Technical Description

IT/Software Applications

worldskills international

TD09 v2.0 - WSC2009

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:

Effective 28.04.09

Liam Corcoran
Technical Committee Chair

1. INTRODUCTION

1.1 Name and description of skill

1.1.1 The name of the skill is Information Technology – Office Software Applications.

1.1.2 Description of skill
This skill covers various uses of Microsoft Office software and graphics programmes. Practical, mathematical and theoretical knowledge is required to use the software (such as the ERD model).

The major areas covered in this skill are: Document Processing, Databases, Spreadsheets and Presentation Graphics. Document Processing covers planning, creating and editing documents according to an agreed standard, linking data from spreadsheets and databases and editing graphics to fit the documents. Document Processing also includes creating web pages. The use of macros will help with various tasks although knowledge of VBA is not required.

Database skills include designing and creating databases. Linking queries, reports and data imported from other programmes provides a powerful data management and reporting tool for industry and commerce. Macros are created to enable repetitive tasks but knowledge of VBA is not required. Spreadsheet skills include designing and creating complex spreadsheets that can be used to create graphs and Pivot tables. Data can be imported from databases, word processing, presentation graphics and web pages.

Presentation graphics tasks involve drawing and editing images, graphics, voice, animation and video files. These will include scanning images and text, and designing and creating slide shows.

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 - Competition Manual
- 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

- Undertake document processing
- Prepare and use a relational database
- Prepare and use spreadsheets
- From a given design create and use spreadsheets
- Produce and amend graphics and drawings

- Create and use macros and make use of software customisation facilities (the Competitor should be able to choose the method of creation/editing - no question should be of the level that could only be resolved using programming tools e.g. Vba)
- Create slide show presentations
- Access, store and use files on a local area network
- Organise files and maintain links between them
- Access different printers on a network
- Import files
- Understand and use basic processes in a business-commercial environment
- Manipulate, present and communicate information in a business/commercial environment
- Prepare electronic files for viewing on the internet
- Access and retrieve data from a restricted on-site intranet
- Export documents to other forms such as, pdf, text, csv files, or html documents

2.2 Theoretical knowledge

2.2.1 Theoretical knowledge is required but not tested explicitly.

- The theoretical knowledge is limited to that necessary to carry out the practical work. Competitors should have general information technology and software knowledge.
- Competitors may be expected to use appropriate formulae and functions to solve problems.
- Competitors will be expected to have the ability to process information, produce documents and presentations related to the scenario.
- Competitors must have reasonable keyboard skills. The level is not important, but a minimum of approximately 25 words per minute will be needed to undertake the project.
- Competitors must have an understanding of basic business processes and the use of Information Technology within a business/commercial environment.
- Competitors must have the ability to solve problems within the scope of this Technical Description.

2.2.2 Knowledge of rules and regulations is not examined.

2.3 Practical work

Competitors are expected to be able to do the following:

Problem-solve using a selection of information technology tools such as:

Database

The Competitor should be prepared to use all the facilities available in Microsoft Access. Some of these functions could include:

- Create, edit, delete, update, append records to tables, including importing data from an appropriate electronic file.
- Follow the business rules outlined in an entity relationship diagram (ERD)
- Produce calculation, delete, update, and/or append queries
- Produce action, cross, parameter and/or select queries to create forms and reports

- Produce queries, forms and main/subforms, switchboard forms
- Produce reports with or without charts
- Sort and filter records to produce queries, forms and reports.
- Insert images files onto and apply various formats to a form or report's header, details and footer.

- Insert a multimedia object to a form.
- Create and change the field layout in a PivotTable or PivotChart report
- Design the layout and format of a PivotTable report
- Filter data in a PivotTable report or PivotChart report

- Format a PivotTable report
- Create macros to automate tasks

- Create customized menus/toolbars to package the application.
- Relate data tables between different databases
- Sort and print selected fields
- Create printed forms and reports
- Importing/Exporting records from/into document processing, spreadsheet, presentation and web page software packages, that contain no more than 8 tables, with each table having no more than 15 fields

- Create hotkey, shortcut key to activate forms and reports.
- Create Help to make the operation of a database more friendly.
- Create Data Access Pages
- Secure a form, report and database using username and password.
- Search and locate records on given fields

- Create and/or modify a given database structure containing up to 12 tables with each table having no more than 15 fields in order to understand and apply entity relationship diagrams.
- Undertake search, sort and indexing activities using the database.
- Edit and modify an existing database and produce queries, forms and reports. **No answer should need to be produced only by SQL statements.**

Document processing

The Competitor should be prepared to use all the facilities available in Microsoft Word. Some of these functions could include:

- Design, create and manipulate business documents to a given standard to meet a given requirement.
- Headers and footers
- Position, layout and scale of imported items
- Use advanced features of document processing software to produce, format, edit and automate documents

- Merge data from spreadsheets, graphics and database files to form informative and well presented reports and web pages comprising text and multi-media;
- Undertake mail merge operations;
- Create and edit macros, templates and produce buttons to automate document processing tasks
- Generate a table of contents and/or index pages

Note: Spell check and thesaurus functions will not be tested.

