

WorldSkills Standards Specification

# IT Software Solutions for Business

Information and Communication Technology



# THE WORLDSKILLS STANDARDS SPECIFICATION (WSSS)

## 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](http://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.

## WORLDSKILLS STANDARDS SPECIFICATION

SECTION		RELATIVE IMPORTANCE (%)
1	<b>Work organization and management</b>	10
	<p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> <li>• The principles and practices that enable productive team work</li> <li>• How to take initiatives and be enterprising in order to identify, analyse, and evaluate information from a variety of sources</li> <li>• How to design a proper flow of the system that is designed and provide proper notification when needed</li> <li>• How to prepare proper documentation on how to use the system that they build</li> <li>• How to properly prepare the list of requirements by the client and complete the full delivery of system</li> <li>• How to include the company standard (style guide) into the system.</li> </ul>	
	<p>The individual shall be able to:</p> <ul style="list-style-type: none"> <li>• Plan each day's production schedule according to available time and take into account time limitations and deadlines</li> <li>• Apply research techniques and skills to keep up-to-date with the latest industry guidelines</li> <li>• Review own performance against the expectations and needs of the client and organization</li> <li>• Design a proper system flow with notifications when needed</li> <li>• Prepare a good system documentation on how to use, install and run the system</li> <li>• Prepare the complete system to be delivered and in line with client's requirement.</li> <li>• Prepare and implement the style guide to the whole delivered system.</li> <li>• Able to implement the company standard (style guide) to the whole system.</li> </ul>	
2	<b>Communication and interpersonal skills</b>	5
	<p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> <li>• The importance of listening skills</li> <li>• The necessity of using discretion and confidentiality when dealing with clients</li> <li>• The importance of resolving misunderstandings and conflicting demands</li> <li>• The importance of establishing and maintaining customer confidence and productive working relationships</li> <li>• The value of written and oral communication skills</li> <li>• How to provide a proper and understandable documentation of the software solution</li> <li>• How to provide a proper report and communicate the findings, issues and other problems along the way, during the system development and implementation.</li> <li>• Need to know, read, and understand basic IT English (to minimize time for translation)</li> </ul>	

	<p>The individual shall be able to:</p> <ul style="list-style-type: none"> <li>• Use literacy skills to:           <ul style="list-style-type: none"> <li>• Follow documented instructions from a supplied guide</li> <li>• Interpret workplace instructions and other technical documents</li> <li>• Interpret and understand systems specification documents</li> <li>• Keep up-to-date with latest industry guidelines</li> </ul> </li> <li>• Use oral communication skills to:           <ul style="list-style-type: none"> <li>• Discuss and offer suggestions regarding a system specification</li> <li>• Keep client updated regarding system progress</li> <li>• Negotiate with client regarding project budget and timeline</li> <li>• Gather and confirm client requirements</li> <li>• Present the proposed and final software solution</li> </ul> </li> <li>• Use written communications skills to:           <ul style="list-style-type: none"> <li>• Document a software system (e.g. technical document, user guide)</li> <li>• Keep client updated regarding system progress</li> <li>• Confirm that the created application meets the original specifications and obtain user sign-off for completed system</li> </ul> </li> <li>• Use team communication skills to:           <ul style="list-style-type: none"> <li>• Collaborate with others to develop the required outcomes</li> <li>• Work well in group problem solving</li> </ul> </li> <li>• Use project management skills to:           <ul style="list-style-type: none"> <li>• Prioritize and schedule tasks</li> <li>• Allocate resources to tasks</li> </ul> </li> </ul>	
<b>3</b>	<b>Problem solving, innovation, and creativity</b>	<b>10</b>
	<p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> <li>• The common types of problem and requirements which may occur within software development</li> <li>• The common types of problem and requirements which may occur within a business organization</li> <li>• Diagnostic approaches and suitable system or software to problem solving</li> <li>• Trends and developments in the industry including new platforms, languages, conventions, and technical skills</li> <li>• The use of latest technology to be applied in software scenario which requires the ability to demonstrate and provide an over-arching business solution to a problem</li> <li>• How to set-up, develop, and integrate into designed solution the latest technology and hardware that will drive a better business solution.</li> </ul>	

