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TEXTILE WET PROCESSING



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CBT Curriculum

National Vocational Certificate Level 2

Version 1 - November, 2019



Implemented by
giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Published by

National Vocational and Technical Training Commission
Government of Pakistan

Headquarter

Plot 38, Kirthar Road, Sector H-9/4, Islamabad, Pakistan
www.navttc.org

Responsible

Director General Skills Standard and Curricula, National Vocational and Technical Training Commission
National Deputy Head, TVET Sector Support Programme, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Layout & design

SAP Communications

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This document has been produced with the technical assistance of the TVET Sector Support Programme, which is funded by the European Union, the Federal Republic of Germany and the Royal Norwegian Embassy and has been commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in close collaboration with the National Vocational and Technical Training Commission (NAVTTTC) as well as provincial Technical Education and Vocational Training Authorities (TEVTAs), Punjab Vocational Training Council (PVTC), Qualification Awarding Bodies (QABs) and private sector organizations.

Document Version

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Introduction

Definition/ Description of the training program for Textile Wet Processing (Dyeing Technologist) Level-2

Textile Wet Processing (Dyeing Technologist) (Level-2) are responsible for operate different types of dyeing machines (Winch, Jgger, Jet, Pad batch, Pad thermosol, Pad steam, Cone, Rope, Soft flow, Garment and Stenter) under safe working environment with good communication skills.

Purpose of the training program

The purpose of the training is to provide skilled manpower to improve the existing capacity of Textile Dyeing sector. This training will provide the requisite skills to the trainees to operate dyeing machines. It will enable the participants to meet the challenges in the field of textile dyeing industry. Further, to improve the skill level of the dyeing operators to prepare them for the dyeing industry to meet the market competition nationally and internationally.

The core purpose of this qualification is to produce employable dyeing operators who could operate different machines used in dyeing industry according to national and international standards. In addition this qualification will prepare unemployed youth to get employment in dyeing sector.

Overall objectives of training program

The overall objectives of the Textile Wet Processing (Dyeing Technologist) (Level-2) training program are:

- Operate dyeing machines for dyeing the fabric / rope/ cone / garment.
- Selecting tools and equipment used to dyeing.
- Selecting dyes and chemicals used to dyeing.
- Arrangement of materials used for dyeing according to spec sheet
- Sequencing the different stages of dyeing the product.
- Dyeing the product as required by customers' orders
- Working safely with required standards
- Improve communication skills required for the nature of garment industry.

Competencies to be gained after completion of course

At the end of the course, the trainee must have attained the following competencies:

- Comply Personal Health and Safety Guidelines
- Communicate the Workplace Policy and Procedure
- Perform Basic Communication
- Perform Basic Computer Application
- Perform Winch Dyeing
- Perform Jigger Dyeing
- Perform Jet Dyeing
- Perform Pad batch Dyeing
- Perform Pad thermosol Dyeing
- Perform Pad steam Dyeing
- Perform Cone Dyeing
- Perform Rope Dyeing
- Perform Soft flow Dyeing
- Perform Garment Dyeing
- Perform Stenter Dyeing

Possible available job opportunities available immediately and later in the future

Textile Wet Processing (Dyeing Technologist) (Level-2) are employed in dyeing industries locally and internationally. Experienced Textile Wet Processing (Dyeing Technologist) after declared competent in Level-3 may advance through promotions with the same employer or by moving to more advanced positions with other employers. They can become:

- Dyeing machine operator
- Exhaust dyeing Incharge
- Continuous dyeing Incharge
- Semi-continuous dyeing Incharge
- Production Supervisor
- Production Incharge
- Quality Control Incharge

- Quality Assurance Incharge
- Sample Incharge
- Production Manager
- General Manager

Some experienced Textile Wet Processing (Dyeing Technologist) achieves a highly respected level of salaries. There are good prospects for travel both within Pakistan and abroad. The employment outlook in this occupation will be influenced by a wide variety of factors including:

- Trends and events affecting overall employment
- Location in Pakistan and abroad
- Employment turnover (work opportunities generated by people leaving existing positions)
- Occupational growth (work opportunities resulting from the creation of new positions that never existed before)
- Size of the industry
- Flexibility of the applicant (concerning location and schedule of work).

Trainee entry level

The entry level of trainee for Textile Wet Processing (Dyeing Technologist) (Level-2) is minimum of middle class

OR

Class 8; with some hand-on experience in dyeing industry.

Minimum qualification of trainer

Teaching staff should have at least three years' experience in the minimum role of dyeing operator. They should also hold or be working towards a minimum formal teaching qualification with DAE in Textile Dyeing & Printing technology.

Other formal qualifications or experience in the dyeing industry would be preferred in addition to the above.

Recommended trainer: trainee ratio

The recommended maximum trainer: trainee ratio for this program is 1 trainer for 20 trainees.

Medium of instruction i.e. language of instruction

Instruction will be Urdu, regional and English. For employment in the Middle East, some Arabic expressions will be helpful.

Duration of the course (Total time, Theory & Practical time)

This curriculum comprises 15 modules. The recommended delivery time is 780 hours. Delivery of the course could therefore be full time, 5 days a week, for 6 months. Training providers are at liberty to develop other models of delivery, including part-time and evening delivery.

The full structure of the course is as follow:

Module	Theory¹ Days/hours	Workplace² Days/hours	Total hours
Module 1: Comply Personal Health and Safety Guidelines	06	24	30
Module 2: Communicate the Workplace Policy and Procedure	04	16	20
Module 3: Perform Basic Communication	06	24	30
Module 4: Perform Basic Computer Application	04	16	20
Module 5: Perform Winch Dyeing	12	48	60

¹ Learning Module hours in training provider premises

² Training workshop, laboratory and on-the-job workplace

Module	Theory¹ Days/hours	Workplace² Days/hours	Total hours
Module 6: Perform Jigger Dyeing	12	48	60
Module 7: Perform Jet Dyeing	14	56	70
Module 8: Perform Pad batch Dyeing	14	56	70
Module 9: Perform Pad thermosol Dyeing	10	40	50
Module 10: Perform Pad steam Dyeing	10	40	50
Module 11: Perform Cone Dyeing	16	64	80
Module 12: Perform Rope Dyeing	16	64	80
Module 13: Perform Soft flow Dyeing	12	48	60
Module 14: Perform Garment Dyeing	12	48	60
Module 15: Perform Stenter Dyeing	08	32	40

Sequence of the modules

This qualification (Level-2) is made up of 15 modules. Eleven modules relate to operate different types of dyeing machines for example *Module 5: Perform winch dyeing*. A suggested distribution of these modules is presented overleaf. This is not prescriptive and training providers may modify this if they wish.

There are three further modules relating to general skills that a Textile Wet Processing (Dyeing Technologist) must have: *Module 3: Perform basic communication*. This is interdependent with the clear communication skills and need to be delivered in parallel. This is illustrated in the distribution table.

One further module relate to the safety skills of a Textile Wet Processing (Dyeing Technologist): *Module 1: Comply Personal Health and Safety Guidelines*. The distribution table suggests that this should be delivered at the beginning of the every module.

Each module covers a range of learning components. These are intended to provide detailed guidance to teachers (for example the Learning Elements component) and give them additional support for preparing their lessons (for example the Materials Required component). The detail provided by each module will contribute to a standardized approach to teaching, ensuring that training providers in different parts of the country have clear information on what should be taught.

The distribution table is shown below:

<p>Module 1: Comply Personal Health and Safety Guidelines (30 hours)</p>	<p>Module 2: Communicate the Workplace Policy and Procedure (20 hours)</p>	<p>Module 3: Perform Basic Communication (30 hours)</p>
	<p>Module 4: Perform Basic Computer Application (40 hours)</p>	
	<p>Module 5: Perform Winch Dyeing (60 hours)</p>	
	<p>Module 6: Perform Jigger Dyeing (60 hours)</p>	
	<p>Module 7: Perform Jet Dyeing (70 hours)</p>	
	<p>Module 8: Perform Pad batch Dyeing (70 hours)</p>	
	<p>Module 9: Perform Pad thermosol Dyeing (50 hours)</p>	
	<p>Module 10: Perform Pad steam Dyeing (50 hours)</p>	
	<p>Module 11: Perform Cone Dyeing (80 hours)</p>	
	<p>Module 12: Perform Rope Dyeing (80 hours)</p>	

	Module 13: Perform Soft flow Dyeing (60 hours)	
	Module 14: Perform Garment Dyeing (60 hours)	
	Module 15: Perform Stenter Dyeing (40 hours)	

Summary – overview of the curriculum

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
<p>Module 1: Comply with Perform Personal Health and Safety Guidelines Aim: The Aim of this module is to protect/apply occupational Safety, health and Environment at workplace according to the industry's approved guidelines, procedures and interpret environmental rules/regulations. Trainee will be expected to identify and use Personal Protective Equipment (PPE) according to the work place requirements. The underpinning knowledge regarding Observe Occupational Safety and Health (OSH) will be sufficient to provide the basis for the job at workplace.</p>	<p>LU1: Identify Personal Hazards at Workplace LU2: Apply Personal Protective and Safety Equipment (PPE) LU3: Comply Occupational Safety and Health (OSH) LU4: Dispose of hazardous Waste/materials from the designated area.</p>	06	24	30
<p>Module 2: Communicate the Workplace Policy and Procedure Aim: The aim of this module is to describe the performance outcomes, skills and knowledge required to develop communication skills in the workplace. It covers gathering, conveying and receiving information, along with completing assigned written information under direct supervision.</p>	<p>LU1: Identify workplace communication procedures LU2: Communicate at workplace LU3: Draft Written Information LU4: Review Documents</p>	04	16	20
<p>Module 3: Perform Basic Communication Aim: This aim of this module is to assist in the development of communication competence by providing information regarding different forms of communication and their appropriate use.</p>	<p>LU1: Communicate in a team to achieve intended outcomes LU2: Follow Supervisor's instructions as per organizational SOPs LU3: Develop Generic communication skills at workplace</p>	06	24	30

