

TECHNICAL DESCRIPTION

WEB DESIGN



worldskills
international

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WorldSkills International, by a resolution of the Technical 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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Effective 11.10.11



John Shiel
Chair Technical Committee



Stefan Praschl
Vice Chair Technical Committee

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1. INTRODUCTION

1.1 Name and description of skill

1.1.1 The name of the skill is

Web Design.

1.1.2 Description of skill

Web Design is a dynamic and evolving profession incorporating building and maintaining web pages. Web Designers use computer programs to produce pages, which include links to other pages, graphical elements, text and photographs. The layout of these elements can be presented as a script or drawings on paper. Computer software and open source libraries and frameworks are used for technical implementation. In their work, designers and builders must pay attention to copyright laws and ethical questions.

These days anybody can try their hand at Web Design, putting more pressure on professional designers. In order to awaken interest and make visitors stay at a site, designers must learn new techniques and use them to come up with original solutions. When professional rather than amateur sites pull in visitors, the Internet can become an important platform for corporate communications, marketing and trade.

A Web Designer understands the technology and the related artistic values. On websites, technology is used to automate functions and to help content administrators in their work. Creative skills are needed when designing the colors, typography and graphics and their layout on a site. User interface (UI) planning ensures a good user experience (UX). A Web Designer must also understand the basics of project work, content production and site administration.

Compatibility of the end product with standard browsers and software/hardware combinations is important.

1.2 Scope of application

1.2.1 Every Expert and Competitor must know this Technical Description.

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

1.3 Associated documents

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

- WSI - Competition Rules
- WSI - Online resources as indicated in this document
- Host Country - Health and Safety regulations

2. COMPETENCY AND SCOPE OF WORK

The Competition is a demonstration and assessment of the competencies associated with this skill. The Test Project consists of practical work only.

2.1 Competency specification

Web Multimedia Creation and Integration

The Competitor must know and understand:

- How to create interactive animations for the web
- How to embed and integrate animations, audio and video

The Competitor must be able to:

- Create web animation for explanation and visual effect
- Embed and integrate video, audio and animation

Planning and Designing for the Web

The Competitor must know and understand:

- How to create graphics for the web
- How to create a design using a provided brief
- How to observe design principles
- Creative skills which are needed when designing with the use of colors, typography and graphics for the layout and content
- How to determine and apply a design to match a target audience

The Competitor must be able to:

- Plan and explain a design concept, wireframe / storyboard, flowchart
- Create, edit and optimize images for the web
- Maintain a corporate identity and brand
- Design for different screen resolutions and/or devices
- Create effective and intuitive navigation
- Create layout using grid, whitespace, balance text – images, hierarchy

Programming server-side application

The Competitor must know and understand:

- How to do server side programming (PHP)
- How to design, build and use database (MySQL)
- How to use design pattern
- How to utilise coding with Open Source Libraries and Frameworks
- How to create secure applications

The Competitor must be able to:

- Create and/or modify a server side application (Example CMS, web database, web service)
- Use MySQL to interact with a database
- Use design pattern to design the server-side application. (Example Model-View-Controller pattern)
- Protect against security exploits (Example OWASP guideline)
- Utilise open source libraries and frameworks

Client-side Implementation

The Competitor must know and understand:

- How to make a consistent and persistent website / application that follows the industry standards using the latest design technology and coding practices
- How to utilise coding with Open Source Libraries and Frameworks
- How to implement a graphic design that is provided

The Competitor must be able to:

- Create a website that complies with the current W3C standards (<http://www.w3.org>) and current W3C last call drafts.
- Use CSS or other external files to modify the theme of the website
- Optimise for different browsers
- Create a website that is structured for various screen resolutions.
- Utilise open source libraries and frameworks

Observe Usability and Accessibility standards

The Competitor must know and understand:

- How to identify requirements for people with disabilities, including visual, auditory, physical, speech, cognitive, and neurological disabilities
- The way usability helps people to navigate and interact with the web site

The Competitor must be able to:

- Maintain unity and consistency of the website
- Create a website which follows WCAG specifications
- Create an easy-to-use navigation and interface
- Create a web site in which information can be looked up easily
- Add accessibility to the website (for example, visually impaired people)

Problem Solving and Troubleshooting

The Competitor must know and understand:

- How to make a plan for solving a problem
- How to make a plan for testing the solution

The Competitor must be able to:

- Identify and Solve the problem
- Create the solution with provided tools and environments
- Test that the solution is working properly

2.2 Theoretical knowledge

2.2.1 Theoretical knowledge is required but not tested explicitly.

2.2.2 Knowledge of rules and regulations is not examined.

2.3 Practical work

The development of a website often involves a sequence of developmental phases:

- planning
- creating elements for the web site
- client side coding
- server side programming

The process of development may vary involving a different order of phases. The web designer may be provided completed portions of a website such as a completed database or a completed user interface (UI). Through the sequence of developmental phases ongoing testing takes place.

