

Finalized & Validated by Industrial Advisory Group (IAG) 13th December 2013

National Competency Standards

For

Textile Printer

Introduction

The National Competency Standards are written specifications of skill and knowledge competencies required in a particular trade. The competency standards are developed in collaboration with United Nations Industrial Development Organization (UNIDO), GIZ and National Vocational & Technical Training Commission (NAVTTTC).

Industry experts from the relevant industries from different geographical locations across Pakistan were consulted during the development process of these competency standards to ensure input and ownership of all the stakeholders. NAVTTTC approves these competency standards on the recommendation of Industry Advisory Group (IAG) for the Information Technology sector.

The National Competency Standards could be used as a referral document for the development of curricula to be used by training institutions.

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STRUCTURE OF COMPETENCY STANDARDS

Competency Standards are performance specifications that identify the knowledge and competencies an individual needs to succeed in the workplace. A competency standard has the following elements:

Competency Unit

A competency unit is a statement which points to an outcome that employers will value and is observable and assessable. The competency unit is derived during the process of Occupational Analysis and is called 'Task Statement' in a DACUM Chart.

Overview

An overview is a description of the competency standard. It briefly describes the purpose and linkage of the competency unit with a job role.

Performance Criteria

Performance criteria statements set the standard of performance of a task in a job role. It describes 'how well' a task or competency unit is to be performed. It should be observable and written in a measurable term. It is one of the basic criterions for conducting assessment of the performance of a tradesman.

Knowledge and Understanding

Supporting knowledge and understanding statements include the essential knowledge and understanding, covering facts, principles, procedures, processes and methods. These statements cover the basic knowledge and understanding that is required to master a competency unit in an occupation.

Tools & Equipment

All the related tools, equipment and machinery that are required to perform a particular competency

1. Unit Title: Perform stencil printing

Title	Overview	Performance Criteria	Underpinning Knowledge & Skills	Tools & Equipment
Perform Stencil Printing (A1)	This Competency standard is about accuracy of design through stenciling	<p>You must be able to:</p> <p>P1: Interpret instructions of customer requirement correctly.</p> <p>P2: Adapt techniques and work method to achieve quality and quantity as per schedule.</p> <p>P3: Select medium to match work specification</p> <p>P4: Provide support to achieve organizational goals.</p>	<p>You must know and understand:</p> <p>K1: Method of creating stencil design.</p> <p>K2: Knowledge of design repeat.</p> <p>K3: Equipment operating procedure.</p> <p>K4: Health and safety responsibilities.</p>	Stencil sheets, paper cutter, glass and scissors
Apply color (A2)	This competency standard is about achieving accuracy of color/pigment theory.	<p>You must be able to:</p> <p>P1: Identify the color</p> <p>P2: Identify the color to match work specification.</p> <p>P3: interpret the instruction of customers' requirement correctly.</p> <p>P4: Select medium to match work</p>	<p>You must know and understand:</p> <p>K1: Color theory plus identification of color/pigment.</p> <p>K2: Application of color</p>	Stencil sheets, paper cutter, glass and scissor

		specification. P5: provide support to achieve organizational goals.	through relevant tools/equipment. K3: Should be aware of health and safety measures.	
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2. Unit Title: Perform Batik Printing.

Title	Overview	Performance Criteria	Underpinning Knowledge and Skills	Tools and Equipment
Make wax (B1)	This competency is about achieving the right viscosity of the wax.	You must be able to: P1: Interpret instructions to achieve the wax gum accurately. P2: Adapt the technique and the work method to achieve good quality and quantity of the work.	You must know and understand: K1: Proper awareness of the cjenting tool. K2: Estimated quantity of the common salt to control the viscosity of wax. K3: Do not leave the wax	Wooden frame, Stove, Cjenting tool.

			unattended.	
Drain of wax on a trease design on fabrics (B2)	This competency standard is about draining of wax on required design.	<p>You must be able to:</p> <p>P1: Interpret the instructions about draining of wax on trease design accurately.</p> <p>P2: Adapt techniques and work method to achieve quality and quantity as per schedule.</p> <p>P3: Provide support to achieve organizational goals.</p>	<p>You must know and understand:</p> <p>K1: Use of cjenting tool in a proper manner.</p> <p>K2: maintain uniformity during application of wax.</p> <p>K3: Health and safety responsibilities.</p>	Cjenting tool, Gloves, Frame.
Apply wax on negative area (B3)	This competency standard is about achieving the accuracy on applying the wax on negative areas.	<p>You must be able to:</p> <p>P1: Interpret instructions for proper application of wax on negative area.</p> <p>P2: Adapt techniques and work methods to achieve equal quantity and quality of wax on negative area.</p>	<p>You must know and understand:</p> <p>K1: Follow the negative area on the fabric to achieve the required design.</p> <p>K2: use of brush if required for spreading wax</p>	Cjenting tool, Gloves, Frame, flat brush.