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 4: Perform Basic Computer Application Aim: The aim of this module is to use spreadsheet to prepare a page of document, develops familiarity with Word, Excel, Access, PowerPoint, email, and computer graphics basics.	LU1: Create Word Documents LU2: Use internet for Browsing	08	32	40
Module 5: Perform Winch Dyeing Aim: The aim of this module is to perform dyeing process by operating winch dyeing machine for production of dyed substrate according to required parameters.	LU1: Prepare workstation for Winch dyeing LU2: Operate Winch dyeing machine for fabric dyeing LU3: Maintain Production Register for Winch dyeing machine.	12	48	60
Module 6: Perform Jigger Dyeing Aim: The aim of this module is to perform dyeing process by operating jigger dyeing machine for production of dyed substrate according to required parameters.	LU1: Prepare workstation for Jigger dyeing LU2: Operate Jigger dyeing machine for fabric dyeing LU3: Maintain Production Register for Jigger dyeing machine.	12	48	60
Module 7: Perform Jet Dyeing Aim: The aim of this module is to perform dyeing process by operating jet dyeing machine for production of dyed substrate according to required parameters.	LU1: Prepare workstation for Jet dyeing LU2: Operate Jet dyeing machine for fabric dyeing LU3: Maintain Production Register for Jet dyeing machine.	14	56	70
Module 8: Perform Pad batch dyeing Aim: The aim of this module is to perform dyeing process by operating Pad batch dyeing machine for production of dyed substrate according to required parameters.	LU1: Prepare workstation for Pad batch dyeing LU2: Operate Pad batch dyeing machine for fabric dyeing LU3: Maintain Production Register for Pad batch dyeing machine.	14	56	70

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 9: Perform Pad Thermosol Dyeing Aim: The aim of this module is to perform dyeing process by operating Pad Thermosol dyeing machine for production of dyed substrate according to required parameters.	LU1: Prepare workstation for Pad Thermosol dyeing LU2: Operate Pad Thermosol dyeing machine for fabric dyeing LU3: Maintain Production Register for Pad Thermosol dyeing machine.	10	40	50
Module 10: Perform Pad steam dyeing Aim: The aim of this module is to perform dyeing process by operating Pad steam dyeing machine for production of dyed substrate according to required parameters.	LU1: Prepare workstation for Pad steam dyeing LU2: Operate Pad steam dyeing machine for fabric dyeing LU3: Maintain Production Register for Pad steam dyeing machine.	10	40	50
Module 11: Perform Cone Dyeing Aim: The aim of this module is perform dyeing process by operating Cone dyeing machine for production of dyed cones / package / yarn according to required parameters.	LU1: Prepare workstation for cone dyeing LU2: Operate cone dyeing machine for yarn dyeing LU3: Maintain Production Register for cone dyeing machine.	16	64	80
Module 12: Perform Rope Dyeing (Denim) Aim: The aim of this module is to perform dyeing process by operating rope dyeing machine for production of dyed rope according to required parameters.	LU1: Prepare workstation for rope dyeing LU2: Operate rope dyeing machine for rope dyeing LU3: Maintain Production Register for rope dyeing machine.	16	64	80
Module 13: Perform Soft flow Dyeing Aim: The aim of this module is to perform dyeing process by operating Soft flow dyeing machine for production of dyed substrate according to required parameters.	LU1: Prepare workstation for Soft flow dyeing LU2: Operate Soft flow dyeing machine for fabric dyeing LU3: Maintain Production Register for Soft flow dyeing machine.	12	48	60

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 14: Perform Garment Dyeing Aim: The aim of this module is to perform dyeing process by operating garment dyeing machine for production of dyed substrate according to required parameters.	LU1: Prepare workstation for garment dyeing LU2: Operate garment dyeing machine for fabric dyeing LU3: Maintain Production Register for garment dyeing machine.	12	48	60
Module 15: Perform Stenter Dyeing Aim: The aim of this module is to perform dyeing process by operating stenter dyeing machine for production of dyed substrate according to required parameters.	LU1: Prepare workstation for stenter dyeing LU2: Operate stenter dyeing machine for fabric dyeing LU3: Maintain Production Register for stenter dyeing machine.	08	32	40

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Module-5
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Modules

Module 5: 0723001090 Perform Winch Dyeing

Objective of the module: This competency standard covers the skills and knowledge required to perform dyeing process by operating winch dyeing machine for production of dyed substrate according to required parameters.

Duration: 60 hours **Theory:** 12 hours **Practical:** 48 hrs

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Prepare workstation for Winch dyeing	<p>The trainee will be able to:</p> <p>Interpret program sheet for operating winch dyeing machine.</p> <p>Clean and clear winch dyeing machine as per check list.</p> <p>Arrange material for dyeing process as per program sheet. .</p> <p>Check and verify material and parameters according to program sheet.</p>	<p>Importance of program sheet before the start of dyeing process on machine at dyeing floor with understanding the all parameters given in the program sheet.</p> <p>Cleaning of machine according to standards for operating the winch dyeing machine. Advantages for proper machine cleaning.</p> <p>Arranging materials required for dyeing on winch dyeing machine such as water, dyes, chemicals and auxiliaries according to program sheet.</p> <p>Checking of material required for dyeing and verifying parameters of dyeing like dye weight, chemical pH, liquor ratio, temperature, weight and length of fabric etc.</p>	<p>Total 10 hours</p> <p>Theory: 02 hours</p> <p>Practical: 08 hours</p>	<p>Winch dyeing machine Over lock machine Textile trolleys Mug PPEs Mini Boiler Compressor Natural Gas Water Direct dyes Reactive dyes Woven Fabric / Towel Knitted Fabric</p>	<p>Class Room and Workshop.</p>
LU2: Operate Winch dyeing machine for fabric dyeing	<p>The trainee will be able to:</p> <p>Follow safety precautions as per job requirement.</p>	<p>Knowledge of safety precautions used for handling the chemicals and operating winch dyeing machine such as gloves, goggles, shoes, mask, apron, safety cap as per OH&S standards.</p> <p>Knowledge of process and techniques for</p>	<p>Total 45 hours</p> <p>Theory: 09 hours</p>	<p>Winch dyeing machine Plastic beaker Measuring cylinder Glass beaker Buckets</p>	<p>Class Room Workshop. Visit dyeing industries</p>

	<p>Load RFD (ready for dyeing / development) fabric on winch machine for dyeing as per program sheet.</p> <p>Set machine parameters as per dyeing process requirement / program sheet.</p> <p>Run winch dyeing machine to start the dyeing process as per program sheet.</p> <p>Maintain quality parameters during process according to program sheet / protocol.</p> <p>Wash-off & Neutralize dyed fabric as per program sheet.</p> <p>Unload fabric for next process after completion the job.</p> <p>Clean workstation after closing the job.</p>	<p>fabric loading to the winch machine and related instruments for loading the fabric and maintain speed while loading and unloading the fabric.</p> <p>Setting of winch dyeing machine parameters like setting of temperature, water level, liquor ratio according to recipe.</p> <p>Operational knowledge of winch dyeing machine for dyeing the product with required parameters like speed, capacity, working principle, temperature control, productivity, steam, air valve, water etc.</p> <p>Ensuring the quality parameters during dyeing process time to time like shade, temperature, pH etc.</p> <p>Importance and techniques used for wash-off and Neutralization of dyed fabric.</p> <p>Importance and advantages of cleaning the winch dyeing machine while loading & unloading the fabric and after closing the job for starting the new job.</p> <p>Removing regularly accumulated dust and dirt from the machine.</p>	<p>Practical:</p> <p>36 hours</p>	<p>pH meter pH stripes Light Box Salt Wetting agents Leveling agents Sequestering agent Washing off agents Anti foam agents Fixing agents Sodium hydroxide TDS meter</p>	<p>Dyeing Workshop</p> <p>Videos for related knowledge on multimedia</p>
<p>LU3:</p> <p>Maintain Production Register for Winch dyeing</p>	<p>The trainee will be able to:</p> <p>Record lot-wise production on production register as per given</p>	<p>Importance of recording of machine and dyeing parameters like temperature variation, time consumption, fault detection, parts positions, chemicals and auxiliaries adding time during dyeing process etc on</p>	<p>Total</p> <p>5 hours</p> <p>Theory:</p> <p>1 hours</p>	<p>Production Register</p>	<p>Dyeing Workshop</p> <p>Visit Dyeing industry</p>

<p>machine.</p>	<p>format.</p> <p>Record running and stoppage time on production register as per given format. .</p> <p>Contact with supervisor for verification of production as per given format.</p>	<p>production register</p> <p>Advantages of recording the running and stoppage time of machine for calculating machine and operator's efficiency on production register.</p> <p>Communicating with supervisor for verification of parameters recorded in the production register and identifying the problems occurring (if any) during dyeing process.</p>	<p>Practical:</p> <p>4 hours</p>	<p>Pen</p>	
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Module-6
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Module 6: 0723001091 Perform Jigger Dyeing

Objective of the module: This competency standard covers the skills and knowledge required to perform dyeing process by operating jigger dyeing machine for production of dyed substrate according to required parameters.

