



**TECHNICAL  
DESCRIPTION**

# **PRINT MEDIA TECHNOLOGY**



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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# 1 INTRODUCTION

## 1.1 NAME AND DESCRIPTION OF THE SKILL COMPETITION

1.1.1 The name of the skill competition is

Print Media Technology

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

The Print Media Technician is involved with all aspects of the printing process from the initial planning and preparation, through the print run, checking for consistent quality to cleaning up after the print run is complete. The work is usually large scale production of printed materials for a range of clients. Specifically, Print Media Technology involves the production of printed material using an offset sheet-fed press and other equipment to create finished, printed products. This occupation is responsible for producing all printed material at a printing operation.

The Technician will usually work in printing businesses or publishers and will use complex specialist equipment. A detailed knowledge of the equipment and materials used is vital to produce high quality products that comply with the specification in a cost-effective and efficient manner.

The Print Media Technician requires an in-depth knowledge of handling, troubleshooting, and maintaining printing factors such as ink, paper, and equipment. Generally, production of the printed product will use a traditional ink-on-paper process, but increasingly technicians are using toner-on-paper technology for shorter runs and variable data.

Print Media Technicians also have to be able to mix custom ink colours and operate cutting equipment to produce a job to a customer's specifications. Quality control equipment like densitometers and photospectrometres are used to verify and adjust the print quality.

## 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 (when available)
- WSI – Online resources as indicated in this document
- Host Country – Health and Safety 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](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 not be separate tests of knowledge and understanding.

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. 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 (%) |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| <b>1</b> | <b>Work organization and management</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>5</b>                |
|          | <p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> <li>• The types of equipment used to produce printed material and to create finished printed products</li> <li>• New technologies used in printing</li> <li>• Current legislation and best practice relating to health and safety procedures in the workplace and specifically relating to specialist equipment and print factors</li> <li>• The uses of protective equipment and materials</li> <li>• The importance on maintaining cleanliness and order in the working environment</li> <li>• The handling of chemicals used in the print industry and how waste materials should be disposed of</li> <li>• The importance of effective communication skills and team work</li> <li>• Recognized international standards, for example ISO, GRaCOL and Pantone</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                         |
|          | <p>The individual shall be able to:</p> <ul style="list-style-type: none"> <li>• Use all equipment correctly according to manufacturers' instructions</li> <li>• Consistently apply and promote health and safety in the workplace and especially relating to specialist equipment and print factors</li> <li>• Effectively use protective equipment and materials</li> <li>• Maintain a clean and ordered working environment</li> <li>• Handle all chemicals and dangerous materials safely and in accordance with instructions</li> <li>• Dispose of waste materials safely and consistently with maintaining a safe and sustainable environment</li> <li>• Select equipment appropriate for the planned task</li> <li>• Use, handle, store and maintain print factors such as ink, paper and mechanical and digital equipment</li> <li>• Proactively maintain continuous professional development in order to keep up to date with new technologies and trends in the printing industry</li> <li>• Save digital files in proper formats to assure seamless workflow</li> <li>• Quality assure and check all work to verify and adjust details in the quality of the printed work and to ensure that it meets customer's expectations and high standards</li> <li>• Communicate effectively with team members and other colleagues in the work place to ensure a good and productive working environment</li> <li>• Discuss client's requirements and provide expert advice and guidance on printing technology, its possibilities and limitations</li> <li>• Work in such a way as to avoid unnecessary waste</li> </ul> |                         |



