

All these skills may apply equally to the re-design or an upgrade of an existing website.

A Web developer has many employment opportunities. This can range from being a self-employed freelancer, or an entrepreneur, to being employed by advertising agencies and web development companies as well as many different other types of organizations. Web developer positions may be broad in scope or specialize in an area such as graphic design for the Web, user interface design, digital user experience design, front end development, back end development, content management systems developer as well as client and project management. Whichever role a Web developer chooses to specialize in they will need to have access to ICT facilities, open source libraries, and frameworks.

High performing Web developers may have broad or specialist web-related skills. They must understand artistic values, have solid user interface design skills, programming skills, and take personal responsibility for being constantly at the forefront of trends and web technology. They must also be responsive to clients and have the ability to work in structured and unstructured teams and groups. These qualities enable the Web developer to contribute and take advantage of this rapidly developing aspect of modern communications technology.

1.1.3 Number of Competitors per team

Web Technologies is a single Competitor skill competition.

1.1.4 Age limit of Competitors

The Competitors must not be older than 22 years in the year of the Competition.

1.2 THE RELEVANCE AND SIGNIFICANCE OF THIS DOCUMENT

This document contains information about the standards required to compete in this skill competition, and the assessment principles, methods, and procedures that govern the competition.

Every Expert and Competitor must know and understand this Technical Description.

In the event of any conflict within the different languages of the Technical Descriptions, the English version takes precedence.

1.3 ASSOCIATED DOCUMENTS

Since this Technical Description contains only skill-specific information it must be used in association with the following:

- WSI – Competition Rules
- WSI – WorldSkills Standards Specification framework
- WSI – WorldSkills Assessment Strategy
- WSI Online resources as indicated in this document
- WorldSkills Health, Safety, and Environment Policy and Regulations

2 THE WORLDSKILLS STANDARDS SPECIFICATION (WSSS)

2.1 GENERAL NOTES ON THE WSSS

The WSSS 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/WSSS).

The skill competition is intended to reflect international best practice as described by the WSSS, and to the extent that it is able to. The Standards Specification 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 Standards Specification 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 Specification. This is often referred to as the “weighting”. The sum of all the percentage marks is 100.

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

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

2.2 WORLDSKILLS STANDARDS SPECIFICATION

SECTION		RELATIVE IMPORTANCE (%)
1	Work organization and management	6
	<p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> Principles and practices that enable productive team work The principles and behaviour of systems The aspects of systems that contribute to sustainable products, strategies and practices How to take initiatives and be enterprising in order to identify, analyse and evaluate information from a variety of sources How to identify multiple solutions to a problem and offer them as options against time, budget, and other constraints. How to use existing available tools to create proper solutions to a problem and requirement 	
	<p>The individual shall be able to:</p> <ul style="list-style-type: none"> Troubleshoot common web design and development problems Take into account time limitations and deadlines Debug and handle errors Use a computer or a device and a range of software packages Apply research techniques and skills to keep up-to-date with the latest industry guidelines Plan each day's production schedule according to available time Include linked images, fonts, native files and production file format when archiving Use version control systems 	
2	Communication and interpersonal skills	6
	<p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> How to solve communication problems including identifying the problem, research, analysis, solution generating, prototyping, user testing and outcome evaluation Express design concepts by creating wire frames, and flowcharts Software design concepts and techniques including flowchart and ER diagrams 	
	<p>The individual shall be able to:</p> <ul style="list-style-type: none"> Read and understand specifications documents Deliver a product that responds to client requirements and specification Gather, analyse and evaluate information Interpret standards and requirements Match client requirements Present a concept to meet business requirements 	

3	WebsiteDesign	22
	<p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> • How to follow design principles and patterns in order to produce aesthetically pleasing, creative, and accessible interfaces. • Issues related to the cognitive, social, cultural, accessible, technological and economic contexts for design • How to create and adapt graphics for the web • Different target markets and the elements of design which satisfy each market • Protocols for maintaining a corporate identity, brand and style guide • The limitations of Internet enabled devices and screen resolutions 	
	<p>The individual shall be able to:</p> <ul style="list-style-type: none"> • Create, analyse, and develop visual response to communication problems, including understanding hierarchy, typography, aesthetics, and composition • Create and manipulate and optimize images for the internet • Identify the target market and create a concept for the design • Create responsive designs that function correctly on multiple screen resolutions and/or devices • Transform an idea into an aesthetically pleasing and creative design • Critique draft concepts, colour and typography choices • Create wireframes, prototypes and full user interfaces, considering user experience. 	
4	Layout	22
	<p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> • World Wide Web Consortium (W3C) standards for HTML and CSS • Positioning and layout methods • Usability and interaction design • Accessibility and communication for users with special needs • Cross browser compatibility • Multi device compatibility • Search Engine Optimization (SEO) and performance optimization • How to embed and integrate animations, audio and video where needed • World Wide Web Consortium (W3C) standards for WCAG 	
	<p>The individual shall be able to:</p> <ul style="list-style-type: none"> • Create code that conforms and validates to the W3C standards including the accessibility guidelines • Create accessible and usable web interfaces for a variety of devices and screen resolutions • Use CSS or other external files to modify the appearance of the web interface • Use CSS pre/post-processors • Create and update web interfaces for user proper experience and to assist with search engine performance • Use CSS to develop animations and interactions to the user interface 	