Duration: 60 hours **Theory:** 12 hours **Practical:** 48 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Prepare workstation for Jigger dyeing	<p>The trainee will be able to:</p> <p>Interpret program sheet for operating jigger dyeing machine.</p> <p>Clean and clear jigger dyeing machine as per check list.</p> <p>Arrange material for jigger dyeing process as per program sheet. .</p> <p>Check and verify material and parameters according to program sheet.</p>	<p>Importance of program sheet before the start of dyeing process on machine at dyeing floor with understanding the all parameters given in the program sheet.</p> <p>Cleaning of machine according to standards for operating the jigger dyeing machine. Advantages for proper machine cleaning.</p> <p>Arranging materials required for dyeing on jigger dyeing machine such as water, dyes, chemicals and auxiliaries according to program sheet.</p> <p>Checking of material required for dyeing and verifying parameters of dyeing like dye weight, chemical pH, liquor ratio, temperature, weight and length of fabric etc.</p>	<p>Total 10 hours</p> <p>Theory: 2 hours</p> <p>Practical: 8 hours</p>	<p>Jigger dyeing machine</p> <p>Over lock machine</p> <p>Textile trolleys</p> <p>Mug</p> <p>PPEs</p> <p>Mini Boiler</p> <p>Compressor</p> <p>Natural Gas</p> <p>Water</p> <p>Direct dyes</p> <p>Reactive dyes</p> <p>Fabric</p> <p>Textile Marker</p>	<p>Class Room and Workshop.</p>
LU2. Operate Jigger dyeing machine for fabric dyeing	<p>The trainee will be able to:</p> <p>Follow safety precautions as per job requirement.</p> <p>Load RFD (ready for dyeing / development) fabric on jigger machine</p>	<p>Knowledge of safety precautions used for handling the chemicals and operating jigger dyeing machine such as gloves, goggles, shoes, mask, apron, safety cap as per OH&S standards.</p> <p>Knowledge of process and techniques for fabric loading to the jigger machine and related instruments for loading the fabric</p>	<p>Total 45 hours</p> <p>Theory: 09 hours</p> <p>Practical:</p>	<p>Hydraulic device for fabric loading</p> <p>Jigger dyeing machine</p> <p>Plastic beaker</p> <p>Measuring cylinder</p> <p>Glass beaker</p> <p>Buckets</p> <p>pH meter</p>	<p>Class Room</p> <p>Workshop.</p> <p>Visit dyeing industries</p>

	<p>for dyeing as per program sheet.</p> <p>Set machine parameters as per dyeing process requirement / program sheet.</p> <p>Run jigger dyeing machine to start the dyeing process as per program sheet.</p> <p>Maintain quality parameters during process according to program sheet / protocol.</p> <p>Wash-off & Neutralize dyed fabric as per program sheet.</p> <p>Unload fabric for next process after completion the job.</p> <p>Clean workstation after closing the job.</p>	<p>and maintain speed while loading and unloading the fabric.</p> <p>Setting of jigger dyeing machine parameters like setting of temperature, water level, liquor ratio according to recipe.</p> <p>Operational knowledge of jigger dyeing machine for dyeing the product with required parameters like speed, capacity, working principle, temperature control, productivity, steam, air valve, water etc.</p> <p>Ensuring the quality parameters during dyeing process time to time like shade, temperature, pH etc.</p> <p>Importance and techniques used for wash-off and Neutralization of dyed fabric.</p> <p>Importance and advantages of cleaning the jigger dyeing machine while loading & unloading the fabric and after closing the job for starting the new job.</p> <p>Removing regularly accumulated dust and dirt from the machine.</p>	36 hours	<p>pH stripes</p> <p>Light Box</p> <p>Salt</p> <p>Wetting agents</p> <p>Leveling agents</p> <p>Sequestering agent</p> <p>Washing off agents</p> <p>Anti foam agents</p> <p>Fixing agents</p> <p>Sodium hydroxide</p> <p>TDS Meter</p> <p>Formic Acid</p> <p>Soda Ash</p>	<p>Dyeing Workshop</p> <p>Videos for related knowledge on multimedia</p>
<p>LU3.</p> <p>Maintain Production Register for Jigger dyeing machine.</p>	<p>The trainee will be able to:</p> <p>Record lot-wise production on production register as per given format.</p> <p>Record running and</p>	<p>Importance of recording of machine and dyeing parameters like temperature variation, time consumption, fault detection, parts positions, chemicals and auxiliaries adding time during dyeing process etc on production register</p> <p>Advantages of recording the running and stoppage time of machine for calculating</p>	<p>Total</p> <p>5</p> <p>Theory:</p> <p>1</p> <p>Practical:</p>	<p>Production Register</p> <p>Pen</p>	

	<p>stoppage time on production register as per given format. .</p> <p>Contact with supervisor for verification of production as per given format.</p>	<p>machine and operator's efficiency on production register.</p> <p>Communicating with supervisor for verification of parameters recorded in the production register and identifying the problems occurring (if any) during dyeing process.</p>	4		
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Module-7
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Module 7: 0723001092 Perform Jet Dyeing

Objective of the module: This competency standard covers the skills and knowledge required to perform dyeing process by operating jet dyeing machine for production of dyed substrate according to required parameters.

Duration: 70 hours **Theory:** 14 hours **Practical:** 56 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Prepare workstation for Jet dyeing	The trainee will be able to: Interpret program sheet for operating jet dyeing machine. Clean and clear jet dyeing machine as per check list. Arrange material for dyeing process as per program sheet. . Check and verify material and parameters according to program sheet.	Importance of program sheet before the start of dyeing process on machine at dyeing floor with understanding the all parameters given in the program sheet. Cleaning of machine according to standards for operating the jet dyeing machine. Advantages for proper machine cleaning. Arranging materials required for dyeing on jet dyeing machine such as water, dyes, chemicals and auxiliaries according to program sheet. Checking of material required for dyeing and verifying parameters of dyeing like dye weight, chemical pH, liquor ratio, temperature, weight and length of fabric etc.	Total 10 hours Theory: 2 hours Practical: 8 hours	Jet dyeing machine Over lock machine Textile trolleys Scissor Air dryer Fabric drying oven Mug PPEs Mini Boiler Compressor Natural Gas Water Disperse dyes Reactive dyes Fabric (PC / Polyester) Textile Marker	Class Room and Workshop.
LU2. Operate Jet dyeing machine for fabric dyeing	The trainee will be able to: Follow safety precautions as per job requirement. Load RFD (ready for	Knowledge of safety precautions used for handling the chemicals and operating jet dyeing machine such as gloves, goggles, shoes, mask, apron, safety cap as per OH&S standards. Knowledge of process and techniques for fabric loading to the jet machine and related	Total 55 hours Theory: 11 hours	Plastic beaker Measuring cylinder Glass beaker Buckets pH meter	Class Room Workshop. Visit dyeing industries

	<p>dyeing / development) fabric on jet machine for dyeing as per program sheet.</p> <p>Set machine parameters as per dyeing process requirement / program sheet.</p> <p>Run jet dyeing machine to start the dyeing process as per program sheet.</p> <p>Maintain quality parameters during process according to program sheet / protocol.</p> <p>Wash-off & Neutralize dyed fabric as per program sheet.</p> <p>Unload fabric for next process after completion the job.</p> <p>Clean workstation after closing the job.</p>	<p>instruments for loading the fabric and maintain speed while loading and unloading the fabric.</p> <p>Setting of jet dyeing machine parameters like setting of temperature, water level, liquor ratio according to recipe.</p> <p>Operational knowledge of jet dyeing machine for dyeing the product with required parameters like speed, capacity, working principle, temperature control, productivity, steam, air valve, water etc.</p> <p>Ensuring the quality parameters during dyeing process time to time like shade, temperature, pH etc.</p> <p>Importance and techniques used for wash-off and Neutralization of dyed fabric.</p> <p>Importance and advantages of cleaning the jet dyeing machine while loading & unloading the fabric and after closing the job for starting the new job.</p> <p>Removing regularly accumulated dust and dirt from the machine.</p>	<p>Practical:</p> <p>44 hours</p>	<p>pH stripes Light Box Salt Wetting agents Leveling agents Sequestering agent Washing off agents Anti foam agents Dispersing agents Sodium hydro sulphite Sodium hydroxide Anti creasing agent Formic Acid Soda Ash TDS meter</p>	<p>Dyeing Workshop</p> <p>Videos for related knowledge on multimedia</p>
<p>LU3.</p> <p>Maintain Production Register for Jet dyeing machine.</p>	<p>The trainee will be able to:</p> <p>Record lot-wise production on production register as per given format.</p>	<p>Importance of recording of machine and dyeing parameters like temperature variation, time consumption, fault detection, parts positions, chemicals and auxiliaries adding time during dyeing process etc on production register</p> <p>Advantages of recording the running and</p>	<p>Total</p> <p>05 hours</p> <p>Theory:</p> <p>01 hours</p>	<p>Production Register</p> <p>Pen</p>	<p>Dyeing Workshop</p>

	<p>Record running and stoppage time on production register as per given format. .</p> <p>Contact with supervisor for verification of production as per given format.</p>	<p>stoppage time of machine for calculating machine and operator's efficiency on production register.</p> <p>Communicating with supervisor for verification of parameters recorded in the production register and identifying the problems occurring (if any) during dyeing process.</p>	<p>Practical: 04 hours</p>		
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Module-8
CBT Curriculum
National Vocational Certificate Level 2

Version 1 - November, 2019

Module 8: 0723001093 Perform Pad batch dyeing

Objective of the module: This competency standard covers the skills and knowledge required to perform dyeing process by operating Pad batch dyeing machine for production of dyed substrate according to required parameters.