| 2 | Planning and Preparation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 25 |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
|   | <p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> <li>• The characteristics of the Offset Printing, toner-based and ink-jet digital materials</li> <li>• The characteristics, uses and interaction of papers, inks, dampening solution, toners and proofing materials</li> <li>• Appropriate chemicals needed for the planned print job</li> <li>• The theory of colours</li> <li>• How to read, understand and analyse a customers' brief</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |    |
|   | <p>The individual shall be able to:</p> <ul style="list-style-type: none"> <li>• Read, understand and interpret a print job brief</li> <li>• Explain to colleagues the content of the brief and plan work for self and others accordingly</li> <li>• Mix custom ink colours to meet customer's specifications</li> <li>• Select and prepare the appropriate printing equipment for the planned job</li> <li>• Programme machinery for correct number of copies, paper size, colour, quality etc.</li> <li>• Perform make-ready operation and adjustment on multi-colour sheet-fed offset press, either with or without remote control consoles</li> <li>• Select and prepare the appropriate print factors, paper, ink etc. for the planned job</li> <li>• Interpret the colour imprint on the printed sheet during make-ready and production</li> <li>• Translate the interpretation of the colour imprint into appropriate action on the press</li> <li>• Use digital printing press RIP (Raster Image Processor) software for file set-up operations like checking/creating, imposition and colour management</li> <li>• Load paper sheets and fill ink ducts</li> <li>• Adjust the feeder, sheet transfer and delivery</li> <li>• Mount offset printing plates</li> <li>• Adjust offset printing pressure</li> <li>• Mix necessary ink colours and adjust the colour register</li> </ul> |    |
| 3 | Press Run                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 25 |
|   | <p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> <li>• Different types of press,, their uses and characteristics</li> <li>• Developing technology that supports the printing process</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |    |
|   | <p>The individual shall be able to:</p> <ul style="list-style-type: none"> <li>• Print a specific amount of printed products on the sheet-fed offset press according to the quality and technical criteria set, industry standard and standard required by the customer</li> <li>• Use presses with either semi-automatic or automatic plate mounting</li> <li>• Use variable data software for digital printing</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |    |



|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>4</b> | <b>Quality Control and Adjustments</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>25</b> |
|          | <p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> <li>• Different types of specialist measuring equipment used in printing</li> <li>• How to interpret measuring results</li> <li>• The importance of ensuring that the print job is of a high standard and meets the customers' needs and expectations</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |           |
|          | <p>The individual shall be able to:</p> <ul style="list-style-type: none"> <li>• Monitor the printing process, ensuring that the work is reaching the expected standard</li> <li>• Adjust settings and programming to maintain quality and to rectify and discrepancies from the specification</li> <li>• Operate measuring and quality control devices</li> <li>• Use different measuring devices like densitometer, spectrophotometer, micrometre, calliper, ph, conductivity etc.</li> <li>• Produce Approved Proof (AP) for customer confirmation and approval</li> <li>• Save individual sheets as prescribed through the print run to quality assure against the original</li> <li>• Compare proof prints to specified targets and make necessary adjustments</li> <li>• Produce print jobs to a specified numerical density and/or LAB target</li> <li>• Maintain the correct colour registration</li> </ul> |           |
| <b>5</b> | <b>Finishing</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>5</b>  |
|          | <p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> <li>• Various processes that may be applied to printed work to finish the product such as folding, cutting and binding</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |
|          | <p>The individual shall be able to:</p> <ul style="list-style-type: none"> <li>• Prepare a cutting plan</li> <li>• Finish printed work by trimming it with a paper cutter to specified dimensions</li> <li>• Programme and use a programmed paper cutter to cut paper to specified dimensions</li> <li>• Operate a paper folding machine as required for to meet the requirements of the specification</li> <li>• Operate a stitcher or perfect binding machine to produce bound printed works</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                           |           |
| <b>6</b> | <b>Troubleshooting</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>10</b> |
|          | <p>The individual needs to know and understand:</p> <ul style="list-style-type: none"> <li>• The financial and virtual time reporting functions of SHOTS</li> <li>• Implications of faulty machinery or set-up in terms of loss of quality, time and money</li> <li>• Maintenance routines for printing equipment</li> <li>• The importance of following manufacturers' instructions</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |



|          |                                                                                                                                                                                                                                                                                                                                                                                                                |          |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|          | <p>The individual shall be able to:</p> <ul style="list-style-type: none"><li>• Solve problems in the SHOTS print simulation programme</li><li>• Perform maintenance and basic repairs on offset presses and finishing equipment</li><li>• Resolve paper feed problems</li></ul>                                                                                                                               |          |
| <b>7</b> | <b>Clean-Up</b>                                                                                                                                                                                                                                                                                                                                                                                                | <b>5</b> |
|          | <p>The individual needs to know and understand:</p> <ul style="list-style-type: none"><li>• The advantages of working in a clean and ordered environment</li></ul>                                                                                                                                                                                                                                             |          |
|          | <p>The individual shall be able to:</p> <ul style="list-style-type: none"><li>• Clean the equipment and premises after the offset, digital and finishing printing process</li><li>• Complete cleaning efficiently, effectively and within prescribed timescales</li><li>• Ensure that cleaning is completed to recognized standards</li><li>• Set back adjustments of the printing equipment to zero</li></ul> |          |