	<p>The individual shall be able to:</p> <ul style="list-style-type: none"> <li>• Use analytical skills to:           <ul style="list-style-type: none"> <li>• Synthesize complex or diverse information</li> <li>• Determine the functional and non-functional requirements of the specification</li> </ul> </li> <li>• Use investigation and learning skills to:           <ul style="list-style-type: none"> <li>• Understand user requirements (e.g. result of interviews, questionnaire, document search and analysis, joint application design, and observation)</li> <li>• Research encountered problems independently</li> </ul> </li> <li>• Use problem-solving skills to:           <ul style="list-style-type: none"> <li>• Identify and resolve problems in a timely manner</li> <li>• Gather and analyse information skilfully</li> <li>• Develop alternatives using the latest technology to support better business solution.</li> <li>• Select the most appropriate alternative to produce the required solution. Some technology may integrate some hardware in the solution.</li> </ul> </li> </ul>	
<b>4</b>	<b>Analysing and designing software solutions</b>	<b>25</b>
	<p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> <li>• The importance of considering all possible options and deriving the best solution based on sound analytical judgment and the client's best interests</li> <li>• The importance of using system analysis and design methodologies (e.g. Unified Modelling Language, Model-View-Control (MVC) software framework, Design Patterns)</li> <li>• The need to be up to date with new technologies and able to make a judgment about the appropriateness of adopting them</li> <li>• The importance of optimization of system design with an emphasis on modularity and reusability</li> <li>• Build data warehouse and required for business intelligence/ executive dashboard</li> <li>• Proper interface and layering for mobile solution</li> </ul>	

	<p>The individual shall be able to:</p> <ul style="list-style-type: none"> <li>• Analyse systems using:           <ul style="list-style-type: none"> <li>• Use Case modelling and analysis (e.g. Use Case Diagram, Use Case Description, Actor Description, Use Case Package)</li> <li>• Structural modelling and analysis (e.g. Object, Class, Domain Class Diagram)</li> <li>• Dynamic modelling and analysis (e.g. Sequence Diagram, Collaboration Diagram, State Diagram, Activity Diagram)</li> <li>• Data modelling tools and techniques (e.g. Entity Relationship Diagram, Normalization, Data Dictionary)</li> </ul> </li> <li>• Design systems using:           <ul style="list-style-type: none"> <li>• Class Diagram, Sequence Diagram, State Diagram, Activity Diagram</li> <li>• Object design and package</li> <li>• Relational or object database design and data flow diagrams</li> <li>• Human-computer interface design/user experience</li> <li>• Security and controls design</li> <li>• Multi-tier application design</li> </ul> </li> </ul>	
<b>5</b>	<b>Developing software solutions</b>	<b>50</b>
	<p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> <li>• The importance of considering all possible options and deriving the best solution to meet the user requirements and the client's best interests</li> <li>• The importance of using system development methodologies (e.g. object-oriented technology)</li> <li>• The importance of considering all normal and abnormal scenarios, and exception handlings</li> <li>• The importance of following standards (e.g. code convention, style guide, user interface designs, managing directories, and files)</li> <li>• The importance of accurate and consistent version control</li> <li>• Using existing code as a basis for analysis and modifications</li> <li>• The importance of selecting the most appropriate development tool from those provided</li> </ul>	

	<p>The individual shall be able to:</p> <ul style="list-style-type: none"> <li>• Use database management system to construct, store, and manage the required data structure and datasets for a system</li> <li>• Use the appropriate software development environments and tools provided to modify existing codes and write new codes of a client-server based software solution</li> <li>• Use the latest software development tools and environments to create or modify a mobile solution, using a physical mobile device according to client requirements</li> <li>• Use latest software development environment and tools to write or modify new codes for system integration using web enabled solutions, web services or through single sign one integration (e.g. using active directory), or an API</li> <li>• Evaluate and integrate appropriate libraries and frameworks into a software solution</li> <li>• Build and maintain multi-tier applications</li> </ul>	
	<b>Total</b>	<b>100</b>

## 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/](http://www.onetonline.org/))

This WSSS (Section 2) appears to be a junior version of *ICT Help Desk Manager*:  
<http://data.europa.eu/esco/occupation/1242d99a-47f1-4a62-b884-33746db8a6ca>.

Adjacent occupations can also be explored through this link.