5	Front-End Development	22
	<p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> • JavaScript • How to integrate libraries, frameworks and other systems or features with JavaScript • Use JavaScript pre/post processors and task running workflow 	
	<p>The individual shall be able to:</p> <ul style="list-style-type: none"> • Create website animations and functionalities to assist in context explanations and adding visual appeal • Create and update JavaScript code to enhance a websites functionality, usability and aesthetics • Manipulate data and custom media with JavaScript • Create modular and reusable JavaScript code • Use of open source JavaScript libraries • Manipulate graphical elements using JavaScript 	
6	Back-End Development	14
	<p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> • Object-oriented PHP • Open Source server side Libraries and Frameworks • Connect to server through SSH to operate server-side libraries and frameworks. • How to design and implement databases with MySQL • FTP (File Transfer Protocol) server and client relationships and software packages. • How to manage data exchange between server and client systems • Software design patterns (E.g. MVC (Model View Controller)) • Web application security 	
	<p>The individual shall be able to:</p> <ul style="list-style-type: none"> • Manipulate data making use of programming skills • Protect against security exploits • Integrate with existing code with API (Application Programming Interfaces), libraries and frameworks • Create or maintain database to support system requirements • Create code that is modular and reusable 	
7	Content Management Systems	8
	<p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> • Benefits and limitations of open source Content Management Systems • How to find, choose and implement suitable themes • How to find, choose and implement suitable plugins/modules • How to implement client side functionalities to CMS web sites • Understand the need for maintenance and updates to CMS plugins and modules for security 	
	<p>The individual shall be able to:</p> <ul style="list-style-type: none"> • Install, configure and update Content Management Systems • Install, configure and update CMS plugins/modules • Use and modify open source theme starter to create theme for CMS 	

	<ul style="list-style-type: none">• Create custom themes/templates for Content Management Systems• Create custom plugins/modules• Create custom widgets	
	Total	100

3 THE ASSESSMENT STRATEGY AND SPECIFICATION

3.1 GENERAL GUIDANCE

Assessment is governed by the WorldSkills Assessment Strategy. The Strategy establishes the principles and techniques to which WorldSkills assessment and marking must conform.

Expert assessment practice lies at the heart of the WorldSkills Competition. For this reason, it is the subject of continuing professional development and scrutiny. The growth of expertise in assessment will inform the future use and direction of the main assessment instruments used by the WorldSkills Competition: the Marking Scheme, Test Project, and Competition Information System (CIS).

Assessment at the WorldSkills Competition falls into two broad types: measurement and judgement. For both types of assessment, the use of explicit benchmarks against which to assess each Aspect is essential to guarantee quality.

The Marking Scheme must follow the weightings within the Standards Specification. The Test Project is the assessment vehicle for the skill competition, and also follows the Standards Specification. The CIS enables the timely and accurate recording of marks, and has expanding supportive capacity.

The Marking Scheme, in outline, will lead the process of Test Project design. After this, the Marking Scheme and Test Project will be designed and developed through an iterative process, to ensure that both together optimize their relationship with the Standards Specification and the Assessment Strategy. They will be submitted to WSI for approval together, in order to demonstrate their quality and conformity with the Standards Specification.

Prior to submission for approval to WSI, the Marking Scheme and Test Project will liaise with the WSI Skill Advisors in order to benefit from the capabilities of the CIS.

4 THE MARKING SCHEME

4.1 GENERAL GUIDANCE

This section describes the role and place of the Marking Scheme, how the Experts will assess Competitors' work as demonstrated through the Test Project, and the procedures and requirements for marking.

The Marking Scheme is the pivotal instrument of the WorldSkills Competition, in that it ties assessment to the standards that represent the skill. It is designed to allocate marks for each assessed aspect of performance in accordance with the weightings in the Standards Specification.

By reflecting the weightings in the Standards Specification, the Marking Scheme establishes the parameters for the design of the Test Project. Depending on the nature of the skill and its assessment needs, it may initially be appropriate to develop the Marking Scheme in more detail as a guide for Test Project design. Alternatively, initial Test Project design can be based on the outline Marking Scheme. From this point onwards the Marking Scheme and Test Project should be developed together.

Section 2.1 above indicates the extent to which the Marking Scheme and Test Project may diverge from the weightings given in the Standards Specification, if there is no practicable alternative.