## 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 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 judgment. These are referred to as **objective** and **subjective**, respectively. 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 agreed by the Experts and 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 external designer for the development of the Marking Scheme and Test Project.

In addition, Experts are encouraged 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 the complete and approved 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 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).

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 of assessment 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) has a specified day on which it will be marked.

Each marking form (Sub Criterion) contains either objective or subjective Aspects to be marked. Some Sub Criteria have both objective and subjective aspects, in which case there is a marking form for each.

### 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 objectively or subjectively and appear on the appropriate marking form.

The marking form lists, in detail, every Aspect to be marked together with the mark allocated to it and a reference to the section of the skill as set out in the Standards Specification.

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 |
|---------------------------------|--|----------|--|--|--|--|--|--|--|--|--|-------------------------|
| STANDARD SPECIFICATION SECTIONS |  |          |  |  |  |  |  |  |  |  |  |                         |
|                                 |  |          |  |  |  |  |  |  |  |  |  |                         |
|                                 |  |          |  |  |  |  |  |  |  |  |  |                         |
|                                 |  |          |  |  |  |  |  |  |  |  |  |                         |
|                                 |  |          |  |  |  |  |  |  |  |  |  |                         |
|                                 |  |          |  |  |  |  |  |  |  |  |  |                         |
|                                 |  |          |  |  |  |  |  |  |  |  |  |                         |
|                                 |  |          |  |  |  |  |  |  |  |  |  |                         |
|                                 |  |          |  |  |  |  |  |  |  |  |  |                         |
|                                 |  |          |  |  |  |  |  |  |  |  |  |                         |
| TOTAL MARKS PER CRITERION       |  |          |  |  |  |  |  |  |  |  |  | 100                     |

SAMPLE OF TABLE FROM CIS



## 4.5 SUBJECTIVE MARKING

Subjective marking uses the 10 point scale below. To apply the scale with rigour and consistency, subjective marking should be conducted using:

- benchmarks (criteria) to guide judgment against each Aspect
- the scale to indicate:
  - 0: non attempt;
  - 1-4: below industry standard;
  - 5-8: at or above industry standard;
  - 9-10: excellence.

## 4.6 OBJECTIVE MARKING

A minimum of three experts will be used to judge each aspect. Unless otherwise stated only the maximum mark or zero will be awarded. Where they are used, partial marks will be clearly defined within the Aspect.

## 4.7 THE USE OF OBJECTIVE AND SUBJECTIVE ASSESSMENT

The final deployment of objective or subjective assessment will be agreed when the Marking Scheme and Test Project are finalized. The table below is advisory only for the development of the Test Project and Marking Scheme.

| SECTION      | CRITERION        | MARKS      |            |            |
|--------------|------------------|------------|------------|------------|
|              |                  | Subjective | Objective  | Total      |
| A            | Offset Printing  | 0          | 60         | 60         |
| B            | Digital Printing | 0          | 10         | 10         |
| C            | Maintenance      | 0          | 10         | 10         |
| D            | Additional tasks | 0          | 20         | 20         |
| <b>Total</b> |                  | <b>0</b>   | <b>100</b> | <b>100</b> |
|              |                  |            |            |            |



## 4.8 COMPLETION OF SKILL ASSESSMENT SPECIFICATION

### A – Offset Printing

- Processing and control of the printing materials;
- Print ready operations (set-up) for printing press;
- Making the OK sheet;
- Colour registration;
- Number of copies;
- Colour quality and measuring;
- Cleaning operations;
- Colour Measurement;
- Time Management;
- Print Finishing operations;
- Cleanliness of the working area.