Spreadsheets

The Competitor should be prepared to use all the facilities available in Microsoft Excel. Some of these functions could include:

- Design and create a spreadsheet of up to 40 rows and 10 columns to solve a problem relating to the scenario and enter data into that spreadsheet.
- Undertake “what if" style reporting from the spreadsheet.
- Edit and modify an existing spreadsheet
- Enter data
- Edit data
- Append data
- Produce charts/graphs
- Print reports

- Create macros and buttons to automate tasks

- Create rows, columns and cells
- Enter of numbers, labels and formulas
- Different formats for number entry and printout
- Enter titles
- Use row and column arithmetic
- Modify the structure of a given spreadsheet
- Hide data columns or ranges

- Print results in numerical and graphical form
- Integrate data with database, document processing, presentation and web software packages
- Use functions to solve problems related to the scenario
- Solver function
- Manipulate multiple spreadsheets, for example linking and embedding data
- Protect spreadsheets
- Hide formulas

Presentations

The Competitor should be prepared to use Graphics software and all the facilities available in Microsoft PowerPoint. Some of these functions could include:

- Draw geometric designs such as floor plans and diagrams. (Freehand items such as people, objects, cartoons etc. are excluded).
- Retrieve, edit and manipulate graphic images. For example rotate, expand, reduce and modify images.
- Produce an electronic file of a graphic that may include layers
- Retrieve, edit and manipulate multi-media files such as sound, animation and video files
- Use presentation software to create a slide show containing information from a variety of sources

- Draw lines of different thickness
- Use of an electronic brush and different in fills
- Use a variety of text fonts
- Correction of a graphic at pixel level
- Apply special effects, for example shadows, colour, extrusion
- Retrieve, edit and regrouping of graphical images from a variety of sources
- Convert a bitmap graphic to a vector graphic

- Create brochures, posters, flyers, etc.
- Create graphs from given data
- Create picture slides from a given printed copy
- Create textual slides as required (including formatting such as bullets, tables etc)
- Combine information as required
- Select timing, sequence and slide change styles
- Apply transitions and animations
- Create and add navigation buttons
- Create, apply and edit templates
- Edit masters
- Import data

- Hide slides
- Use multi-media features e.g. sound, animation, video
- Launch applications from within the presentation
- Create macros for automation

3. THE TEST PROJECT

3.1 Format / structure of the Test Project

The Test Project comprises three independent modules.

It is compulsory for Competitors to complete the database and spreadsheet modules and they may choose between the document processing and presentation modules as their third module.

Each module lasts 7 hours. Common data files will be provided in English only and only English versions of the software will be provided.

Each Test Project module must be at a level that a Competitor can comfortably complete considering age requirements. It should be designed using the standard cover sheets for each module and be self-explanatory, requiring minimal translation.

3.2 Test Project design requirements

Each of the four modules must be based on the scenario agreed by the Experts at the previous WorldSkills Competition. The Chief Expert for the next WorldSkills Competition will prepare an information sheet detailing standard material to be used in the production of the project modules. This shall be done 6 months prior to the Competition date.

This scenario shall include an extensive simulation of workplace activities related to IT and shall be composed of a variety of forms of information gathering, processing and distribution.

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.

Each Expert must register on the Discussion Forum to participate in Test Project development.

3.3.1 Who develops the Test Project / modules

The Test Project / modules are developed by a team of Experts.

3.3.2 How and where is the Test Project / modules developed

The Test Project / modules are developed jointly on the forum.

Each Expert should perform as a member of a team in the preparation of a module.

Four closed groups, each of at least three (3) Experts, will be created to be in charge of the development of each module.

Each person allocated to a team will continue in that development team until a replacement from their home country is found or the task is completed.

Experts will be given an opportunity to select their choice of team. However, in cases where the teams are unbalanced, the Chief Expert may recommend and decide that an Expert should join another team.

Test Project Module team leaders

The team leader should be an Expert with previous experience from a WorldSkills competition (whenever possible) and be nominated by the Chief Expert after consultation with the Deputy Chief Expert and Jury President.

The team leader will work closely with the Chief Expert and the Deputy Chief Expert to allow for the completion of the Project Module. The team leader will be responsible for the completion of each Test Project Module in line with this document and that the proposals are true and correct.