The Marking Scheme and Test Project may be developed by one person, or several, or by all Experts. The detailed and final Marking Scheme and Test Project must be approved by the whole Expert Jury prior to submission for independent quality assurance. The exception to this process is for those skill competitions which use an independent designer for the development of the Marking Scheme and Test Project. Please see the Rules for further details.

Experts and independent designers are required to submit their Marking Schemes and Test Projects for comment and provisional approval well in advance of completion, in order to avoid disappointment or setbacks at a late stage. They are also advised to work with the CIS Team at this intermediate stage, in order to take full advantage of the possibilities of the CIS.

In all cases a draft Marking Scheme must be entered into the CIS at least eight weeks prior to the Competition using the CIS standard spreadsheet or other agreed methods.

4.2 ASSESSMENT CRITERIA

The main headings of the Marking Scheme are the Assessment Criteria. These headings are derived in conjunction with the Test Project. In some skill competitions the Assessment Criteria may be similar to the section headings in the Standards Specification; in others they may be totally different. There will normally be between five and nine Assessment Criteria. Whether or not the headings match, the Marking Scheme as a whole must reflect the weightings in the Standards Specification.

Assessment Criteria are created by the person(s) developing the Marking Scheme, who are free to define criteria that they consider most suited to the assessment and marking of the Test Project. Each Assessment Criterion is defined by a letter (A-I). It is advisable not to specify either the Assessment Criteria, or the allocation of marks, or the assessment methods, within this Technical Description.

The Mark Summary Form generated by the CIS will comprise a list of the Assessment Criteria.

The marks allocated to each Criterion will be calculated by the CIS. These will be the cumulative sum of marks given to each Aspect within that Assessment Criterion.

4.3 SUB CRITERIA

Each Assessment Criterion is divided into one or more Sub Criteria. Each Sub Criterion becomes the heading for a WorldSkills marking form. Each marking form (Sub Criterion) contains Aspects to be assessed and marked by measurement or judgement, or both measurement and judgement.

Each marking form (Sub Criterion) specified both the day on which it will be marked, and the identity of the marking team.

4.4 ASPECTS

Each Aspect defines, in detail, a single item to be assessed and marked together with the marks, or instructions for how the marks are to be awarded. Aspects are assessed either by measurement or judgement.

The marking form lists, in detail, every Aspect to be marked together with the mark allocated to it.

The sum of the marks allocated to each Aspect must fall within the range of marks specified for that section of the skill in the Standards Specification. This will be displayed in the Mark Allocation Table of the CIS, in the following format, when the Marking Scheme is reviewed from C-8 weeks. (Section 4.1)

	CRITERIA								TOTAL MARKS PER SECTION	WSSS MARKS PER SECTION	VARIANCE	
	A	B	C	D	E	F	G	H				
STANDARDS SPECIFICATION SECTION	1	5.00								5.00	5.00	0.00
	2		2.00					7.50		10.00	10.00	0.50
	3								11.00	10.00	10.00	1.00
	4			5.00						5.00	5.00	0.00
	5				10.00	10.00	10.00			30.00	30.00	0.00
	6		8.00	5.00				2.50	9.00	24.50	25.00	0.50
	7			10.00				5.00		15.00	15.00	0.00
TOTAL MARKS		5.00	10.00	10.00	10.00	10.00	10.00	15.00	20.00	100.00	100.00	2.00

4.5 ASSESSMENT AND MARKING

There is to be one marking team for each Sub Criterion, whether it is assessed and marked by judgement, measurement, or both. The same marking team must assess and mark all competitors, in all circumstances. The marking teams must be organized to ensure that there is no compatriot marking in any circumstances. (See 4.6.)

4.6 ASSESSMENT AND MARKING USING JUDGEMENT

Judgement uses a scale of 0-3. To apply the scale with rigour and consistency, judgement must be conducted using:

- benchmarks (criteria) for detailed guidance for each Aspect (in words, images, artefacts or separate guidance notes)
- the 0-3 scale to indicate:
 - 0: performance below industry standard
 - 1: performance meets industry standard
 - 2: performance meets and, in specific respects, exceeds industry standard
 - 3: performance wholly exceeds industry standard and is judged as excellent

Three Experts will judge each Aspect, with a fourth acting as a judge where required to prevent compatriot assessment.

4.7 ASSESSMENT AND MARKING USING MEASUREMENT

Three Experts will be used to assess each aspect. Unless otherwise stated only the maximum mark or zero will be awarded. Where they are used, the benchmarks for awarding partial marks will be clearly defined within the Aspect.

4.8 THE USE OF MEASUREMENT AND JUDGEMENT

Decisions regarding the selection of criteria and assessment methods will be made during the design of the competition through the Marking Scheme and Test Project.

4.9 COMPLETION OF SKILL ASSESSMENT SPECIFICATION

Competitors will be given all the necessary materials prior to the commencement of each module.