Duration: 70 hours **Theory:** 14 hours **Practical:** 56 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Prepare workstation for Pad batch dyeing	<p>The trainee will be able to: Interpret program sheet for operating Pad-batch dyeing machine.</p> <p>Clean and clear Pad-batch dyeing machine as per check list.</p> <p>Arrange material for dyeing process as per program sheet. .</p> <p>Check and verify material and parameters according to program sheet.</p>	<p>Importance of program sheet before the start of dyeing process on machine at dyeing floor with understanding the all parameters given in the program sheet.</p> <p>Cleaning of machine according to standards for operating the pad batch dyeing machine. Advantages for proper machine cleaning.</p> <p>Arranging materials required for dyeing on pad batch dyeing machine such as water, dyes, chemicals and auxiliaries according to program sheet.</p> <p>Checking of material required for dyeing and verifying parameters of dyeing like dye weight, chemical pH, pick up, temperature, weight and length of fabric etc.</p>	<p>Total 10 hours Theory: 2 hours Practical: 8 hours</p>	<p>Pad Batch dyeing machine Over lock machine Scissor Iron Fabric drying oven Mug PPEs Batcher (A-frame) Compressor Jack Polyethylene cover Masking Brown tape Weighing balance Water Reactive dyes Fabric</p>	<p>Class Room and Workshop.</p>
LU2. Operate Pad batch dyeing machine for fabric dyeing	<p>The trainee will be able to: Follow safety precautions as per job requirement.</p> <p>Apply Threading of feeding cloth as per requirement.</p> <p>Stitch RFD (ready for</p>	<p>Knowledge of safety precautions used for handling the chemicals and operating pad batch dyeing machine such as gloves, goggles, shoes, mask, apron, safety cap as per OH&S standards.</p> <p>Knowledge of process and techniques for fabric loading to the pad batch machine and related instruments for loading the fabric and maintain speed while loading</p>	<p>Total 55 hours Theory: 11 hours Practical: 44 hours</p>	<p>Plastic beaker Measuring cylinder Glass beaker Buckets Glass rod Light Box Salt Wetting agents Sodium silicate Anti foam agents</p>	<p>Class Room Workshop.</p> <p>Visit dyeing industries</p> <p>Dyeing Workshop</p> <p>Videos for related knowledge on multimedia</p>

	<p>dyeing / development) fabric with feeding cloth on pad batch machine for dyeing as per program sheet.</p> <p>Set machine parameters as per dyeing process requirement / program sheet.</p> <p>Run Pad-batch dyeing machine to start the dyeing process as per program sheet.</p> <p>Maintain quality parameters during process according to program sheet / protocol.</p> <p>Wrap the batcher with polyethylene sheet to avoid fabric drying. .</p> <p>Rotate the dyed fabric for 8 to 12 hours for dyes fixation.</p> <p>Clean workstation after closing the job.</p>	<p>and unloading the fabric.</p> <p>Setting of pad batch dyeing machine parameters like setting of temperature, water level, pick up settings according to recipe.</p> <p>Operational knowledge of pad batch dyeing machine for dyeing the product with required parameters like speed, capacity, working principle, temperature control, productivity, water etc.</p> <p>Ensuring the quality parameters during dyeing process time to time like shade, temperature, pick up, pH etc.</p> <p>Importance and techniques used for wash-off and Neutralization of dyed fabric.</p> <p>Importance and advantages of cleaning the pad batch dyeing machine while loading & unloading the fabric and after closing the job for starting the new job.</p> <p>Removing regularly accumulated dust and dirt from the machine.</p>		Sodium hydroxide TDS meter	
<p>LU3. Maintain Production Register for Pad batch dyeing machine.</p>	<p>The trainee will be able to:</p> <p>Record lot-wise production on production register as per given format.</p>	<p>Importance of recording of machine and dyeing parameters like temperature variation, time consumption, fault detection, parts positions, chemicals and auxiliaries adding time during dyeing process etc on production register</p> <p>Advantages of recording the running and</p>	<p>Total 05 hours</p> <p>Theory: 01 hours</p>	<p>Production Register</p> <p>Pen</p>	<p>Workshop</p>

	<p>Record running and stoppage time on production register as per given format. .</p> <p>Contact with supervisor for verification of production as per given format.</p>	<p>stoppage time of machine for calculating machine and operator's efficiency on production register.</p> <p>Communicating with supervisor for verification of parameters recorded in the production register and identifying the problems occurring (if any) during dyeing process.</p>	<p>Practical: 04 hours</p>		
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Module-9
CBT Curriculum
National Vocational Certificate Level 2

Version 1 - November, 2019

Module 9: 0723001094 Perform Pad Thermosol Dyeing

Objective of the module: This competency standard covers the skills and knowledge required to perform dyeing process by operating Thermosol dyeing machine for production of dyed substrate according to required parameters.

Duration: 50 hours **Theory:** 10 hours **Practical:** 40 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Prepare workstation for Pad Thermosol dyeing	<p>The trainee will be able to:</p> <p>Interpret program sheet for operating pad thermosol dyeing machine.</p> <p>Clean and clear pad thermosol dyeing machine as per check list.</p> <p>Arrange material for dyeing process as per program sheet. .</p> <p>Check and verify material and parameters according to program sheet.</p>	<p>Importance of program sheet before the start of dyeing process on machine at dyeing floor with understanding the all parameters given in the program sheet.</p> <p>Cleaning of machine according to standards for operating the pad thermosol dyeing machine. Advantages for proper machine cleaning.</p> <p>Arranging materials required for dyeing on pad thermosol dyeing machine such as water, dyes, chemicals and auxiliaries according to program sheet.</p> <p>Checking of material required for dyeing and verifying parameters of dyeing like dye weight, chemical pH, pick up, temperature, weight and length of fabric etc.</p>	<p>Total 10 hours</p> <p>Theory: 02 hours</p> <p>Practical: 08 hours</p>	<p>Pad Thermosol dyeing machine</p> <p>Over lock machine</p> <p>Scissor</p> <p>Iron</p> <p>Fabric drying oven</p> <p>Mug</p> <p>PPEs</p> <p>Batcher (A-frame)</p> <p>Textile Trolleys</p> <p>Thermal boiler</p> <p>Compressor</p> <p>Jack</p> <p>Masking Brown tape</p> <p>Weighing balance</p> <p>Water</p> <p>Reactive dyes</p> <p>Fabric Woven (PC/100%polyester)</p>	Class Room and Workshop.
LU2. Operate Pad Thermosol dyeing machine for fabric dyeing	<p>The trainee will be able to:</p> <p>Follow safety precautions as per job requirement.</p> <p>Apply Threading of feeding cloth as per requirement.</p>	<p>Knowledge of safety precautions used for handling the chemicals and operating pad thermosol dyeing machine such as gloves, goggles, shoes, mask, apron, safety cap as per OH&S standards.</p> <p>Knowledge of process and techniques for fabric loading to the pad thermosol machine and related instruments for</p>	<p>Total 35 hours</p> <p>Theory: 07 hours</p> <p>Practical:</p>	<p>Plastic beaker</p> <p>Pigments</p> <p>Vat dyes</p> <p>Disperse dyes</p> <p>Measuring cylinder</p> <p>Glass beaker</p> <p>Buckets</p> <p>Glass rod</p> <p>Urea</p>	Class Room Workshop. Visit dyeing industries

	<p>Stitch RFD (ready for dyeing / development) fabric with feeding cloth on pad thermosol machine for dyeing as per program sheet.</p> <p>Set machine parameters as per dyeing process requirement / program sheet.</p> <p>Run pad thermosol dyeing machine to start the dyeing process as per program sheet.</p> <p>Maintain quality parameters during process according to program sheet / protocol.</p> <p>Clean workstation after closing the job.</p>	<p>loading the fabric and maintain speed while loading and unloading the fabric.</p> <p>Setting of pad thermosol dyeing machine parameters like setting of temperature, water level, pick up settings according to recipe.</p> <p>Operational knowledge of pad thermosol dyeing machine for dyeing the product with required parameters like speed, capacity, working principle, temperature control, productivity, water etc.</p> <p>Ensuring the quality parameters during dyeing process time to time like shade, temperature, pick up, pH etc.</p> <p>Importance and techniques used for wash-off and Neutralization of dyed fabric.</p> <p>Importance and advantages of cleaning the pad thermosol dyeing machine while loading & unloading the fabric and after closing the job for starting the new job.</p> <p>Removing regularly accumulated dust and dirt from the machine.</p>	<p>28 hours</p>	<p>Salt Wetting agents Leveling agents Sequestering agents Dispersing agents Anti foam agents Anti migrant agents Sodium Carbonate Sodium bicarbonate Acetic Acid TDS meter</p>	<p>Dyeing Workshop</p> <p>Videos for related knowledge on multimedia</p>
<p>LU3. Maintain Production Register for Pad Thermosol dyeing machine.</p>	<p>The trainee will be able to:</p> <p>Record lot-wise production on production register as per given format.</p> <p>Record running and stoppage time on</p>	<p>Importance of recording of machine and dyeing parameters like temperature variation, time consumption, fault detection, parts positions, chemicals and auxiliaries adding time during dyeing process etc on production register</p> <p>Advantages of recording the running and stoppage time of machine for calculating machine and operator's</p>	<p>Total 05 hours</p> <p>Theory: 04 hours</p> <p>Practical: 01 hours</p>	<p>Production Register</p> <p>Pen</p>	<p>Dyeing Workshop</p>

	<p>production register as per given format. .</p> <p>Contact with supervisor for verification of production as per given format.</p>	<p>efficiency on production register.</p> <p>Communicating with supervisor for verification of parameters recorded in the production register and identifying the problems occurring (if any) during dyeing process.</p>			
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Module-10
CBT Curriculum
National Vocational Certificate Level 2

Version 1 - November, 2019

Module 10: 0723001095 Perform Pad steam dyeing

Objective of the module: This competency standard covers the skills and knowledge required to perform dyeing process by operating Pad steam dyeing machine for production of dyed substrate according to required parameters.