It is the responsibility of the team leader to ensure that each module conforms to the Technical Description, complete with proof of testing (moderation), a timing sheet, and a marking scheme. Model answers should be included.

The Test Project Modules will be available to all Experts and the Competitors 3 months in advance of the competition. The Chief Expert shall coordinate the collection of the necessary material and ensure that it is available on the WorldSkills website.

3.3.3 When is the Test Project developed
The Test Project is developed by 3 months before the current Competition.

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
Each final Test Project Module will be validated by a team of Experts (quality assurance team) who did not develop that module. They will ensure that:

- The project can be completed in the specified time
- The mark schemes are appropriately developed
- The Test Project Module meets the technical description

3.6 Test Project selection
The Test Project is selected by vote of Experts at the Competition.

The members of each Project Module team will propose the final Test Project questions upon their arrival to the competition. All Experts should come with suggested questions and data to contribute to the minimum 30% changes required for all Project Modules.

Quality assurance procedures will ensure that the decision on the final Test Projects will be made in accordance with the Technical Description and the competition rules.

3.7 Test Project circulation
The Test Project is circulated on the WorldSkills International website 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.

3.9 Test Project change at the Competition
Changes to the final Test Projects will be made in the Jury room immediately prior to the Competitors' arrival to the competition site. The changes must be between 30% and 50%.

3.10 Material or manufacturer specifications
Not applicable.

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/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 (agreed by Experts and submitted to the Chair/Vice Chair of the Technical Committee). The Chief Expert is to regularly share updates of the Skill Management Plan via the Forum.

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	Document processing	0	32	32
B	Databases	0	34	34
C	Spreadsheet	0	34	34
D	Presentations	0	32	32
	Total =	0	100	100

Sections B and C are compulsory (34 + 34 = 68) but competitors may choose between Section A and D (giving a total of 68 + 32 = 100)

5.2 Subjective marking

Not applicable.

5.3 Skill assessment specification

The skill assessment criteria are clear concise aspect specifications which explain exactly how and why a particular mark is awarded. (The following is not a definitive list but rather examples of the aspects included in each criterion.)

A – Document processing

- Correct page set-up
- Documents versioned
- Layout and formatting correct
- Fields limited as specified
- Menu bar and entries work correctly
- Tool bar and macro function as specified
- Template attached to documents
- Header and footer applied
- Table of contents created correctly
- Mail merge shows the correct information
- Indent levels correct
- Toggle buttons created and work correctly

B – Databases

- Field name, size and format edited correctly
- Picture embedded correctly
- Deletions, renumbering, additions etc correct
- Correct values
- Control buttons created and function correctly
- Macros created
- Message boxes created
- Navigation buttons created
- Correct spelling
- Charts created correctly
- Create custom menu
- Submenu added to custom menu
- New menu bar displays correctly

C – Spreadsheet

- Formatting – colour, border, lines, gridlines
- Create buttons
- Calculations correct
- Worksheet protected
- Conditional formatting correct
- Chart created
- Chart format correct – gridline type, title, legend
- X and Y axis scale correct
- Fill on chart correct
- Add a scroll bar to chart
- Scroll bar works correctly

D – Presentations

- Transparency
- Alignment
- Consistency in look
- Colour

- Proportion
- Position
- Frames
- Text
- Data sheets
- Image manipulation – bevel, emboss, shadows, texture

5.4 Skill assessment procedures

The marking scheme for each module should be objective and normalised.

The Experts will decide together on the Test Project and the marking criteria on the marking summary sheet.

The Experts will agree on the final marking scheme.

Each Test Project module will be marked by the team who developed that module. They will decide together, according to the marking scheme, on the mark to be allotted for every answer provided by every competitor for that particular module.

6. SKILL-SPECIFIC SAFETY REQUIREMENTS

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

7. MATERIALS & EQUIPMENT

7.1 Infrastructure List

The Infrastructure List lists 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 Host Country will progressively update the Infrastructure List specifying the actual quantity, type, brand/model of the items. Host Country supplied items 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 Secretary General 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

Not applicable.

7.3 Materials, equipment and tools supplied by Experts

Not applicable.