Criteria for measurement marking

There can be four different types of measurement criteria in the Test Project. In the table below is the explanation of the types.

TYPE	EXAMPLE	MAXIMUM MARKS	CORRECT	NOT CORRECT
Full or zero marks	Site Map dynamically linked to menu	0.50	0.50	0
Deduct from full marks	Code validate to HTML 1.0 Strict [deduct 0.5 mark for each type of error]	2.00	2.00	0 – 1.5
Add to zero marks	CSS documentation (0.5) HTML documentation (0.5)	1.0	1.0	0 – 0.5
Speed marks	Calculated based on what time Competitors complete a set task.			

4.10 SKILL ASSESSMENT PROCEDURES

Each Expert will perform as a member of a module group of the final Test Project.

Experts will be divided into module groups allocating equal measurement and judgement marking where possible. The composition of the module groups will be decided by the Skill Management Team with the aim of having a balance of new and experienced Experts in each.

Experts will be divided into different cultural groups for judgement marking where possible.

Technologies such as frameworks and open source Content Management Systems (CMS) will be selected and finalized in the Discussion Forum during Competition Preparation Week. All technologies must have a minimum of three Experts who have a high-level understanding of the technology.

5 THE TEST PROJECT

5.1 GENERAL NOTES

Sections 3 and 0 govern the development of the Test Project. These notes are supplementary.

Whether it is a single entity, or a series of stand-alone or connected modules, the Test Project will enable the assessment of the skills in each section of the WSSS.

The purpose of the Test Project is to provide full, balanced and authentic opportunities for assessment and marking across the Standards Specification, in conjunction with the Marking Scheme. The relationship between the Test Project, Marking Scheme and Standards Specification will be a key indicator of quality, as will be its relationship with actual work performance.

The Test Project will not cover areas outside the Standards Specification, or affect the balance of marks within the Standards Specification other than in the circumstances indicated by Section 2.

The Test Project will enable knowledge and understanding to be assessed solely through their applications within practical work.

The Test Project will not assess knowledge of WorldSkills rules and regulations.

This Technical Description will note any issues that affect the Test Project's capacity to support the full range of assessment relative to the Standards Specification. Section 2.1 refers.

5.2 FORMAT/STRUCTURE OF THE TEST PROJECT

The format of the Test Project is modular with separately assessed tasks.

5.3 TEST PROJECT DESIGN REQUIREMENTS

Test Project modules are to be developed within the framework of the WorldSkills Standards Specification.

Module Experts will lead other Experts through the development of the Test Project modules, which are disclosed at the Competition. The Skill Management Team chooses Module Experts as soon as they have the information of the participating Members.

5.4 TEST PROJECT DEVELOPMENT

The Test Project MUST be submitted using the templates provided by WorldSkills International (www.worldskills.org/expertcentre). Use the Word template for text documents and DWG template for drawings.

5.4.1 Who develops the Test Project or modules

The individual modules are developed by separate module groups. Each group creates one or more modules. Each group is led by a module Expert. These modules will be changed for the competition for at least 30% by skill competition manager and/or an Independent Designer.

5.4.2 How and where is the Test Project or modules developed

By the individual private module group on the Discussion Forum and minimum 30% changes made by the Skill Competition Manager and/or an Independent Designer.

5.4.3 When is the Test Project developed

Option 1:

The circulated versions of each module will be ready and sent to the WorldSkills Director of Skills Competitions to be made available via the WorldSkills website three (3) months before the competition. The Test Project modules will be changed a minimum of 30% by the module groups prior to the competition within the Discussion Forum. Surprise modules may be developed with an industry partner – these will be kept confidential until the Competition.

Option 2:

The circulated versions of each module will be ready and sent to the WorldSkills Director of Skills Competitions to be made available via the WorldSkills website three (3) months before the competition. The Test Project modules will be changed a minimum of 30% by the Skill Competition Manager and/or an industry partner.

The Test Project is developed according to the following timeline:

TIME	ACTIVITY
Seven (7) months prior to the Competition	Experts are divided into Test Project Module Groups by the CE and DCE. Each group of Experts will develop a specific module on a closed forum lead by their Module Expert.
Five (5) months prior to the Competition	First drafts of each module will be posted on the forum in the respective private Module Group forum area.
Three (3) months prior to the Competition	Circulated Test Project modules are sent to the WorldSkills Director of Skills Competitions to be distributed via the WorldSkills International website.
Three (3) months prior to the Competition	<p>Option one: After the Circulated Project has been sent to the WorldSkills Director of Skills Competitions the Module Groups in the forum will start work on the minimum 30% change to their Test Project modules within the respective private Module Group forum area.</p> <p>Option two: After the Circulated Project has been sent to the WorldSkills Director of Skill Competitions will provide the Pre-Competition Files and an example past Pre/Final Competition Documentation to an industry partner. The Pre-Competition will then be changed by a minimum 30%. This change will be presented to all Experts at the Competition. The 30% change will be kept confidential and will not be disclosed to any other Expert outside of the Module Group or to any Competitor.</p>
At the Competition	<p>Option one: The Module Lead Expert for each Expert Module Group presents their Test Project module(s) with the minimum 30% change to all Experts. All Test Project files will be finalized.</p> <p>Option two: The independent agency presents their Test Project module(s) with the minimum 30% change to all Experts. All Test Project files will be finalized.</p>
At the Competition	Interpreters will have the opportunity to translate all Test Project files where required.