Duration: 50 hours **Theory:** 10 hours **Practical:** 40 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Prepare workstation for Pad steam dyeing	<p>The trainee will be able to:</p> <p>Interpret program sheet for operating Pad steam dyeing machine.</p> <p>Clean and clear Pad steam dyeing machine as per check list.</p> <p>Arrange material for dyeing process as per program sheet. .</p> <p>Check and verify material and parameters according to program sheet.</p>	<p>Importance of program sheet before the start of dyeing process on machine at dyeing floor with understanding the all parameters given in the program sheet.</p> <p>Cleaning of machine according to standards for operating the pad steam dyeing machine. Advantages for proper machine cleaning.</p> <p>Arranging materials required for dyeing on pad steam dyeing machine such as water, dyes, chemicals and auxiliaries according to program sheet.</p> <p>Checking of material required for dyeing and verifying parameters of dyeing like dye weight, chemical pH, pick up, temperature, weight and length of fabric etc.</p>	<p>Total 10 hours</p> <p>Theory: 2 hours</p> <p>Practical: 8 hours</p>	<p>Pad Steam dyeing machine Over lock machine Scissor Mug Mini Boiler PPEs Batcher (A-frame) Compressor Jack Natural Gas Weighing balance Water Textile Trolley Reactive dyes Sulphur dyes Vat dyes Fabric Cotton</p>	Class Room and Workshop.
LU2. Operate Pad steam dyeing machine for fabric dyeing	<p>The trainee will be able to:</p> <p>Follow safety precautions as per job requirement.</p> <p>Apply Threading of feeding cloth as per requirement.</p>	<p>Knowledge of safety precautions used for handling the chemicals and operating pad steam dyeing machine such as gloves, goggles, shoes, mask, apron, safety cap as per OH&S standards.</p> <p>Knowledge of process and techniques for fabric loading to the pad steam machine and related instruments for loading the fabric and maintain speed while loading</p>	<p>Total 35 hours</p> <p>Theory: 07 hours</p> <p>Practical: 28 hours</p>	<p>Plastic beaker Measuring cylinder Glass beaker Buckets Glass rod Salt Wetting agents Leveling agents Sequestering agents</p>	<p>Class Room Workshop.</p> <p>Visit dyeing industries</p> <p>Dyeing Workshop</p>

	<p>Stitch RFD (ready for dyeing / development) fabric with feeding cloth on pad steam dyeing machine for dyeing as per program sheet.</p> <p>Set machine parameters as per dyeing process requirement / program sheet.</p> <p>Run pad steam dyeing machine to start the dyeing process as per program sheet.</p> <p>Maintain quality parameters during process according to program sheet / protocol.</p> <p>Wash-off & Neutralize dyed fabric as per program sheet.</p> <p>Clean workstation after closing the job.</p>	<p>and unloading the fabric.</p> <p>Setting of pad steam dyeing machine parameters like setting of temperature, steam, water level, pick up settings according to recipe.</p> <p>Operational knowledge of pad steam dyeing machine for dyeing the product with required parameters like speed, capacity, working principle, temperature control, productivity, water etc.</p> <p>Ensuring the quality parameters during dyeing process time to time like shade, temperature, pick up, pH etc.</p> <p>Importance and techniques used for wash-off and Neutralization of dyed fabric.</p> <p>Importance and advantages of cleaning the pad steam dyeing machine while loading & unloading the fabric and after closing the job for starting the new job.</p> <p>Removing regularly accumulated dust and dirt from the machine.</p>		<p>Washing off agents Anti foam agents Sodium hydroxide Acetic acid Sodium carbonate Sodium hydro sulphite Hydrogen peroxide TDS meter</p>	<p>Videos for related knowledge on multimedia</p>
<p>LU3. Maintain Production Register for Pad Steam dyeing machine.</p>	<p>The trainee will be able to:</p> <p>Record lot-wise production on production register as per given format.</p> <p>Record running and</p>	<p>Importance of recording of machine and dyeing parameters like temperature variation, time consumption, fault detection, parts positions, chemicals and auxiliaries adding time during dyeing process etc on production register</p> <p>Advantages of recording the running and stoppage time of machine for calculating</p>	<p>Total 05 hours</p> <p>Theory: 01 hours</p> <p>Practical:</p>	<p>Production Register</p> <p>Pen</p>	<p>Workshop</p>

	<p>stoppage time on production register as per given format. .</p> <p>Contact with supervisor for verification of production as per given format.</p>	<p>machine and operator's efficiency on production register.</p> <p>Communicating with supervisor for verification of parameters recorded in the production register and identifying the problems occurring (if any) during dyeing process.</p>	04 hours		
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Module-11
CBT Curriculum
National Vocational Certificate Level 2

Version 1 - November, 2019

Module 11: 0723001096 Perform Cone Dyeing

Objective of the module: This competency standard covers the skills and knowledge required to perform dyeing process by operating Cone dyeing machine for production of dyed cones / package / yarn according to required parameters.

Duration: 80 hours **Theory:** 16 hours **Practical:** 64 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Prepare workstation for Cone dyeing	<p>The trainee will be able to:</p> <p>Interpret program sheet for operating Cone dyeing machine.</p> <p>Clean and clear Cone dyeing machine as per check list.</p> <p>Arrange material for dyeing process as per program sheet. .</p> <p>Check and verify material and parameters according to program sheet.</p>	<p>Importance of program sheet before the start of dyeing process on machine at dyeing floor with understanding the all parameters given in the program sheet.</p> <p>Cleaning of machine according to standards for operating the cone dyeing machine. Advantages for proper machine cleaning.</p> <p>Arranging materials required for dyeing on cone dyeing machine such as water, dyes, chemicals and auxiliaries according to program sheet.</p> <p>Checking of material required for dyeing and verifying parameters of dyeing like dye weight, chemical pH, liquor ratio, temperature, weight and length of yarn etc.</p>	<p>Total 10 hours</p> <p>Theory: 2 hours</p> <p>Practical: 8 hours</p>	<p>Cone dyeing machine Scissor Air dryer Mug Mini Boiler PPEs Compressor Natural Gas Weighing balance Water Cone Carrier Direct Dyes Reactive dyes Disperse dyes Vat dyes Cotton Cones</p>	<p>Class Room and Workshop.</p>
LU2. Operate Cone dyeing machine for yarn dyeing	<p>The trainee will be able to:</p> <p>Follow safety precautions as per job requirement.</p> <p>Load RFD (ready for dyeing / development) cones / package on Cone dyeing machine</p>	<p>Knowledge of safety precautions used for handling the chemicals and operating jet dyeing machine such as gloves, goggles, shoes, mask, apron, safety cap as per OH&S standards.</p> <p>Knowledge of process and techniques for fabric loading to the cone machine and related instruments for loading the cones and maintain speed while loading and</p>	<p>Total 65 hours</p> <p>Theory: 13 hours</p> <p>Practical: 52 hours</p>	<p>Plastic beaker Measuring cylinder Glass beaker Buckets Glass rod Salt Wetting agents Leveling agents</p>	<p>Class Room Workshop. Visit dyeing industries Dyeing Workshop</p>

	<p>for dyeing as per program sheet.</p> <p>Set machine parameters as per dyeing process requirement / program sheet.</p> <p>Run Cone dyeing machine to start the dyeing process as per program sheet.</p> <p>Maintain quality parameters during process according to program sheet / protocol.</p> <p>Wash-off & Neutralize dyed fabric as per program sheet.</p> <p>Unload Cones for next process after completion the job.</p> <p>Clean workstation after closing the job.</p>	<p>unloading the fabric.</p> <p>Settings of cone dyeing machine parameters like setting of temperature, water level, liquor ratio according to recipe.</p> <p>Operational knowledge of cone dyeing machine for dyeing the product with required parameters like speed, capacity, working principle, temperature control, productivity, water etc.</p> <p>Ensuring the quality parameters during dyeing process time to time like shade, temperature, pick up, pH etc.</p> <p>Importance and techniques used for wash-off and Neutralization of dyed fabric.</p> <p>Importance and advantages of cleaning the cone dyeing machine while loading & unloading the yarn and after closing the job for starting the new job.</p> <p>Removing regularly accumulated dust and dirt from the machine.</p>		<p>Sequestering agents</p> <p>Washing off agents</p> <p>Anti foam agents</p> <p>Sodium hydroxide</p> <p>Acetic acid</p> <p>Sodium carbonate</p> <p>Fixing agents</p> <p>TDS meter</p>	<p>Videos for related knowledge on multimedia</p>
<p>LU3. Maintain Production Register for Cone dyeing machine.</p>	<p>The trainee will be able to:</p> <p>Record lot-wise production on production register as per given format.</p> <p>Record running and</p>	<p>Importance of recording of machine and dyeing parameters like temperature variation, time consumption, fault detection, parts positions, chemicals and auxiliaries adding time during dyeing process etc on production register</p> <p>Advantages of recording the running and stoppage time of machine for calculating</p>	<p>Total 05 hours</p> <p>Theory: 01 hours</p> <p>Practical:</p>	<p>Production Register</p> <p>Pen</p>	<p>Workshop</p>

	<p>stoppage time on production register as per given format. .</p> <p>Contact with supervisor for verification of production as per given format.</p>	<p>machine and operator's efficiency on production register.</p> <p>Communicating with supervisor for verification of parameters recorded in the production register and identifying the problems occurring (if any) during dyeing process.</p>	04 hours		
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Module-12

CBT Curriculum

National Vocational Certificate Level 2

Version 1 - November, 2019

Module 12: 0723001097 Perform Rope Dyeing (Denim)

Objective of the module: This competency standard covers the skills and knowledge required to perform dyeing process by operating rope dyeing machine for production of dyed rope according to required parameters.

