INFORMATION AND COMMUNICATION TECHNOLOGY

Print Media Technology



WorldSkills Occupational Standards

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WorldSkills Occupational Standards (WSOS)

General notes on the WSOS

The WSOS 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/WSOS).

The skill competition is intended to reflect international best practice as described by the WSOS, and to the extent that it is able to. The Standard is therefore a guide to the required training and preparation for the skill competition.

In the skill competition the assessment of knowledge and understanding will take place through the assessment of performance. There will only be separate tests of knowledge and understanding where there is an overwhelming reason for these.

The Standard 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. This is often referred to as the "weighting". The sum of all the percentage marks is 100. The weightings determine the distribution of marks within the Marking Scheme.

Through the Test Project, the Marking Scheme will assess only those skills that are set out in the Standards Specification. They will reflect the Standards as comprehensively as possible within the constraints of the skill competition.

The Marking Scheme will follow the allocation of marks within the Standards to the extent practically possible. A variation of up to five percent is allowed, provided that this does not distort the weightings assigned by the Standards.

WorldSkills Occupational Standards

Section		Relative importance (%)
1	**Work organization and management**	**10**

The individual needs to know and understand:

- The types of equipment used to produce printed material and to create finished printed products
- New technologies used in printing
- Current legislation and best practice relating to health and safety procedures in the workplace and specifically relating to specialist equipment and print factors
- The uses of protective equipment and materials
- The importance on maintaining cleanliness and order in the working environment
- The handling of chemicals used in the print industry and how waste materials should be disposed of
- The importance of effective communication skills and teamwork
- Recognized international standards, for example ISO, GRACoL and Pantone
- the requirement for job planning or engineering skills to maximize quality and efficiency of producing a printed product.

The individual shall be able to:

- Use all equipment correctly according to manufacturers' instructions
- Consistently apply and promote health and safety in the workplace and especially relating to specialist equipment and print factors
- Effectively use protective equipment and materials
- Maintain a clean and ordered working environment
- Handle all chemicals and dangerous materials safely and in accordance with instructions
- Dispose of waste materials safely and consistently with maintaining a safe and sustainable environment
- Select equipment appropriate for the planned task
- Use, handle, store and maintain print factors such as ink, paper and mechanical and digital equipment
- Proactively maintain continuous professional development in order to keep up to date with new technologies and trends in the printing industry
- Identify suitable files for digital printing (pre-flight)
- 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
- Communicate effectively with team members and other colleagues in the workplace to ensure a good and productive working environment
- Discuss client's requirements and provide Expert advice and guidance on printing technology, its possibilities and limitations
- Work in such a way as to avoid unnecessary waste
- Recognize and act on opportunities to improve production plans to improve efficiency and quality of the print manufacturing process.

Section		Relative importance (%)
2	**Planning and preparation**	**20**

The individual needs to know and understand:

- The characteristics of the Offset Printing, toner-based and ink-jet digital materials
- The characteristics, uses and interaction of papers, inks, dampening solution, toners and proofing materials
- Appropriate chemicals needed for the planned print job
- The theory of colours
- How to read, understand and analyse a customers' brief

The individual shall be able to:

- Read, understand, and interpret a print job brief
- Explain to colleagues the content of the brief and plan work for self and others accordingly
- Mix custom ink colours to meet customer's specifications
- Select and prepare the appropriate printing equipment for the planned job
- Programme machinery for correct number of copies, paper size, colour, quality, etc.
- Perform make-ready operation and adjustment on multi-colour sheet-fed offset press, either with or without remote control consoles
- Select and prepare the appropriate print factors, paper, ink etc. for the planned job
- Interpret the colour imprint on the printed sheet during make-ready and production
- Translate the interpretation of the colour imprint into appropriate action on the press
- Use digital printing press RIP (Raster Image Processor) software for file set-up operations like checking/creating, imposition and colour management and use Variable Data Printing (VDP) as well as engineering automated workflow.
- Utilize RIP software to connect the print production to the finishing production of in-line or off-line equipment
- Load paper sheets and fill ink ducts
- Adjust the feeder, sheet transfer and delivery
- Mount offset printing plates
- Adjust offset printing pressure
- Mix necessary ink colours.
- Adjust the colour register