5.5 TEST PROJECT VALIDATION

The final Test Project modules will be validated by the respective module group prior to the Competition. The Skill Competition Manager will provide assistance to Module Groups for the validation of projects. Module groups will ensure that:

- The module can be completed in the specified time;
- The module can be completed with the provided material and media files;
- The marking schemes are appropriately developed;
- The Test Project meets the WorldSkills Standards Specification.

5.6 TEST PROJECT SELECTION

Within each Module Group, the Module Lead Expert will lead the development of a Test Project module(s). Experts will work collaboratively on the development of their Test Project module. Experts are required to participate in the Discussion Forum to:

- Discuss and/or vote;
- Ask questions;
- Provide feedback;
- Develop their Test Project module(s).

If an Expert is absent from the Discussion Forum at the time the discussion and/or vote takes place the particular matter will not be raised or voted upon again, as per Competition Rules. If Experts are not participating in discussion within the Discussion Forum they will have their assessment privileges revoked and become observers.

5.7 TEST PROJECT CIRCULATION

The Test Project is circulated via the website as follows:

Three months before the current Competition.

5.8 TEST PROJECT COORDINATION (PREPARATION FOR COMPETITION)

Coordination of the Test Project will be undertaken by the Skill Competition Manager with assistance from module Experts.

5.9 TEST PROJECT CHANGE AT THE COMPETITION

Independent Designer or the Skills Competition Manager or Module Groups make changes to modules. Every module is changed at least 30%. The 30% change can be for example: change the provided media of the task, make a new version of one of the tasks or add an extra task to the module. Any decisions made by Experts in the forum during the preparation period are made within the accordance of the Competition Rules.

During the Competition a Surprise Module may be developed and introduced by a group of Experts or the Skills Competition Manager. This Surprise Module may be a short 'speed' module where Competitors need to use their problem-solving skills. The 'speed' module will not be revealed to other Experts or Competitors and it will be hidden from timetables. The developing Experts will be restricted from any contact with others during this time.

5.10 MATERIAL OR MANUFACTURER SPECIFICATIONS

Specific material and/or manufacturer specifications required to allow the Competitor to complete the Test Project will be supplied by the Competition Organizer and are available from www.worldskills.org/infrastructure located in the Expert Centre.

Each module group and independent agency creates the media files where required for their module.

6 SKILL MANAGEMENT AND COMMUNICATION

6.1 DISCUSSION FORUM

Prior to the Competition, all discussion, communication, collaboration, and decision making regarding the skill competition must take place on the skill specific Discussion Forum (<http://forums.worldskills.org>). Skill related decisions and communication are only valid if they take place on the forum. The Skill Competition Manager (or an Expert nominated by the Skill Competition Manager) will be the moderator for this Forum. Refer to Competition Rules for the timeline of communication and competition development requirements.

6.2 COMPETITOR INFORMATION

All information for registered Competitors is available from the Competitor Centre (www.worldskills.org/competitorcentre).

This information includes:

- Competition Rules
- Technical Descriptions
- Marking Schemes
- Test Projects
- Infrastructure List
- WorldSkills Health, Safety, and Environment Policy and Regulations
- Other Competition-related information

6.3 TEST PROJECTS [AND MARKING SCHEMES]

Circulated Test Projects will be available from www.worldskills.org/testprojects and the Competitor Centre (www.worldskills.org/competitorcentre).

6.4 DAY-TO-DAY MANAGEMENT

The day-to-day management of the skill during the Competition is defined in the Skill Management Plan that is created by the Skill Management Team led by the Skill Competition Manager. The Skill Management Team comprises the Skill Competition Manager, Chief Expert, and Deputy Chief Expert. The Skill Management Plan is progressively developed in the six months prior to the Competition and finalized at the Competition by agreement of the Experts. The Skill Management Plan can be viewed in the Expert Centre (www.worldskills.org/expertcentre).

7 SKILL-SPECIFIC SAFETY REQUIREMENTS

Refer to Host country or region WorldSkills Health, Safety, and Environment Policy and Regulations for Host country or region regulations.

8 MATERIALS AND EQUIPMENT

8.1 INFRASTRUCTURE LIST

The Infrastructure List details all equipment, materials and facilities provided by the Competition Organizer.

The Infrastructure List is available at www.worldskills.org/infrastructure.