### B – Digital Printing

- Control of the printing process;
- Control of the quality of the printed matter;
- Imposition;
- Time Management;
- Print Finishing operations;
- Printable file checking and managing operations;
- Variable data printing.

### C - Maintenance

- Time Management;
- Producing printing solution and water analysis, like conductivity, alcohol and pH;
- Printing blanket measuring and changing operations;
- Roller and bearing dimensions measuring and analysis;
- Roller and bearing assembly operations;
- Service and maintenance actions for offset printing machine;
- Measuring activities;
- Installation, adjusting and setting rollers to the machine.

### D – Additional Tasks

- Ink mixing;
- Time management;
- Identification of printed defects;
- Identification of substrates type, grain direction, surface and weight;
- Digital file management (pre-flight);
- Print Simulation;
- Plate making and measuring;
- Print quality issues;
- Print finishing operations ;
- Extra tasks for Offset printing module (A);
- Extra tasks for Digital printing module (B);
- Extra tasks for Maintenance module (C).



## 4.9 SKILL ASSESSMENT PROCEDURES

- The marking scale must be developed on the Discussion Forum. This will give the final assessment marks;
- Ensure the number of aspects of criterion is a maximum of 65 in line with the Competition Rules;
- Progressive marking will be used for all sections of the Competition, with daily marking of completed modules and data entry into the CIS;
- Experts are divided into marking teams at the Competition by the Chief Expert. WorldSkills experience, language, culture and continent Member is from are taken into consideration;
- All Experts mark the same aspects for all Competitors;
- All Experts mark the same percentage of marks where possible for the Competition;
- During the Competition three Experts observe one Competitor and write down their marks. Following consensus between the Experts marks will be entered into the CIS;
- After the Competitor has completed the individual modules, Experts will look at the printed jobs and there will be a “blind” marking for each job. Following consensus between the Experts marks will be entered into the CIS;
- For the objective marking, all aspects will be assessed at the same time at the end of each Competition day;
- Once the Test Project is established it will be tested on the Competition site (if possible) so the Experts can test the marking scheme and establish acceptable measurement standards and tolerances.



## 5 THE TEST PROJECT

### 5.1 GENERAL NOTES

Sections three and four 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 and balanced 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.

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 0 refers.

### 5.2 FORMAT/STRUCTURE OF THE TEST PROJECT

The format of the Test Project is a series of standalone modules. The modules consist of at least one live print job and some simulated print jobs.

### 5.3 TEST PROJECT DESIGN REQUIREMENTS

The Test Project modules must be designed to test the Competitors' skills in printing according to the general requirements in the printing industry. The key areas of competence are:

- Meeting the quality requirement;
- Completing the jobs in time;
- Avoiding excessive waste;
- Handling the equipment and the materials in a professional way;
- Observing the safety and environmental regulations.

The structure of the Test Project modules depend on (a) quantity and type of equipment supplied by the Competition Organizer, (b) the number of participating Members. The modules must be designed with those limitations in mind.

The Test Project consists of offset print jobs, one or more digital print job, and some additional tasks. Print jobs should be different from each other in terms of product type, paper grade and print run. Additional tasks should be connected to the print jobs. The Competition timetable specifies the order and timing of the different tasks over the four Competition days.

If it is practically possible, the last of the print jobs could be a product designed earlier at the Competition by Competitor(s) of Skill 40 Graphic Design Technology or WorldSkills designers to maximize the sustainability initiative.



### **Specification of the Test Project**

- The specification for the Test Project modules will be developed within 12 months of the Competition on the Discussion Forum;
- Number of colours: minimum of four colours and/or mixed spot colours;
- Offset printing plates will be supplied to or made by the Competitor;
- Paper for modules will be supplied either cut to printing size or the Competitor may need to trim the feedstock;
- Number of copies to be produced for each module will range from 50 – 5000
- Up to 6 kinds of paper may be specified;
- Quality target for printing jobs: Approved Proof, (later called AP offset-printed sheet) approved by customer (which can be either Experts or Competitors), a specified numerical density and/or LAB targets, specified time and costs (for the print simulator);
- Experts will agree on the Discussion Forum which industry standards will be used for evaluation reference. i.e., ISO, GRaCOL, Pantone, etc.
- Experts may be asked to provide printed sheets with known defects, digital files with known common file defects that will later be used if indicated in the test project.