Section		Relative importance (%)
3	**Press run**	**20**

The individual needs to know and understand:

- Different types of press, their uses, and characteristics
- Developing technology that supports the printing process

The individual shall be able to:

- 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
- Use presses with either semi-automatic or automatic plate mounting
- Use variable data software for digital printing
- Use inline finishing features of digital presses
- Utilize inkjet printing presses to deliver high quality larger format printed products

4	**Quality control, adjustments, and troubleshooting**	**40**

The individual needs to know and understand:

- Different types of specialist measuring equipment used in printing
- How to interpret measuring results
- The importance of ensuring that the print job is of a high standard and meets the customers' needs and expectations
- The financial and virtual time reporting functions of sheet-fed press simulation programmes
- Implications of faulty machinery or set-up in terms of loss of quality, time, and money
- Maintenance routines for printing equipment
- The importance of following manufacturers' instructions

Section		Relative importance (%)
	The individual shall be able to: • Monitor the printing process, ensuring that the work is reaching the expected standard • Adjust settings and programming to maintain quality and to rectify and discrepancies from the specification • Operate measuring and quality control devices • Use different measuring devises like densitometer, spectrophotometer, micrometre, calliper, pH, conductivity etc. • Produce OK sheet for customer confirmation and approval • Save individual sheets as prescribed through the print run to quality assure against the original • Compare proof prints to specified targets and make necessary adjustments • Produce print jobs to a specified numerical density and/or LAB colour space target • Maintain the correct colour registration • Solve problems in the sheet-fed press simulation programme • Perform maintenance and basic repairs on offset presses and finishing equipment • Resolve paper feed problems • Identify ICC colour profiles for specific print outputs • Compare different prints to identify the correct dot gain, print contrast and ink trapping	
5	**Finishing**	5
	The individual needs to know and understand: • Various processes that may be applied to printed work to finish the product such as folding, cutting, and binding	
	The individual shall be able to: • Prepare a cutting plan • Finish printed work by trimming it with a paper cutter to specified dimensions • Programme and use a programmed paper cutter to cut paper to specified dimensions • Operate a digital in line stitcher or perfect binding machine to produce bound printed works • Operate off-line folding equipment • Operate in-line or off-line large format ink-jet finishing equipment	

Section		Relative importance (%)
6	**Clean-Up**	**5**
	The individual needs to know and understand: • The advantages of working in a clean and ordered environment	
	The individual shall be able to: • Clean the equipment and premises after the offset, digital and finishing printing process • Complete cleaning efficiently, effectively and within prescribed timescales • Ensure that cleaning is completed to recognized standards • Set back adjustments of the printing equipment to zero	
	Total	**100**

References for industry consultation

WorldSkills is committed to ensuring that the WorldSkills Occupational Standards fully reflect the dynamism of internationally recognized best practice in industry and business. To do this WorldSkills approaches a number of organizations across the world that can offer feedback on the draft Description of the Associated Role and WorldSkills Occupational Standards on a two-yearly cycle.

In parallel to this, WSI consults three international occupational classifications and databases:

- ISCO-08: (http://www.ilo.org/public/english/bureau/stat/isco/isco08/) ILO 732
- ESCO: (https://ec.europa.eu/esco/portal/home)
- O*NET OnLine (www.**onet**online.org/)

The WSOS underpinning this skill competition most closely relates to *Prepress Technicians and Workers*: https://www.onetonline.org/link/summary/51-5111.00;

Printing Press Operators:
https://www.onetonline.org/link/summary/51-5112.00,

and *Prepress Technician*:
http://data.europa.eu/esco/occupation/54ffd31f-ed90-4af4-b877-cd246351ad39

The following table indicates which organizations were approached and provided valuable feedback for the Description of the Associated Role and WorldSkills Occupational Standards in place for WorldSkills Shanghai 2021.

Organization	Contact name
Heidelberg Graphic Equipment (Shanghai) CO. LTD. Print Media Center (China)	Yang Liu, Senior Instructor
Think Patented (United States of America)	Dr. H. C. Niels M. Winther, Chairman/Owner
Viscom Print & Communication Association (Switzerland)	Janine Bigler, Technical Instructor Digitalprint