The Infrastructure List specifies the items and quantities requested by the Skill Competition Manager on behalf of the Experts for the next Competition. The Competition Organizer will progressively update the Infrastructure List specifying the actual quantity, type, brand, and model of the items. Items supplied by the Competition Organizer are shown in a separate column.

At each Competition, the Skill Competition Manager must review, audit, and update the Infrastructure List in partnership with the Technical Observer in preparation for the next Competition. The Skill Competition Manager must advise the Director of Skills Competitions of any requests for increases in space and/or equipment.

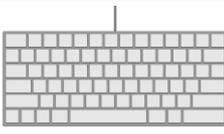
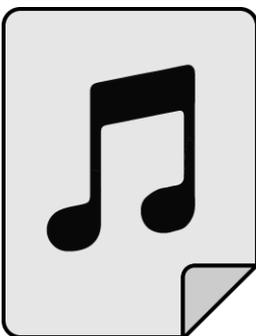
The Infrastructure List does not include items that Competitors and/or Experts are required to bring and items that Competitors are not allowed to bring – they are specified below.

8.2 COMPETITOR'S TOOLBOX

There is no need for Competitors to pack a toolbox – the items listed in Section 8.3 can be packed in checked luggage.

8.3 MATERIALS, EQUIPMENT, AND TOOLS SUPPLIED BY COMPETITORS IN THEIR TOOLBOX

Competitors may bring the following items:

NR.	ITEM	PICTURE
1	A maximum of one mouse;	
2	Mousepad;	
3	A maximum of one USB keyboard in the Competitors desired language. Note: If the keyboard brought by the Competitor does not work then a standard keyboard will be provided by the Competition Organizer;	
4	Language file for Microsoft OS to make the keyboard work correctly;	
5	Headset and extension cable.	
6	Music Competitors will be allowed to supply on Familiarization Day a memory stick containing a maximum of 30 songs. All music will be collated, verified, and shared amongst all Competitors	

All materials brought in by the Competitors must not have any internal memory storage devices. The Web Design Experts and Workshop Manager have the right to disallow certain equipment brought by Competitors.

Backup equipment is allowed in case of failure.

8.4 MATERIALS, EQUIPMENT, AND TOOLS SUPPLIED BY EXPERTS

During the competition Competitors may have access to a limited number of Internet resources as required for each individual Module. Not all modules will make use of Internet resources. Except for these Internet resources, Competitors will not have access to the Internet from the Competitor workstations.

A common Internet workstation will be setup which Competitors can make use of twice a day (eight sessions - over the four days of competition). A maximum of ten minutes will be allocated to each session and any unused time cannot be re-allocated. Competitor Internet workstation sessions are not to be used consecutively; a minimum of one session must separate the use of the Internet workstation. During the time on the Internet workstation, Competitors are only allowed to surf the web. Competitors are not allowed to chat or communicate with others during the time on the Internet workstation. Experts will supervise the Internet workstation when it is in use by a Competitor. Notes may be taken between the Competitors workstation and the internet workstation.