		P3: provide support to achieve organizational goals.	on fabric. K3: health and safety responsibilities.	
Make cold dye (B4)	This competency standard is about the use of cold dye pigment with accurate depth to achieve the required dye on fabric.	You must be able to: P1: Interpret instructions for proper mixing of cold dye/pigments to achieve accurate color with depth. P2: Adapt techniques of work method to solubilize (make dye liquid) to achieve quality and quantity as per schedule. P3: Awareness of cold dye/pigments of knowledge and skills.	You must know and understand: K1: Basic information of colors/Pigments. K2: Keep estimated quantity of common salt with respect to the dye. K3: Health and safety responsibilities.	Stirrer, pot/container, weighing balance.
Dip and Dry (B5)	This competency standard is about achieving of required color through the process of dip and dry.	You must be able to: P1: Interpret the instructions for accurate dip and dry. P2: Adapt techniques of	You must know and understand: K1: Appropriate knowledge of color application through dip	Pot, Brush and stove.

		<p>work methods for easy dip and dry to achieve maximum quality and accurate quantity.</p> <p>P3: provide support to achieve organizational goals.</p>	<p>dye/ brush.</p> <p>K2: Proper knowledge of dipping into color /dye from light to dark</p> <p>K3: Dry under shade (avoid sunlight or direct heat source)</p>	
Removal of wax through heat (B6)	This competency standard is about removing wax neatly from the fabric.	<p>You must be able to:</p> <p>P1: Interpreting instructions about removal of wax through ironing.</p> <p>P2: Adapt techniques and work methods to achieve easy and maximum removal of wax through heat.</p> <p>P3: Health and safety responsibilities.</p>	<p>You must know and understand:</p> <p>K1: Use iron only on the back side of the iron and place newspaper underneath.</p> <p>K2: Do not leave the heat equipment unattended.</p>	Iron

3. Unit Title: Perform Block printing.

Title	overview	Performance Criteria	Underpinning knowledge and skills	Tools and equipment
Make design Block (C1)	This competency standard is about achieving accuracy of the original design.	<p>You must be able to:</p> <p>P1: Interpret instructions of the customer required design through block accurately.</p> <p>P2: Adopt technique and work methods to achieve quality and quantity as per schedule</p> <p>P3: Select proper material for block</p> <p>P4: Provide support to achieve organizational goals.</p>	<p>You must know and understand:</p> <p>K1: Selection of hard surface for block making (wood, Aluminum, Potato etc.)</p> <p>K2: Knowledge of negative and positive of block design according to original design</p> <p>K3: Select separate block for separate color of original design</p> <p>K4: health and safety responsibilities.</p>	Carving tools
Make color paste (C2)	This competency standard is about achieving accuracy through color paste according to the required	<p>You must be able to:</p> <p>P1: Interpret instructions of customer requirement</p>	<p>You must know and understand:</p> <p>K1: Workers should be</p>	Color index book (pantone), containers, jute and sponge.

	color.	correctly P2: adapt techniques and work methods to achieve quality and quantity as per schedule P3: select color medium to match work specifications P4: Provide support to achieve organizational goals.	aware of proper use of the color index book to achieve the required color K2: wear safety gloves	
Dip block in color (C3)	This competency standard is about achieving estimated quantity of the color on the block to achieve the required design printing.	You must be able to: P1: Interpret the instructions According to the correct color depth to develop the required color P2: adapt techniques of work method to achieve the estimated color for quality and quantity P3: Select the right block	You must know and understand: K1: Select the jute layer for proper color application on block. K2: Ensure the right quantity of color in the dip container. K3: Use rubber gloves and apron during the task.	Gloves, Jute, apron, containers.