Duration: 80 hours **Theory:** 16 hours **Practical:** 64 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Prepare workstation for Rope dyeing	<p>The trainee will be able to:</p> <p>Interpret program sheet for operating rope dyeing machine. (sheet dyeing)</p> <p>Clean and clear rope dyeing machine as per check list.</p> <p>Arrange material for rope dyeing process as per program sheet. .</p> <p>Check and verify material and parameters according to program sheet.</p>	<p>Importance of program sheet before the start of dyeing process on machine at dyeing floor with understanding the all parameters given in the program sheet.</p> <p>Cleaning of machine according to standards for operating the rope dyeing machine. Advantages for proper machine cleaning.</p> <p>Arranging materials required for dyeing on rope dyeing machine such as water, dyes, chemicals and auxiliaries according to program sheet.</p> <p>Checking of material required for dyeing and verifying parameters of dyeing like dye weight, chemical pH, liquor ratio, temperature, weight and length of rope etc.</p>	<p>Total 10 hours</p> <p>Theory: 2 hours</p> <p>Practical: 8 hours</p>	<p>Rope dyeing machine Scissor Air dryer Mug Mini Boiler PPEs Compressor Natural Gas Weighing balance Water Textile trolleys Indigo dyes Sulphur dyes Cotton yarn</p>	<p>Class Room and Workshop.</p>
LU2. Operate Rope dyeing machine for rope dyeing	<p>The trainee will be able to:</p> <p>Follow safety precautions as per job requirement.</p> <p>Apply Threading of feeding rope as per requirement.</p>	<p>Knowledge of safety precautions used for handling the chemicals and operating rope dyeing machine such as gloves, goggles, shoes, mask, apron, safety cap as per OH&S standards.</p> <p>Knowledge of process and techniques for rope loading to the rope machine and related instruments for loading the fabric</p>	<p>Total 65 hours</p> <p>Theory: 13 hours</p> <p>Practical:</p>	<p>Plastic beaker Measuring cylinder Glass beaker Buckets Glass rod Sodium hydro sulphite Hydrogen peroxide Salt</p>	<p>Class Room Workshop.</p> <p>Visit dyeing industries</p>

	<p>Stitch RFD (ready for dyeing / development) ropes with feeding cloth on rope dyeing machine for dyeing as per program sheet.</p> <p>Set machine parameters as per dyeing process requirement / program sheet.</p> <p>Run rope dyeing machine to start the dyeing process as per program sheet.</p> <p>Maintain quality parameters during process according to program sheet / protocol.</p> <p>Wash-off & Neutralize dyed fabric as per program sheet.</p> <p>Clean workstation after closing the job.</p>	<p>and maintain speed while loading and unloading the ropes.</p> <p>Setting of rope dyeing machine parameters like setting of temperature, water level, liquor ratio according to recipe.</p> <p>Operational knowledge of rope dyeing machine for dyeing the product with required parameters like speed, capacity, working principle, temperature control, productivity, water etc.</p> <p>Ensuring the quality parameters during dyeing process time to time like shade, temperature, liquor ratio, pH etc.</p> <p>Importance and techniques used for wash-off and Neutralization of dyed fabric.</p> <p>Importance and advantages of cleaning the rope dyeing machine while loading & unloading the rope and after closing the job for starting the new job.</p> <p>Removing regularly accumulated dust and dirt from the machine.</p>	52 hours	<p>Sodium sulphite Wetting agents Leveling agents Sequestering agents Washing off agents Anti foam agents Sodium hydroxide Acetic acid TDS meter</p>	<p>Dyeing Workshop</p> <p>Videos for related knowledge on multimedia</p>
<p>LU3. Maintain Production Register for Rope dyeing machine.</p>	<p>The trainee will be able to:</p> <p>Record lot-wise production on production register as per given format.</p>	<p>Importance of recording of machine and dyeing parameters like temperature variation, time consumption, fault detection, parts positions, chemicals and auxiliaries adding time during dyeing process etc on production register</p> <p>Advantages of recording the running and</p>	<p>Total 05 hours Theory: 01 hours</p>	<p>Production Register Pen</p>	<p>Workshop</p>

	<p>Record running and stoppage time on production register as per given format. .</p> <p>Contact with supervisor for verification of production as per given format.</p>	<p>stoppage time of machine for calculating machine and operator's efficiency on production register.</p> <p>Communicating with supervisor for verification of parameters recorded in the production register and identifying the problems occurring (if any) during dyeing process.</p>	<p>Practical: 04 hours</p>		
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Module-13

CBT Curriculum

National Vocational Certificate Level 2

Version 1 - November, 2019

Module 13: 0723001098 Perform Soft flow dyeing

Objective of the module: This competency standard covers the skills and knowledge required to perform dyeing process by operating Soft flow dyeing machine for production of dyed substrate according to required parameters.

Duration: 60 hours **Theory:** 12 hours **Practical:** 48 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Prepare workstation for Soft flow dyeing	<p>The trainee will be able to:</p> <p>Interpret program sheet for operating soft flow dyeing machine.</p> <p>Clean and clear soft flow dyeing machine as per check list.</p> <p>Arrange material for dyeing process as per program sheet. .</p> <p>Check and verify material and parameters according to program sheet.</p>	<p>Importance of program sheet before the start of dyeing process on machine at dyeing floor with understanding the all parameters given in the program sheet.</p> <p>Cleaning of machine according to standards for operating the soft flow dyeing machine. Advantages for proper machine cleaning.</p> <p>Arranging materials required for dyeing on soft flow dyeing machine such as water, dyes, chemicals and auxiliaries according to program sheet.</p> <p>Checking of material required for dyeing and verifying parameters of dyeing like dye weight, chemical pH, liquor ratio, temperature, weight and length of fabric etc.</p>	<p>Total 10 hours</p> <p>Theory: 2 hours</p> <p>Practical: 8 hours</p>	<p>Soft flow dyeing machine</p> <p>Over lock machine</p> <p>Scissor</p> <p>Air dryer</p> <p>Mug</p> <p>Fabric drying oven</p> <p>Mini Boiler</p> <p>PPEs</p> <p>Compressor</p> <p>Natural Gas</p> <p>Weighing balance</p> <p>Water</p> <p>Textile trolleys</p> <p>Direct dyes</p> <p>Indigo dyes</p> <p>Reactive dyes</p> <p>Disperse dyes</p> <p>Vat dyes</p> <p>Fabric (Cotton / Towel / Denim) woven / Knitted</p>	<p>Class Room and Workshop.</p>
LU2. Operate Soft flow dyeing machine for fabric dyeing	<p>The trainee will be able to:</p> <p>Follow safety precautions as per job requirement.</p>	<p>Knowledge of safety precautions used for handling the chemicals and operating jet dyeing machine such as gloves, goggles, shoes, mask, apron, safety cap as per OH&S standards.</p>	<p>Total 45 hours</p> <p>Theory: 09 hours</p>	<p>Plastic beaker</p> <p>Measuring cylinder</p> <p>Glass beaker</p> <p>Buckets</p>	<p>Class Room</p> <p>Workshop.</p> <p>Visit dyeing industries</p>

	<p>Load RFD (ready for dyeing / development) fabric on soft flow machine for dyeing as per program sheet.</p> <p>Set machine parameters as per dyeing process requirement / program sheet.</p> <p>Run soft flow dyeing machine to start the dyeing process as per program sheet.</p> <p>Maintain quality parameters during process according to program sheet / protocol.</p> <p>Wash-off & Neutralize dyed fabric as per program sheet.</p> <p>Unload fabric for next process after completion the job.</p> <p>Clean workstation after closing the job.</p>	<p>Knowledge of process and techniques for fabric loading to the soft flow machine and related instruments for loading the fabric and maintain speed while loading and unloading the fabric.</p> <p>Setting of soft flow dyeing machine parameters like setting of temperature, water level, pick-up settings according to recipe.</p> <p>Operational knowledge of soft flow dyeing machine for dyeing the product with required parameters like speed, capacity, working principle, temperature control, productivity, water etc.</p> <p>Ensuring the quality parameters during dyeing process time to time like shade, temperature, liquor ratio, pH etc.</p> <p>Importance and techniques used for wash-off and Neutralization of dyed fabric.</p> <p>Importance and advantages of cleaning the soft flow dyeing machine while loading & unloading the fabric and after closing the job for starting the new job.</p> <p>Removing regularly accumulated dust and dirt from the machine.</p>	<p>Practical: 36 hours</p>	<p>Glass rod Textile Marker Sulphuric acid Sodium carbonate Salt Wetting agents Leveling agents Sequestering agents Washing off agents Anti foam agents Dispersing agents Sodium hydroxide Acetic acid TDS meter</p>	<p>Dyeing Workshop</p> <p>Videos for related knowledge on multimedia</p>
<p>LU3. Maintain Production Register for Soft flow dyeing machine.</p>	<p>The trainee will be able to:</p> <p>Record lot-wise production on production register as per given</p>	<p>Importance of recording of machine and dyeing parameters like temperature variation, time consumption, fault detection, parts positions, chemicals and auxiliaries adding time during dyeing process etc on</p>	<p>Total 05 hours Theory:</p>	<p>Production Register</p>	<p>Workshop</p>

	<p>format.</p> <p>Record running and stoppage time on production register as per given format. .</p> <p>Contact with supervisor for verification of production as per given format.</p>	<p>production register</p> <p>Advantages of recording the running and stoppage time of machine for calculating machine and operator's efficiency on production register.</p> <p>Communicating with supervisor for verification of parameters recorded in the production register and identifying the problems occurring (if any) during dyeing process.</p>	<p>01 hours</p> <p>Practical: 04 hours</p>	<p>Pen</p>	
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TEXTILE WET PROCESSING



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Module-14

CBT Curriculum

National Vocational Certificate Level 2

Version 1 - November, 2019

Module 14: 0723001099 Perform Garment dyeing

Objective of the module: This competency standard covers the skills and knowledge required to perform dyeing process by operating garment dyeing machine for production of dyed substrate according to required parameters.