8.5 MATERIALS AND EQUIPMENT PROHIBITED IN THE SKILL AREA

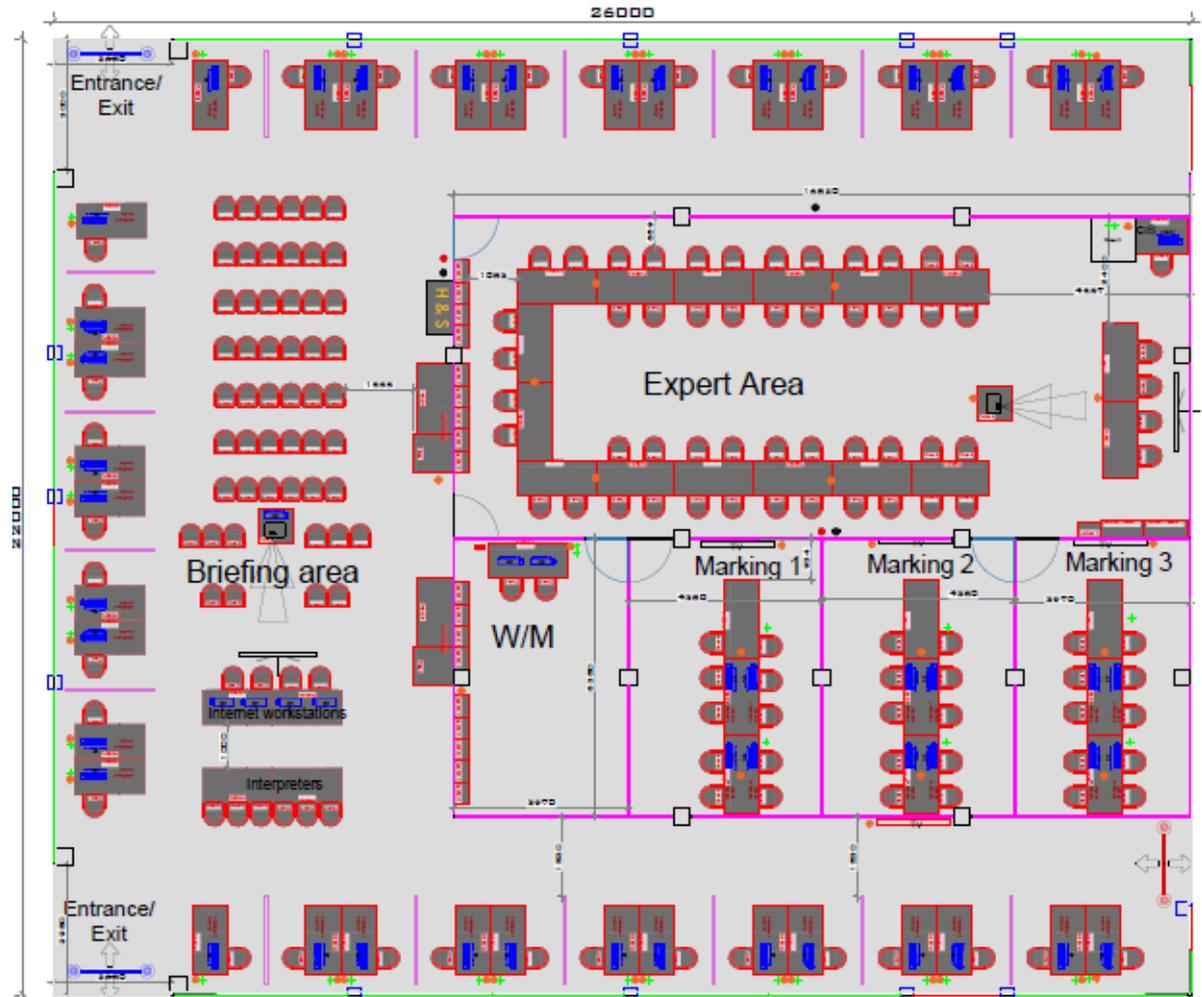
- Extra software;
- Mobile phones;
- Tablet devices;
- Photography/Video devices;
- Memory sticks;
- Equipment must not have any internal memory storage devices.

Note: The Chief Expert, Deputy Chief Expert, and Workshop Manager have the right to disallow equipment brought by Competitors.

8.6 PROPOSED WORKSHOP AND WORKSTATION LAYOUTS

Workshop layouts from previous competitions are available at www.worldskills.org/sitelayout.

Example workshop layout:



9 SKILL-SPECIFIC RULES

Skill-specific rules cannot contradict or take priority over the Competition Rules. They do provide specific details and clarity in areas that may vary from skill competition to skill competition. This includes but is not limited to personal IT equipment, data storage devices, internet access, procedures and work flow, and documentation management and distribution.

TOPIC/TASK	SKILL-SPECIFIC RULE
Use of technology – USB, memory sticks	<ul style="list-style-type: none"> • Experts – Experts are allowed to bring USB/memory sticks into the Expert Meeting Room. USB/memory sticks will be allowed to be taken outside of the meeting room at the end of each day. • Competitors – Competitors are not allowed to bring USB/memory into the workshop.
Use of technology – personal laptops	<ul style="list-style-type: none"> • Experts – Experts are allowed to bring laptops into the Expert Meeting Room. Laptops will be allowed to be taken outside of the meeting room at the end of each day. • Competitors – No laptops are allowed in the workshop.
Use of technology – personal cameras	<ul style="list-style-type: none"> • Experts – Experts are allowed to bring cameras into the Expert Meeting Room. Cameras will be allowed to be taken outside of the meeting room at the end of each day. • Competitors – No cameras are allowed in the workshop until the completion of competition on day four.
Use of technology – mobile devices	<ul style="list-style-type: none"> • Experts – No electronic devices are to be brought to any Competitors workstations under any circumstances unless with the approval of either the Chief or Deputy Chief Experts. • Competitors – Electronic devices (Including mobile phones) must stay in Competitor bags (switched off or on silent) within the lockers provided. No electronic devices are to be brought to Competitors workstations under any circumstances unless with the approval of either the Chief or Deputy Chief Experts.
Source file/notes	<ul style="list-style-type: none"> • Competitors – No notes may be brought into the workshop under any circumstances. All notes made at the Competitor workstation must remain on the Competitors desk at all times. No notes may be taken outside of the workshop.
Internal Storage	<ul style="list-style-type: none"> • Competitors - All materials brought in by the Competitors must not have any internal memory storage devices. • The Web Design Experts and Workshop Manager have the right to disallow certain equipment brought by Competitors.
Equipment failure	<ul style="list-style-type: none"> • Competitors – In the occurrence of equipment failure Competitors must notify Experts immediately by raising their hand. Experts will take note of the time that the Competitor is not able to make use of their equipment. Any time lost due to equipment failure will be provided to the Competitor at the end of the standard Module time. • No additional time will be granted for work not saved prior to the equipment failure.