3. THE TEST PROJECT

3.1 Format / structure of the Test Project

Modular with separately assessed standalone sub projects.

3.2 Test Project design requirements

Test Project modules are to be developed within the assessment framework given in paragraph 5.1 *Assessment criteria*.

Experts with Special Responsibility (ESR) lead other Experts through the development of the Test Project modules, which are disclosed at the Competition. The Chief Expert and the Deputy Chief Expert choose ESRs as soon as they have the information of the participating Experts.

There are no further design requirements for the Test Project.

3.3 Test Project development

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

Time	Activity
9 months prior to the Competition	Experts are divided into Test Project module development teams by the CE and DCE. Each group of Experts will develop a specific module on a closed forum lead by their ESR.
6 months prior to the Competition	First drafts of each module will be posted on the forum.
3 months prior to the Competition	Final Test Project modules are sent to the Technical Director for circulation on the WorldSkills International website.
3 months prior to the Competition	After the Final Test Project has been sent to the Technical Director for circulation the Expert groups in the forum will start work on the minimum 30% change to their Test Project modules. The 30% change will be kept confidential and not disclosed to any other Expert outside of the Expert group or to any competitor.
2 months prior to the Competition	The DCE gathers the project data and sends to the WSS.
2 months prior to the Competition	Experts/Translators post the translated public circulated Test Project modules to the forum.
1 month prior to the Competition	Each group of Experts will have a working Project module with the 30% change. Each group must have a Word document highlighting each of the changes between the publically released Test Project and the Test Project with a minimum 30% change. Each group must also have Test Project documentation created for the competitor/translator. All documentation and working project files will be posted to the forum within the Expert group area.
At the Competition	The ESR for each Expert group presents their Test Project module with the 30% change. Experts and Translators have time to review the changes, ask questions and translate the new information.

3.3.1 Who develops the Test Project / modules
The Test Project / modules are developed by:

All Experts

The four modules are developed by four separate Expert groups. Each group creates one module. Each group is lead by an ESR.

3.3.2 How and where is the Test Project / modules developed

By the four Expert groups on the Discussion Forum.

3.3.3 When is the Test Project developed
The Test Project is developed:

6 months before the current Competition.

The first versions of the modules will be completed and uploaded to the forum 6 months before the Competition. The circulated versions of the modules will be ready and sent to the Technical Director for circulation on the website 3 months before the Competition. The Test Project modules will be changed a minimum of 30% by the Expert groups prior to the competition within the forum.

3.4 Test Project marking scheme

Each Test Project must be accompanied by a marking scheme proposal based on the assessment criteria defined in Section 5.

3.4.1 The marking scheme proposal is developed by the person(s) developing the Test Project. The detailed and final marking scheme is developed and agreed by all Experts at the Competition.

3.4.2 Marking schemes should be entered into the CIS prior to the Competition.

3.5 Test Project validation

It must be demonstrated that the Test Project/modules can be completed within the material, equipment, knowledge and time constraints. Each ESR with the support of their expert group will demonstrate this.

3.6 Test Project selection

The Test Project is selected as follows:

Within each Expert group, the ESR will lead the development of a Test Project module. Experts will work collaboratively on the development of their Test Project module. Experts are required to participate in the forum:

- discuss and/or vote,
- ask questions,
- provide feedback,
- develop their Test Project module.

Each Expert group prior to the competition will complete the Test Project modules. Each Test Project module must have a minimum of 30% change when compared to the released public Test Project module.

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.

3.7 Test Project circulation

The Test Project is circulated via WorldSkills International website as follows:

3 months before the current Competition

3.8 Test Project coordination (preparation for Competition)

Coordination of the Test Project will be undertaken by:

The Chief Expert, Deputy Chief Expert and the Workshop Supervisor.