Duration: 60 hours **Theory:** 12 hours **Practical:** 48 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Prepare workstation for Garment dyeing	<p>The trainee will be able to:</p> <p>Interpret program sheet for operating garment dyeing machine.</p> <p>Clean and clear garment dyeing machine as per check list.</p> <p>Arrange material for dyeing process as per program sheet. .</p> <p>Check and verify material and parameters according with program sheet.</p>	<p>Importance of program sheet before the start of dyeing process on machine at dyeing floor with understanding the all parameters given in the program sheet.</p> <p>Cleaning of machine according to standards for operating the garment dyeing machine. Advantages for proper machine cleaning.</p> <p>Arranging materials required for dyeing on garment dyeing machine such as water, dyes, chemicals and auxiliaries according to program sheet.</p> <p>Checking of material required for dyeing and verifying parameters of dyeing like dye weight, chemical pH, liquor ratio, temperature, weight and length of garment etc.</p>	<p>Total 10 hours</p> <p>Theory: 2 hours</p> <p>Practical: 8 hours</p>	<p>Garment dyeing machine</p> <p>Scissor</p> <p>Air dryer</p> <p>Mug</p> <p>Fabric drying oven</p> <p>Mini Boiler</p> <p>PPEs</p> <p>Compressor</p> <p>Natural Gas</p> <p>pH meter</p> <p>pH stripes</p> <p>TDS meter</p> <p>Light Box</p> <p>Hydro exacter</p> <p>Tumble dryer</p> <p>Water</p> <p>Textile trolleys</p> <p>Direct dyes</p> <p>Reactive dyes</p> <p>Sulphur dyes</p> <p>Pigments</p> <p>Cotton garment</p>	<p>Class Room and Workshop.</p>
LU2. Operate Garment dyeing machine for garment dyeing	<p>The trainee will be able to:</p> <p>Follow safety precautions as per job requirement.</p>	<p>Knowledge of safety precautions used for handling the chemicals and operating jet dyeing machine such as gloves, goggles, shoes, mask, apron, safety cap as per</p>	<p>Total 45 hours</p> <p>Theory:</p>	<p>Plastic beaker</p> <p>Measuring cylinder</p> <p>Glass beaker</p> <p>Buckets</p> <p>Glass rod</p>	<p>Class Room</p> <p>Workshop.</p>

	<p>Load ready for dyeing (RFD) garments on garment dyeing machine for dyeing as per program sheet.</p> <p>Set machine parameters according to garment dyeing process requirement / program sheet.</p> <p>Run garment dyeing machine to start the dyeing process as per program sheet.</p> <p>Maintain quality during process according to program sheet.</p> <p>Wash-off & Neutralize dyed garment as per program sheet.</p> <p>Unload garment for next process as per program sheet.</p> <p>Apply mechanical drying through hydro extractor as per process requirement.</p> <p>Dry processed garment through Tumble dryer as per process requirement.</p>	<p>OH&S standards.</p> <p>Knowledge of process and techniques for garment loading to the garment machine and related instruments for loading the garment and maintain speed while loading and unloading the garment.</p> <p>Setting of garment dyeing machine parameters like setting of temperature, water level, liquor ratio settings according to recipe.</p> <p>Operational knowledge of garment dyeing machine for dyeing the product with required parameters like speed, capacity, working principle, temperature control, productivity, water etc.</p> <p>Ensuring the quality parameters during dyeing process time to time like shade, temperature, liquor ratio, pH etc.</p> <p>Importance and techniques used for wash-off and Neutralization of dyed garment.</p> <p>Importance and advantages of cleaning the garment dyeing machine while loading & unloading the garment and after closing the job for starting the new job.</p> <p>Methods of mechanical drying with their working principles.</p> <p>Importance dry process through tumble dryer for garment.</p> <p>Removing regularly accumulated dust and dirt from the machine.</p>	<p>09 hours</p> <p>Practical:</p> <p>36 hours</p>	<p>Textile Marker</p> <p>Sodium carbonate</p> <p>Salt</p> <p>Sodium hydro sulphite</p> <p>Wetting agents</p> <p>Leveling agents</p> <p>Sequestering agents</p> <p>Washing off agents</p> <p>Anti foam agents</p> <p>Sodium hydroxide</p> <p>Hydrogen peroxide</p> <p>Binder</p> <p>Acetic acid</p> <p>Fixing agents</p>	<p>Visit dyeing industries</p> <p>Dyeing Workshop</p> <p>Videos for related knowledge on multimedia</p>
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	Clean workstation after closing the job.				
LU3. Maintain Production Register for Garment dyeing machine.	<p>The trainee will be able to:</p> <p>Record lot-wise production on production register as per given format.</p> <p>Record running and stoppage time on production register as per given format. .</p> <p>Contact with supervisor for verification of production as per given format.</p>	<p>Importance of recording of machine and dyeing parameters like temperature variation, time consumption, fault detection, parts positions, chemicals and auxiliaries adding time during dyeing process etc on production register</p> <p>Advantages of recording the running and stoppage time of machine for calculating machine and operator's efficiency on production register.</p> <p>Communicating with supervisor for verification of parameters recorded in the production register and identifying the problems occurring (if any) during dyeing process.</p>	<p>Total 05 hours</p> <p>Theory: 01 hours</p> <p>Practical: 04 hours</p>	<p>Production Register</p> <p>Pen</p>	Workshop

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Module-15
CBT Curriculum
National Vocational Certificate Level 2

Version 1 - November, 2019

Module 15: 0723001100 Perform Stenter dyeing

Objective of the module: This competency standard covers the skills and knowledge required to perform dyeing process by operating Stenter dyeing machine for production of dyed substrate according to required parameters.

Duration: 40 hours **Theory:** 08 hours **Practical:** 32 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Prepare workstation for Stenter dyeing	<p>The trainee will be able to:</p> <p>Interpret program sheet for operating Stenter dyeing machine.</p> <p>Clean and clear Stenter dyeing machine as per check list.</p> <p>Arrange material for dyeing process as per program sheet. .</p> <p>Check and verify material and parameters according to program sheet.</p>	<p>Importance of program sheet before the start of dyeing process on machine at dyeing floor with understanding the all parameters given in the program sheet.</p> <p>Cleaning of machine according to standards for operating the stenter dyeing machine. Advantages for proper machine cleaning.</p> <p>Arranging materials required for dyeing on stenter dyeing machine such as water, dyes, chemicals and auxiliaries according to program sheet.</p> <p>Checking of material required for dyeing and verifying parameters of dyeing like dye weight, chemical pH, pick up, temperature, weight and length of fabric etc.</p>	<p>Total 10 hours</p> <p>Theory: 2 hours</p> <p>Practical: 8 hours</p>	<p>Stenter dyeing machine</p> <p>Over lock machine</p> <p>Scissor</p> <p>Air dryer</p> <p>Mug</p> <p>Fabric drying oven</p> <p>Thermal Boiler</p> <p>PPEs</p> <p>Compressor</p> <p>Weighing balance</p> <p>Water</p> <p>Textile trolleys</p> <p>Batcher</p> <p>Jack</p> <p>Pigments</p> <p>TDS meter</p> <p>Direct dyes</p> <p>Indigo dyes</p> <p>Reactive dyes</p> <p>Disperse dyes</p> <p>Vat dyes</p> <p>Fabric (PC Woven)</p> <p>Fabric Denim woven / Knitted</p>	<p>Class Room and Workshop.</p>
LU2. Operate Stenter dyeing machine for	<p>The trainee will be able to:</p> <p>Follow safety</p>	<p>Knowledge of safety precautions used for handling the chemicals and operating stenter dyeing machine such as gloves,</p>	<p>Total 25 hours</p>	<p>Plastic beaker</p>	<p>Class Room Workshop.</p>

<p>fabric dyeing</p>	<p>precautions as per job requirement.</p> <p>Apply Threading of feeding cloth as per requirement.</p> <p>Stitch RFD (ready for dyeing / development) fabric with feeding cloth on stenter dyeing machine for dyeing as per program sheet.</p> <p>Set machine parameters as per dyeing process requirement / program sheet.</p> <p>Run stenter dyeing machine to start the dyeing process as per program sheet.</p> <p>Maintain quality parameters during process according to program sheet / protocol.</p> <p>Clean workstation after closing the job.</p>	<p>goggles, shoes, mask, apron, safety cap as per OH&S standards.</p> <p>Knowledge of process and techniques for fabric loading to the stenter machine and related instruments for loading the fabric and maintain speed while loading and unloading the fabric.</p> <p>Setting of stenter dyeing machine parameters like setting of temperature, water level, pick up settings according to recipe.</p> <p>Operational knowledge of stenter dyeing machine for dyeing the product with required parameters like speed, capacity, working principle, temperature control, productivity, water etc.</p> <p>Ensuring the quality parameters during dyeing process time to time like shade, temperature, pick up, pH etc.</p> <p>Importance and techniques used for wash-off and Neutralization of dyed fabric.</p> <p>Importance and advantages of cleaning the stenter dyeing machine while loading & unloading the fabric and after closing the job for starting the new job.</p> <p>Removing regularly accumulated dust and dirt from the machine.</p>	<p>Theory: 05 hours</p> <p>Practical: 20 hours</p>	<p>Measuring cylinder</p> <p>Glass beaker</p> <p>Buckets</p> <p>Glass rod</p> <p>Sulphuric acid</p> <p>Sodium carbonate</p> <p>Salt</p> <p>Wetting agents</p> <p>Anti foam agents</p> <p>Fixing agents</p> <p>Anti migrant agents</p> <p>Softener</p>	<p>Visit dyeing industries</p> <p>Dyeing Workshop</p> <p>Videos for related knowledge on multimedia</p>
<p>LU3. Maintain Production Register for Stenter dyeing</p>	<p>The trainee will be able to:</p> <p>Record lot-wise production on production</p>	<p>Importance of recording of machine and dyeing parameters like temperature variation, time consumption, fault detection, parts positions, chemicals and auxiliaries adding time during dyeing process etc on</p>	<p>Total 05 hours</p> <p>Theory:</p>	<p>Production Register</p>	<p>Workshop</p>