### **Make ready according to the job ticket (also for print simulator jobs and digital press)**

Instructions to Competitors are provided in the form of a job ticket. The job ticket is finalized after the number of Competitors and presses are known.

- Loading the paper sheets, filling the ink fountains;
- Mounting the Offset-Printing plates;
- Adjusting the feeder, sheet transfer and delivery;
- Adjusting Offset-Printing pressure;
- Mixing necessary (PMS) ink colours;
- Adjusting ink feed and ink profiles;
- Adjusting colour register;
- Producing proof prints, comparing them to the specified targets and making necessary adjustments;
- Make ready is completed when the Competitor produces an OK sheet which corresponds to the AP visually, or the solid ink densities are within specified tolerances of the appropriate ISO standards.

### **Offset-Printing and digital printing according to the job ticket (also for print simulator jobs)**

- Operating the press to produce the required number of copies within the quality tolerances and specified time;
- Making adequate quality assessments and measurements and adjusting the press accordingly;
- Making additional adjustments to the press as required;
- Cleaning the Printing press and carrying out basic maintenance work;
- Set back the adjustments of the printing equipment to zero.

### **Finishing according to the job tickets (also for print simulator jobs)**

- Preparing a cutting plan and programming the paper cutter;
- Cutting the printed product(s) to the required dimensions;
- Fold and bind printed products according to specifications.





### Quality control and adjustments (also for print simulator jobs)

- Checking the quality of materials, the correct operation of the press and the quality of the print throughout make ready and Offset-Printing;
- Maintaining correct colour registration and correct density during the whole process;
- Checking the mixed colours with spectrophotometer;
- Checking the accuracy of trimming;
- Checking the number of good copies and waste;
- Measuring density of the four colours LAB values of pantone colours, of the saved sheets from specified jobs.

## 5.4 TEST PROJECT DEVELOPMENT

The Test Project MUST be submitted using the templates provided by WorldSkills International ([www.worldskills.org/expertcentre](http://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 Test Project/modules are developed by different groups of Experts on the Discussion Forum.

A design team is open to any Member to provide suggestions

### 5.4.2 How and where is the Test Project or modules developed

Independently by an Expert team on the Discussion Forum prior to the Competition and presented by one Expert.

Following the selection of a Test Project module for the next Competition, the Expert who prepared the chosen module will prepare the detailed marking scheme (Subjective and Objective Marking Forms), with assistance from other Experts where necessary. It will be submitted to the Technical Director six months prior to the Competition.

### 5.4.3 When is the Test Project developed

Twelve months before the Competition when the Infrastructure List and the Competitor registrations are known. The sponsor/supplier providing the press equipment will prepare the technical realization of the Test Project.

The Test Project is developed according to the following timeline:

| TIME                                        | ACTIVITY                                                                                                                                                      |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Twelve (12) months prior to the Competition | The specifications of the Test Project are developed on the Discussion Forum.<br>The sponsor/supplier prepares the technical realization of the Test Project. |
| Six (6) months prior to the Competition     | The Test Project modules are submitted to the Technical Director for circulation on the WSI website.                                                          |
| Three (3) months prior to the Competition   | Final parts and changes to the Test Project are circulated on the WSI website.                                                                                |
| At the Competition                          | The 30% change is selected from proposals and discussion on the Discussion Forum prior to the Competition.                                                    |



## 5.5 TEST PROJECT VALIDATION

The Chief Expert will be responsible for ensuring that the Test Project modules can be completed within the constraints of the Competition. These include time, expected skill-level of the Competitors, and materials and equipment provided. The Chief Expert will also ensure that there are no installation requirements that cannot be completed.

## 5.6 TEST PROJECT SELECTION

The Test Project is selected by vote of Experts on the Discussion Forum.

