

*Standards and
Assessment Guide*
Cyber Security

Introduction

Welcome to the Standards and Assessment Guide (SAG), a comprehensive resource designed to support excellence in assessment practices for all skills competitions hosted at the WorldSkills Competition. A key component of the SAG is the commitment to continuous improvement through ongoing review, ensuring that these guides consistently reflect the latest industry innovations and high standards of assessment in an open and transparent manner.

Purpose

The primary purpose of this guide is to provide a structured framework for the consistent and fair assessment of each skill competition. It aims to ensure that all assessments are conducted with a high degree of accuracy, reliability, validity, and reflect global industry standards. By adhering to these guidelines, assessors can maintain the integrity of the competition and uphold the high standards associated with WorldSkills.

Note: this guide is not a replacement for the Marking Scheme and should only be used as a reference when required during the assessment process. Competitors are not allowed to have a copy of this SAG in the workshop in either digital or paper form.

Scope

This document covers general assessment practices applicable to a diverse range of industry sectors including:

- Manufacturing and Engineering Technology
- Information and Communication Technology
- Construction and Building Technology
- Transportation and Logistics
- Social and Personal Services
- Creative Arts and Fashion

Each skill competition has its unique requirements and benchmarks, which are detailed within sections of this guide. The consistency of assessment across each skill is the overarching principle, ensuring a unified approach to evaluating Competitor performance to the highest standards.

Key Components

The guide is structured into several key components, each addressing critical aspects of the assessment process:

Assessment Principles and Objectives

- Emphasis on fairness, transparency, and objectivity in assessments.
- Alignment with global industry standards and best practices.

Assessment Methods and Tools

- Description of various assessment methods in Measurement and Judgement.
- Guidance on the application of appropriate assessment tools and equipment (if applicable).

Criteria and Benchmarks

- Examples of assessment criteria and aspects for each skill, outlining the expected competencies and performance standards.
- Benchmarks for different levels of proficiency i.e. Judgement award range 0, 1, 2, 3 or Yes/No criteria alongside clear measurable descriptors.

Expert assessment requirements

- Completion of the Access Programme.
- Approved Curriculum Vitae (CV).
- Reaching **100%** Expert preparedness.
- Full participation of online and in-person Mandatory Assessment Training (MAT).
- Completion of practical assessment testing at the Competition.

Quality Assurance and Improvement

- Monitoring and evaluation: Ensuring assessments are carried out correctly and produce reliable results.
- Continuous improvement: Using feedback from Experts and Skill Competition Managers to enhance future assessments.
- Periodic review: Regularly updating processes to reflect current industry and WorldSkills standards.

Implementation

For effective implementation, this guide should be used for guidance purposes only and in parallel with the Technical Description for each skill. Experts are encouraged to familiarize themselves thoroughly with both the general guidelines and the particular requirements of their respective skill areas. Collaborative efforts between the Skill Management Team, Experts, and Competitors are vital for achieving the ultimate goal of global skills development.

Conclusion

The Standards and Assessment Guide embodies the commitment of the WorldSkills movement to nurturing talent and promoting the highest standards of vocational education and training worldwide. By providing clear and comprehensive guidance, we aim to empower Experts to conduct marking and assessment practices that are not only rigorous and equitable but also inspiring and transformative for all participants.

Thank you for your dedication to upholding these standards and contributing to the success of the WorldSkills Competition. Together, we can continue to champion skills excellence and celebrate the achievements of talented individuals from around the globe.

Skill 54 – Cyber Security

Judgement

Judgement is used to assess the quality of performance about which there may be small differences of view when applying the external benchmarks.

The Resources column in the table below may include all kinds/formats of resources such as: a link to a YouTube video, a website link, an illustration, a photo, a reference to a book, and so on. It needs to be as detailed as possible to show the differentiation between 0, 1, 2, 3.

Generic rules:

The assessment group comprises three Experts plus one Expert who acts as the supervisor. The supervising Expert will replace an Expert in the marking group to prevent compatriot marking.

The difference of the three Experts' scores may not exceed 1. If this is the situation the Experts must re-score until there is a maximum difference of 1. As long as the three Experts judge within 1, the result can be entered into the CIS.

The total marks allocated to judgement marking may vary from competition to competition depending on the Test Project.

Aspect – Software/script analysis

WSOS section as per TD	Score	Descriptor	Resource
5	0		
	1	- A good effort has been made towards the solution but it doesn't work - Workable solution but with serious logical flaws or deficiencies	
	2	Working solution, perhaps lacking in efficiency or documentation	
	3	Is excellent relative to and exceeds the industry standard – code is fully functional, efficient and cleanly written, with headers and comments meeting industry standards	

WSOS section as per TD	Score	Descriptor	Resource
		Written documentation – in the case of a written evaluation it is important to remember it is a technical competition but NOT an English competition, grading should not be done on grammar, spelling etc. It may also be noted Competitors answer may be filtered through a (non-technical) interpreter. Judgement should be focused on the content of Competitors answer only – completeness, technical accuracy, functionality etc.... Exhaustive technical solution showing is not required (in this example ports/IP ranges etc.) but contains explanation and rationale.	Example: Competitor assessment of network layout topology. Requirement of network segmentation – given network has all systems on same subnet – including clients, internal and external facing servers – looking for assessment and recommendations of suggestions to secure the network
	0	• Solution is missing, or completely non-functional, or wrong	N/A
	1	• There is some solution, but is partially incomplete and not fully functional and not meeting stated written requirements	Create DMZ, place web and mail servers in DMZ – separate from internal network External traffic is only allowed into DMZ
	2	• Solution is good, but possibly missing some small part, lacking justification and/or rationale for solution	Placement of internet facing servers into DMZ including Web and Mail servers Further segmentation of internal network for internal servers onto separate virtual LAN from clients.

WSOS section as per TD	Score	Descriptor	Resource
	3	Solution is complete, technically accurate, and contains justification and rationale for solution	Assessment: all systems are behind firewall, but client systems share same network as servers, if a client is compromised it would have easier access to network resources on same network. Recommendation: Creation of DMZ for Internet facing servers and internal network for servers separate from client network. DNS and Web services in DMZ, file and logon servers in internal server network. Firewall rules can restrict <u>all</u> traffic between these interfaces except those specifically on allowed ports/IPs. in the case of a breach, it is more difficult for an attacker to expand their influence on the network.