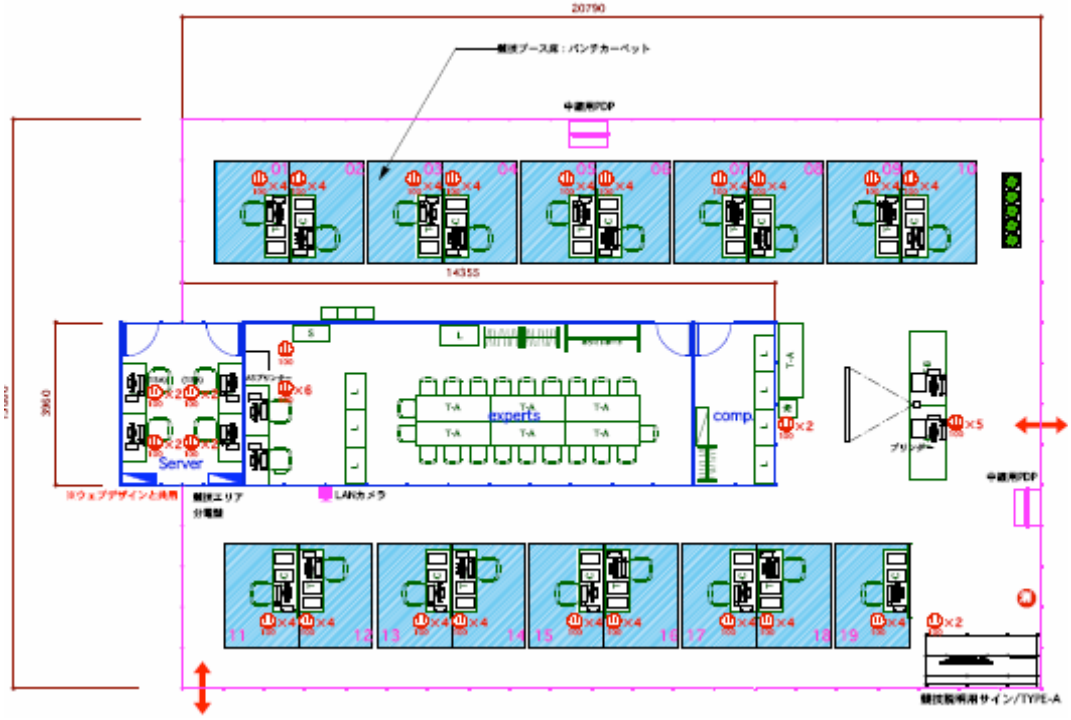
7.4 Materials & equipment prohibited in the skill area

Not applicable.

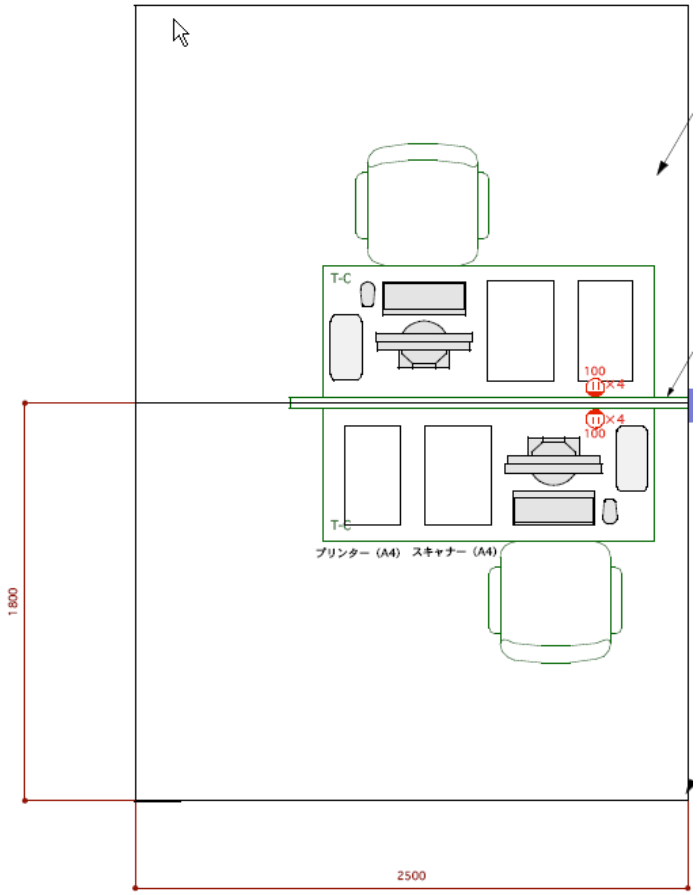
7.5 Sample workshop and workstation layouts

Workshop and workstation layouts from Shizuoka are available at:
http://www.worldskills.org/index.php?option=com_halls&Itemid=318

Workshop layout from previous Competition:



Workstation layout from previous Competition:



8. MARKETING THE SKILL TO VISITORS AND MEDIA

8.1 Maximising visitor and media engagement

- Try a trade
- Display screens
- Test Project descriptions
- Enhanced understanding of Competitor activity
- Competitor profiles
- Career opportunities
- Daily reporting of competition status

8.2 Sustainability

- Recycling
- Use of ‘green’ materials
- Use of completed Test Projects after Competition