## 5.7 TEST PROJECT CIRCULATION

The Test Project is circulated via the website as follows:

- The Test Project is circulated six months before the Competition.
- The final parts of the Test Project – including appropriate changes – will be provided to participating Members at least three months prior to the WorldSkills Competition.

The Expert will develop the final version of the Test Project on the Discussion Forum. In concept it is ready, but in detail (like printing form and amount colours) will be done by technicians of the press equipment sponsor/supplier.

After this development it is discussed with all Experts.

Twelve months before the Competition the number of presses is confirmed and final decisions about the Test Project can be made. Also the final assessment criteria will be discussed – refer to paragraph 4.8.

## 5.8 TEST PROJECT COORDINATION (PREPARATION FOR COMPETITION)

Experts:

- The likely number of participating Members will be known twelve months before the Competition;
- The actual equipment set-up supplied by the Host Member should be known twelve months before the Competition;
- When the above are known, planning of the structure and timing of the Test Project can be started in the Discussion Forum.

The Chief Expert will be responsible for ensuring that:

- There are no installation requirements that cannot be completed;
- The modules can be completed in Competition time;
- The Competitor instructions are kept to a minimum of text and that they do not exceed the available space permitted on the approved instruction sheet for any one module;
- The Test Project modules are complete in all aspects. This part of the preparation must be completed six (6) months prior to the WorldSkills Competition;
- All required communication occurs between all Experts and participating Members;
- Any FAQ (Frequently Asked Questions) document/email is developed in the months leading up to the Competition and posted on the Discussion Forum to ensure that the same answers are provided to everyone and that no Member has an unfair advantage.



## 5.9 TEST PROJECT CHANGE AT THE COMPETITION

Additional print modules and tasks can be put forward up to the Competition time, and changes to one or more of the print jobs included in the Test Project can be made prior to the start of the Competition (the 30% rule).

- Experts will present proposals on the Discussion Forum;
- Different groups of Experts will be created by the Chief Expert to develop the various tasks;
- A concrete proposal for this will be developed 6 months before the Competition.

The parts of the modules that can be changed are as follows:

- The actual printed images (provided that fast CTP plate-making services are available in the Host country/region);
- Print runs, paper sizes, Pantone ink specifications (within the limitation of the Infrastructure List);
- The parts of the modules that should not be changed are:
- Paper grades (predetermined in Infrastructure List);
- Number of colours in each module (limited by press type and ink supply as per Infrastructure List);
- The additional tasks connected to a job.

## 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](http://www.worldskills.org/infrastructure) located in the Expert Centre.

Not applicable.



## 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 Chief Expert (or an Expert nominated by the Chief Expert) 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](http://www.worldskills.org/competitorcentre)).

This information includes:

- Competition Rules
- Technical Descriptions
- Marking Schemes
- Test Projects
- Infrastructure List
- Health and Safety documentation
- Other Competition-related information

### 6.3 TEST PROJECTS [AND MARKING SCHEMES]

Circulated Test Projects will be available from [www.worldskills.org/testprojects](http://www.worldskills.org/testprojects) and the Competitor Centre ([www.worldskills.org/competitorcentre](http://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 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 finalized at the Competition by agreement of the Experts. The Skill Management Plan can be viewed in the Expert Centre ([www.worldskills.org/expertcentre](http://www.worldskills.org/expertcentre)).



## 7 SKILL-SPECIFIC SAFETY REQUIREMENTS

Refer to Host Country/Region Health and Safety documentation for Host Country/Region regulations.

- Long hair must be tied up or covered;
- Jewellery or other hanging objects in clothing is forbidden;
- Work clothing must be a kind of which presents no danger or snagging;
- Work shoes must allow safe working and movement;
- Competitors must follow the provided instructions of the machines;
- Competitors must follow the provided instructions on the handling of detergents, printing ink and paper.



## 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](http://www.worldskills.org/infrastructure).

The Infrastructure List specifies the items and quantities requested by 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 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.

### 8.2 MATERIALS, EQUIPMENT AND TOOLS SUPPLIED BY COMPETITORS IN THEIR TOOLBOX

- Working clothes and approved safety footwear;
- Gloves, eye protection and earplugs are supplied by the Competition Organizer.