The gathering of project data shall be the responsibility of the Deputy Chief Expert and should be forwarded to the Workshop Supervisor 1 month prior to the Competition.

As soon as the Workshop Supervisor has been selected they will be invited by the Deputy Chief Expert to participate in the online discussion at http://www.worldskills.org/members/forums/forum_17/index.php.

3.9 Test Project change at the Competition

Each of the four module development groups make changes to the modules they are responsible for prior to the competition. The 30% change can be for example: remove one of the tasks in the module, change the provided materials of the task, make a new version of one of the tasks or add an extra task to the module. The 30% change can be made through a discussion and/or vote by the Experts within each Expert group. Any decisions made by Experts in the forum during the preparation period are made within the accordance of the Competition Rules.

3.10 Material or manufacturer specifications

Each module development group creates the materials where required for their module.

4. SKILL MANAGEMENT AND COMMUNICATION

4.1 Discussion Forum

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

4.2 Competitor information

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

This information includes:

- Competition Rules
- Technical Descriptions
- Test Projects
- Other Competition-related information

4.3 Test Projects

Circulated Test Projects will be available from [worldskills.org](http://www.worldskills.org) (<http://www.worldskills.org/testprojects>) and the Competitor Centre (<http://www.worldskills.org/competitorcentre>).

4.4 Day-to-day management

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

5. ASSESSMENT

This section describes how the Experts will assess the Test Project / modules. It also specifies the assessment specifications and procedures and requirements for marking.

5.1 Assessment criteria

This section defines the assessment criteria and the number of marks (subjective and objective) awarded. The total number of marks for all assessment criteria must be 100.

Section	Criterion	Marks		
		Subjective (if applicable)	Objective	Total
A	Web Multimedia Creation and Integration	5	5	10
B	Planning and Designing for the Web	20	15	35
C	Programming server-side application	5	20	25
D	Client-side implementation	5	25	30
	Total =	35	65	100

5.2 Subjective marking

Scores are awarded on a scale of 0 to 10.

5.3 Skill assessment specification

There are to be 4 marking groups. Each group will decide the marking criteria of one module and also the dimensional tolerances on the Objective Marking Form.

There are to be a minimum of 10 and a maximum of 60 aspects of criterion in each module. Competitors will be given all the necessary materials prior to the commencement of each module. It is the responsibility of the Competitor to check the material supplied against the module material list, which will have been previously checked and signed by two Experts.

Criteria for objective marking

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

Type	Example	Maximum points	Correct	Not correct
Full or zero points.	Site Map dynamically linked to menu	0.50	0.50	0
Deduct from full points.	Code validate to XHTML 1.0 Strict [deduct 0.5 mark for each type of error]	2.00	2.00	0 – 1.5
Add to zero point.	CSS documentation (0.5) XHTML documentation (0.5)	1.0	1.0	0 – 0.5

5.4 Skill assessment procedures

- All web publishing guidelines relating to the task will be supplied to the Competitor at the same time as the Test Project.
- The Experts that attend the Competition will be divided into marking groups.
- Experts should have the opportunity to allocate marks in an equal percentage with a margin of 5 %. In addition the allocation of objective and subjective marking should be equivalent for each Expert.
- Experts should be divided as much as possible in to different cultural groups for subjective marking.
- The Test Project will be modular in design and modules will be judged when they are completed.

6. **SKILL-SPECIFIC SAFETY REQUIREMENTS**

Refer to Host Country Health & Safety documentation for Host Country regulations.

- It is recommended that the Competitors take frequent breaks from viewing the computer monitor to relax their eyes.
- It is also recommended that the Competitor bring to the Competition an ergonomic keyboard and/or mouse if they have ailments such as Repetitive Strain Injury or carpal tunnel syndrome.

7. **MATERIALS & EQUIPMENT**

7.1 Infrastructure List

The Infrastructure List details all equipment, materials and facilities provided by the Host Country.

The Infrastructure List is online (<http://www.worldskills.org/infrastructure/>).

The Infrastructure List specifies the items & quantities requested by the Experts for the next Competition. The Competition Organiser will progressively update the Infrastructure List specifying the actual quantity, type, brand/model of the items. Items supplied by the Competition Organiser are shown in a separate column.

At each Competition, the Experts must review and update the Infrastructure List in preparation for the next Competition. Experts must advise the Technical Director of any increases in space and/or equipment.