TOPIC/TASK	SKILL-SPECIFIC RULE
Final Test Projects	<ul style="list-style-type: none"> Competitors - Final Test Projects for all Competitors will be backed up and made available to all Competitors at the conclusion of the competition.
Competitors Internet Workstation	<ul style="list-style-type: none"> Competitors - A common Internet workstation will be setup which Competitors can make use of twice a day (eight sessions - over the four days of competition). A maximum of ten minutes will be allocated to each session and any unused time cannot be re-allocated. Competitor Internet workstation sessions are not to be used consecutively; a minimum of one session must separate the use of the Internet workstation. During the time on the Internet workstation, Competitors are only allowed to surf the web. Competitors are not allowed to chat or communicate with others during the time on the Internet workstation. Experts will supervise the Internet workstation when it is in use by a Competitor.
Competitors Workstation Internet	<ul style="list-style-type: none"> Competitors – During the competition Competitors may have access to a limited number of Internet resources as required for each individual Module. Not all modules will make use of Internet resources. Except for these Internet resources, Competitors will not have access to the Internet from the Competitor workstations. No additional websites may be visited under any circumstance.
Music	<ul style="list-style-type: none"> Competitors - Competitors will be allowed to supply on Familiarization Day a memory stick containing a maximum of 20 un-edited songs. In addition to the memory stick, Competitors may also supply a maximum of three original music CDs. All music will be collated and shared amongst all Competitors.
Familiarization Day	<ul style="list-style-type: none"> Competitors - During Familiarization Day Competitors cannot use the available time to work on or solve any tasks related to the Competition. Prior to completing Familiarization all Competitors need to clean their respective computers removing all the files created/used to test the software. This includes the removal of all databases which have been created.
Breaks	<ul style="list-style-type: none"> Competitors - No extra time will be given to Competitors who stop work during competition time to go to the bathroom or for those who break for a food and/or drink. When time is completed all Competitors must stop all work on their computer immediately.
Marking Rooms	<ul style="list-style-type: none"> Experts – No additional items are allowed to be brought in or out of the Marking Rooms unless approved by either the Chief Expert or Deputy Chief Expert. Competitors – No Competitors are allowed in the Marking Rooms.
Marking	<ul style="list-style-type: none"> Experts – All mark deductions must be accompanied by a short description as to why the mark was not awarded. This description can be made in the Results column.

TOPIC/TASK	SKILL-SPECIFIC RULE
Module Questions	<ul style="list-style-type: none"> • Experts – All questions about the Test Project must be asked in the WorldSkills Forum prior to the day that the Module is to be competed on. Module Experts will then answer questions where required. No questions will be answered unless the question has been asked within the WorldSkills Forum. • Competitors – All questions about the Test Project must be communicated through your Expert.
Module Briefing	<ul style="list-style-type: none"> • Experts – No communication can be made with your Competitor during the Module Briefings. • Competitors – No questions can be asked about the Test Project during the Module Briefings. These questions should have already been asked by your Expert prior to the day that the Module is being competed on.

10 VISITOR AND MEDIA ENGAGEMENT

Following is a list of possible ideas to maximize visitor and media engagement:

- Two mirrored monitors displayed for the public to view Competitors screens;
- Display screens showing a presentation on what competitors are currently working on;
- Enhanced understanding of Competitor activity;
- Career opportunities;
- People's Choice awards.

11 SUSTAINABILITY

This skill competition will focus on the sustainable practices below:

- Recycling – No printing for Competitor workstations;
- No printing of Test Projects. Test Projects will be provided within media files;
- Use of completed Test Projects after Competition;
- Limit the amount of software to be installed on Competitor workstations;
- Open source software.

12 REFERENCES FOR INDUSTRY CONSULTATION

WorldSkills is committed to ensuring that the WorldSkills Standards Specifications 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 Standards Specification 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/>)
- ESCO: (<https://ec.europa.eu/esco/portal/home>)
- O*NET OnLine (www.onetonline.org/)

Your competition appears most closely to relate to *Web Developer*:

<https://www.onetonline.org/link/summary/15-1134.00>

and/or *Web Developer*: <http://data.europa.eu/esco/occupation/c40a2919-48a9-40ea-b506-1f34f693496d>

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 Standards Specification in place for WorldSkills Kazan 2019.

ORGANIZATION	CONTACT NAME
Crosstinker Network and Design Company Limited (China)	Samuel Chan, Owner
Jala Design Pty Ltd (Australia)	Jarrad Langdon, Director
WIZ Technology Co. Ltd (China)	Josephine Ho, Co-Founder
James Good (UK)	James Good, B2B Brand & Marketing Strategist