### 8.3 MATERIALS, EQUIPMENT AND TOOLS SUPPLIED BY EXPERTS

All equipment required will be supplied by the Competition Organizer.

### 8.4 MATERIALS AND EQUIPMENT PROHIBITED IN THE SKILL AREA

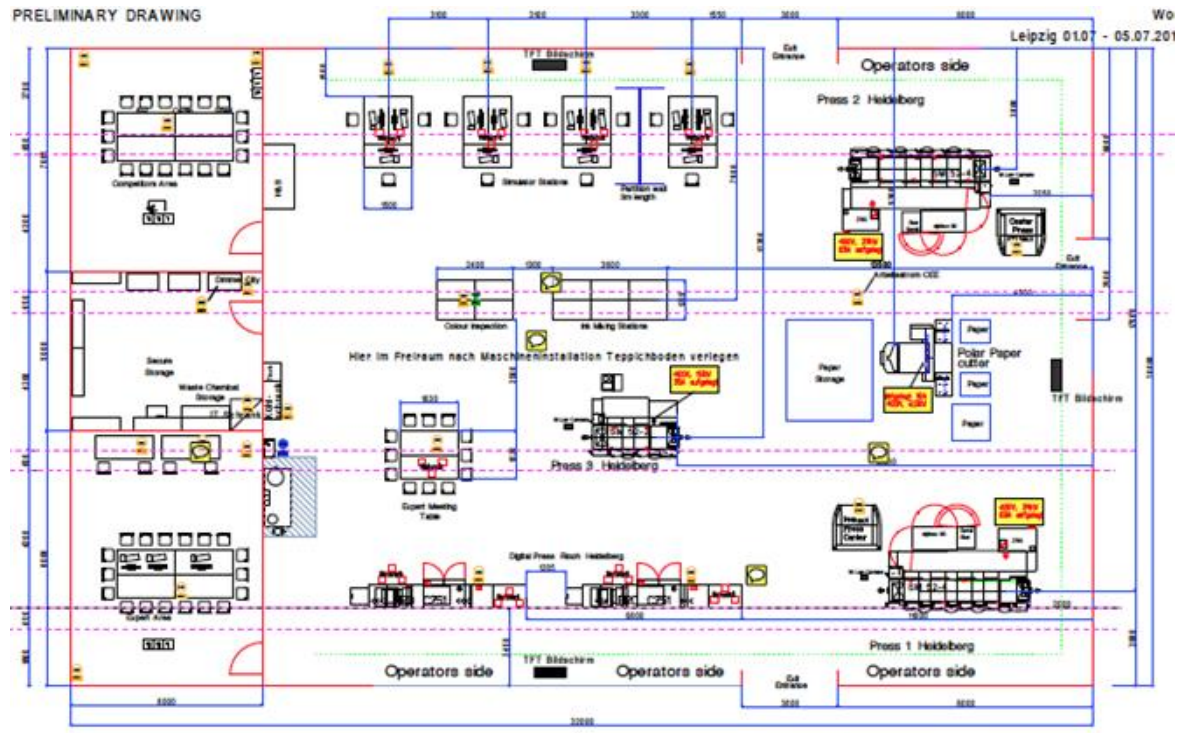
Toolboxes are not allowed.



## 8.5 PROPOSED WORKSHOP AND WORKSTATION LAYOUTS

Workshop layouts from previous competitions are available at [www.worldskills.org/sitelayout](http://www.worldskills.org/sitelayout).

Example workshop layout:





## 9 VISITOR AND MEDIA ENGAGEMENT

To maximize visitor and media engagement the following ideas may be considered:

- Presses should be installed in a way to make it attractive for spectators;
- Try a trade (when possible);
- Display screens;
- Test Project descriptions;
- Enhanced understanding of Competitor activity;
- Competitor profiles;
- Career opportunities.





## 10 SUSTAINABILITY

- Recycling;
- Use of 'green' and environmental friendly materials;
- Use of completed Test Projects after Competition;
- Printed copies will be supplied to a not-for-profit organization.