At each Competition, the Technical Observer must audit the Infrastructure List that was used at that Competition.

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.

7.2 Materials, equipment and tools supplied by Competitors in their toolbox

Competitor may bring the following items:

- Drawing materials
- 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.
- Language file for Microsoft OS to make the keyboard work correctly
- Mouse
- Drawing tablet
- Headset
- Original music CDs

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

7.3 Materials, equipment and tools supplied by Experts

Not applicable

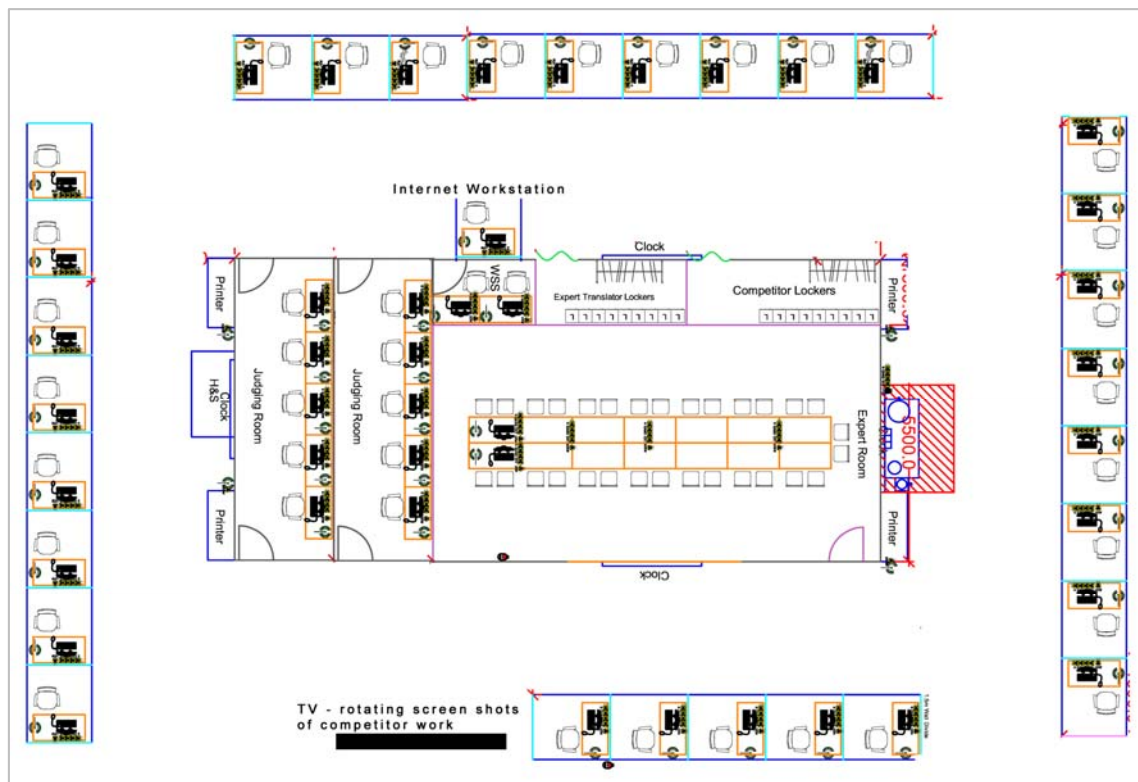
7.4 Materials & equipment prohibited in the skill area

- Extra software
- Mobile phones
- Photography / Video devices
- PDAs
- Memory sticks (data carriers)
- Equipment must not have any internal memory storage devices.
- The Web Design Experts and Workshop Supervisor have the right to disallow certain equipment brought by Competitors.

7.5 Proposed workshop and workstation layouts

Workshop layouts from London are available at:
http://www.worldskills.org/index.php?option=com_halls&Itemid=540

Workshop layout:



8. MARKETING THE SKILL TO VISITORS AND MEDIA

8.1 Maximising visitor and media engagement

- Try a trade
- Display screens showing a combination of Competitor profile and screen capture of current work
- Test Project descriptions
- Enhanced understanding of Competitor activity
- Career opportunities
- People's Choice awards

8.2 Sustainability

- Recycling
- Use of 'green' materials
- Use of completed Test Projects after Competition
- Minimise printing; use PDF and electronic documentation where appropriate.
- Limit the amount of software to be installed on Competitor workstations..