		for the right color P4: Provide support to achieve organizational goals.		
Apply block on fabric (C4)	This competency standard is about knowledge of design repeat during application	You must be able to: P1: Interpret the instructions to apply the block on the fabric accurately P2: Adapt the techniques and work method to achieve quality and quantity as per schedule P3: Provide support to achieve organizational goals.	You must know and understand: K1: Use proper printing tables for the required results K2: Block application according to the repeat of the design. K3: use proper gloves and apron.	Printing table
Dry (C5)	This competency standard is about Proper drying of the color.	You must be able to: P1: Interpret instructions to dry the printed fabric accurately. P2: Adapt techniques and	You must know and understand: K1: Monitor time for drying the printed fabric K2: Health and safety	Electric dryer, Hot air dryer.

		work methods as per schedule. P3: Select area to dry the printed fabric through sunlight, shaded area or hot air dryer.	measures.	
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4. Unit Title: Perform Screen Printing.

Title	Overview	Performance Criteria	Underpinning Knowledge and skills	Tools and Equipment
Make Screen (D1)	This competency standard is about making a wooden frame according to the design size.	You must be able to: P1: Interpret the instructions properly to make the screen according to the requirements. P2: Adopt the techniques and work methods to save time and form the right balance between quantity and quality.	You must know and understand: K1: Use of the right size of wooden frame according to the required design. K2: Proper fixing of Bolting cloth (T-44, T-55, T-77, T-90) on the wooden frame. K3: Health and safety responsibilities	Hammer, nails, tracing Paper and wood.

		P3: Select medium to match work specifications.	K4: Use of designed tracing paper on mesh.	
Expose Design (D2)	This competency standard is about exposing the design accurately.	<p>You must be able to:</p> <p>P1: Interpret the instructions to expose the design as follows</p> <ol style="list-style-type: none"> 1. Emulsion coating 2. Drying 3. Exposing <p>P2: Develop the required design as per schedule.</p> <p>P3: Provide support to achieve organizational goals.</p>	<p>You must know and understand:</p> <p>K1: Emulsion coating on specific Bolting cloth.</p> <p>K2: Proper drying of the coating after emulsion.</p> <p>K3: Use the right quantity of sensitizer.</p> <p>K4: Expose design on exposing table in a dark room.</p> <p>K5: Achieve the final design after wash.</p>	Exposing Table, Dark room, Gloves, squeegee and scrapper.
Make gum and paste color (D3)	This competency standard is about making gum and paste color.	<p>You must be able to:</p> <p>P1: interpret the instructions to make gum and paste color correctly.</p> <p>P2: Adapt technique and</p>	<p>You must know and understand:</p> <p>K1: Worker should be aware of binder and emulsion.</p>	Stirrer, Weighing balance and gloves.

		<p>work methods to make gum and paste color easily and quickly.</p> <p>P3: Use water based medium for making gum and paste color.</p>	<p>K2: Health and Safety measures apply.</p> <p>K3: Keep the ratio of binder constant.</p>	
Apply color on screen (D4)	<p>This competency standard is about applying color on screen through squeegee to obtain the required design.</p>	<p>You must be able to:</p> <p>P1: Interpret instructions according to the requirements of the screen.</p> <p>P2: Evaluate the ability in terms of color application through screen on fabric.</p> <p>P3: Adapt techniques and work methods to obtain maximum quality and quantity as per schedule.</p>	<p>You must know and understand:</p> <p>K1: Method of running squeegee should be kept in mind.</p> <p>K2: How to apply pigment on screen without any printing error.</p> <p>K3: How to avoid blockage of screen after printing.</p> <p>K4: Use Gloves and apron during the procedure.</p> <p>K5: Avoid color overlapping.</p>	<p>Squeegee, scrapper/ spoon.</p>
Dry and fixation (D5)	<p>This competency standard</p>	<p>You must be able to:</p>	<p>You must know and</p>	<p>Pegs/ sticks, hot air dryer.</p>

	is about drying and fixing the applied color on fabric through heat.	<p>P1: Creaseless handling of printed fabric for drying.</p> <p>P2: adopt the techniques and work methods to achieve quality and quantity as per schedule.</p>	<p>understand:</p> <p>K1: Fabric handling to avoid crease.</p> <p>K2: Knowledge of different heat sources e.g sun, hot air dryer.</p>	
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5. Unit Title: Perform Heat transfer printing:

Title	Overview	Performance Criteria	Underpinning Knowledge & Skills	Tools & Equipment
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Apply design on fabric (E1)	The competency is about achieving design through the process of heat transfer on fabric	<p>You must be able to:</p> <p>P1: Interpret instructions of customers' requirement correctly.</p> <p>P2: Adapt techniques and work method to achieve quality and quantity as per schedule.</p> <p>P3: Provide support to achieve organizational goals.</p>	<p>You must know and understand:</p> <p>K1: Should be aware of the front and back of the required design.</p> <p>K2: knowledge about printers</p> <p>K3: Health and safety responsibilities.</p>	Transfer sheet, computer with inkjet printers, Iron heat transfer pad.
Ironing (E2)	The competency standard is about achieving the accuracy of proper ironing	<p>You must be able to:</p> <p>P1: Interpret instructions to operate iron on fabric.</p> <p>P2: Adapt techniques and work method to achieve quality and quantity as per schedule</p> <p>P3: Provide support to achieve and maintain organizational goals.</p>	<p>You must know and understand:</p> <p>K1: Knowledge of appropriate temperature settings.</p> <p>K2: Iron and heat transfer sheets are the equipment.</p>	Transfer sheet, Computer with inkjet printer, iron and heat transfer pad.

6. Unit Title: Perform Rotary Printing

Title	Overview	Performance Criteria	Underpinning Knowledge & Skills	Tools & Equipment
Scanning of design (F1)	The competency standard is about achieving accuracy of the customer design through rotary printing machine.	<p>You must be able to:</p> <p>P1: Scan the design through scanner</p> <p>P2: Adopt the CAD CAM settings according to the original design to achieve quantity and quality as per standard.</p> <p>P3: Provide support to achieve and maintain organizational goals.</p>	<p>You must know and understand:</p> <p>K1: Principle knowledge of rotary screen and its different sizes. Like, 40, 60,80, 125, 155</p> <p>K2: Identify the required screen according to the original design.</p> <p>K3: plan the sequences as light medium and dark.</p> <p>K4: Wear safety gloves during handling of roller screen.</p>	Rotary printing machine, screen heads and measuring tape.
Operating the machine (F2)	The competency is about achieving accuracy of original design at the appropriate speed of	<p>You must be able to:</p> <p>P1: Interpret and communicate instructions to the co-worker to achieve the original design accurately.</p>	<p>You must know and understand:</p> <p>K1: Workers should know basic knowledge of design</p>	Printing machines, screen heads and measuring heads.

	rotary machine	<p>P2: Adapt techniques to set the color according to the shade to achieve quality and quantity as per schedule.</p> <p>P3: Provide support to achieve organizational goals.</p>	<p>and color settings according to the original design.</p> <p>K2:Fabric fixing on the machine blanked</p> <p>K3:Select colors accordingly to your work specification to run the production .</p> <p>K4:Maintain a proper distance from the machinery and do not leave it unattended</p>	
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7. Unit Title: Perform digital printing

Title	Overview	Performance Criteria	Underpinning Knowledge & Skills	Tools & Equipment
Load /fix the fabric on digital printer (G1)	This competency standard is about fixing and mounting the fabric on the digital printer according to the width.	<p>You must be able to:</p> <p>P1: interpret instructions of loading the fabric</p> <p>P2: adapt techniques and methods to achieve quantity and quality as per schedule.</p> <p>P3: Supervise the process of printing</p>	<p>You must know and understand:</p> <p>K1: Knowledge of digital printing.</p> <p>K2: Color results on various fabrics</p>	Digital printer.

		accurately.		
Select the design and print(G2)	The competency standard is about supervising the process of printing	<p>You must be able to:</p> <p>P1: Interpret instructions of customers' requirement correctly.</p> <p>P2: Adapt techniques and work method to achieve quality and quantity as per schedule.</p> <p>P3: Provide support to achieve and maintain organizational goals.</p>	<p>You must know and understand:</p> <p>K1: proper knowledge of the software for the required design.</p> <p>K2: knowledge for operating digital printing.</p> <p>K3: Should not leave the equipment unattended.</p>	Digital printing machine