<p>machine.</p>	<p>register as per given format.</p> <p>Record running and stoppage time on production register as per given format. .</p> <p>Contact with supervisor for verification of production as per given format.</p>	<p>production register</p> <p>Advantages of recording the running and stoppage time of machine for calculating machine and operator's efficiency on production register.</p> <p>Communicating with supervisor for verification of parameters recorded in the production register and identifying the problems occurring (if any) during dyeing process.</p>	<p>01 hours</p> <p>Practical: 04 hours</p>	<p>Pen</p>	
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General assessment guidance for Textile Wet Processing (Dyeing Machine Operator) Level-2

Good practice in Pakistan makes use of sessional and final assessments, the basis of which is described below. Good practice by vocational training providers in Pakistan is to use a combination of these sessional and final assessments, combined to produce the final qualification result.

Sessional assessment is going on all the time. Its purpose is to provide feedback on what students are learning:

- to the student: to identify achievement and areas for further work
- to the teacher: to evaluate the effectiveness of teaching to date, and to focus future plans.

Assessors need to devise sessional assessments for both theoretical and practical work. Guidance is provided in the assessment strategy

Final assessment is the assessment, usually on completion of a course or module, which says whether or not the student has "passed". It is – or should be – undertaken with reference to all the objectives or outcomes of the course, and is usually fairly formal. Considerations of security – ensuring that the student who gets the credit is the person who did the work – assume considerable importance in final assessment and declared after performance based assessment at the each module as “Competent” or “Not Yet Competent”

Methods of assessment

For lessons with a high quantity of theory, written or oral tests related to learning outcomes and/ or learning content can be conducted. For workplace lessons, assessment can focus on the quality of planning the related process, the quality of executing the process, the quality of the product and/or evaluation of the process.

Methods include direct assessment, which is the most desirable form of assessment. For this method, evidence is obtained by direct observation of the student’s performance.

Examples for direct assessment of Textile Wet Processing (Dyeing Machine Operator) Level-2 include:

- Work performances, for example dyeing the fabric / cone /rope / garment on required parameters, or preparing workstation for performing the job.
- Demonstrations, for example demonstrating the tools and equipment requires for dyeing according to the given spec sheet.
- Direct questioning, where the assessor would ask the student why he is dyeing the fabric in a certain way, or how the student will find out about the current and future requirements for the dyed fabric.
- Paper-based tests, such as multiple choice or short answer questions on types of dyes and chemicals required to dye the fabric on specific dyeing machine, preparing the work station for dyeing or developing productive working relationships with associates.

Indirect assessment is the method used where the performance could not be watched and evidence is gained indirectly.

Examples for indirect assessment of Textile Wet Processing (Dyeing Machine Operator) Level-2 include:

- Work products, such as a photo or sample of dyed fabric made by trainee are present at portfolio.
- Workplace documents, such as a diary of daily working that has been ready for dyeing.

Indirect assessment should only be a second choice. (In some cases, it may not even be guaranteed that the work products were produced by the person being assessed.)

Principles of assessment

All assessments should be valid, reliable, fair and flexible:

Fairness means that there should be no advantages or disadvantages for any assessed person. For example, it should not happen that one student gets prior information about the type of work performance that will be assessed, while another candidate does not get any prior information.

Validity means that a valid assessment assesses what it claims to assess. For example, if dyeing skills are to be assessed and certificated, the assessment should involve performance criteria that are directly related to that dyeing activity. An interview about the types of the dyeing processes on different dyeing machines would not meet the performance criteria.

Reliability means that the assessment is consistent and reproducible. For example, if the work performance of dyeing the fabric / rope / cones / garment has been assessed, another assessor (eg the future employer) should be able to see the same work performance and witness the same level of achievement.

Flexibility means that the assessor has to be flexible concerning the assessment approach. For example, if there is a power failure during the assessment, the assessor should modify the arrangements to accommodate the students' needs.

Assessment strategy for the Textile Wet Processing (Dyeing Machine Operator) Level-2 Curriculum

This curriculum consists of 15 modules:

- Comply Personal Health and Safety Guidelines
- Communicate the Workplace Policy and Procedure
- Perform Basic Communication
- Perform Basic Computer Application
- Perform Winch Dyeing
- Perform Jigger Dyeing
- Perform Jet Dyeing
- Perform Pad batch Dyeing
- Perform Pad thermosol Dyeing
- Perform Pad steam Dyeing
- Perform Cone Dyeing
- Perform Rope Dyeing
- Perform Soft flow Dyeing
- Perform Garment Dyeing
- Perform Stenter Dyeing

Sessional assessment

The sessional assessment for all modules shall be in two parts: theoretical assessment and practical assessment. The sessional marks shall contribute to the final qualification.

Theoretical assessment for all learning modules must consist of a written paper lasting at least one hour per module. This can be a combination of multiple choice and short answer questions.

For practical assessment, all procedures and methods for the modules must be assessed on a sessional basis. Guidance is provided below under Planning for assessment.

Final assessment

Final assessment shall be in two parts: theoretical assessment and practical assessment. The final assessment marks shall contribute to the final qualification.

The final theoretical assessment shall consist of one 3-hour paper. The paper shall consist of half multiple choice and half short-answer questions. This part shall cover the all dyeing modules:

- Perform Winch Dyeing
- Perform Jigger Dyeing
- Perform Jet Dyeing
- Perform Pad batch Dyeing
- Perform Pad thermosol Dyeing
- Perform Pad steam Dyeing
- Perform Cone Dyeing
- Perform Rope Dyeing
- Perform Soft flow Dyeing
- Perform Garment Dyeing
- Perform Stenter Dyeing

For the final practical assessment, each student shall be assessed over a period of two days, with two 3-hour sessions on each day. This represents a total of four sessions totaling 12 hours of practical assessment for each student. During this period, each student must be assessed on his/her ability to dye one complete garment / fabric / rope /cone as per given in assessment package as trained in different modules (Module 5 to Module 15) of the course.

Module 1 to 4 shall not be assessed separately, but must be assessed during each of the practical sessions.

The assessment team

The number of assessors must meet the needs of the students and the training provider. For example, where two assessors are conducting the assessment, there must be a maximum of five students per assessor. In this example, a group of 20 students shall therefore require assessments to be carried out over a four-day period. For a group of only 10 students, assessments would be carried out over a two-day period only.

Planning for assessment

Sessional assessment: assessors need to plan in advance how they will conduct sessional assessments for each module. The tables on the following pages are for assessors to use to insert how many hours of theoretical and practical assessment will be conducted and what the scheduled dates are.

Final assessment: Training providers need to decide ways to combine modules into a cohesive two-day final assessment program for each group of five students. Training providers must agree the dyeing program for practical assessments in advance.

Complete list of machines.

Sr#	Description
1	Winch Dyeing Machine (Pilot scale) (Capacity 15 Kg and width 60")
2	Over lock machine with all accessories
3	Mini Boiler
4	Jigger Dyeing Machine (Pilot scale) (Capacity 15 Kg and width 60")
5	Jet Dyeing Machine (Pilot scale) (Capacity 15 Kg)
6	Batcher (A-frame)
7	Pad batch Dyeing Machine (Pilot scale) (machine width 1800 mm)
8	Pad thermosol Dyeing Machine (Pilot scale) (width 1800 mm)
9	Pad steam Dyeing Machine (Pilot scale) (width 1800 mm)
10	Cone Dyeing Machine (Pilot scale) (Capacity 15 Kg)
11	Rope Dyeing Machine (Pilot scale) (Capacity 40 ropes)
12	Soft flow Dyeing Machine (Pilot scale) (Capacity 15 Kg and width 60")
13	Hydro exactor
14	Tumble dryer
15	Stenter Dyeing Machine (Pilot scale) (width 1800 mm)

Complete list of tools and equipment.

Sr#	Description
1	First Aid Box
2	Fire Extinguishers
3	Fire hose reel
4	Fire blanket
5	Telephone set
6	Smoke detecting Alarm
7	Manual of organizational Safety rules and regulations

8	Person protection and safety equipment
9	Manual of Safety signs and symbols
10	Waste disposal SOPs
11	Scissors
12	Air dryer
13	Fabric Drying Oven
14	Mug
15	Textile Trolleys
16	PPEs <ul style="list-style-type: none"> - Gloves - Goggles - Shoes - Mask - Apron - Safety Cap
17	Compressor
18	Natural Gas for boiler
19	pH meter
20	TDS meter
21	Light Box
22	Jack
23	Calculator
24	Weighing balance
25	Fax machine
26	Mobile phone
27	Audio System
28	Speakers
29	Multimedia
30	Light box (D65, TL84, CWF, UV,INCA)
31	TDS meter

Complete list of Consumables

Sr#	Description
1	Plastic Beaker 500 ml and 250 ml
2	Measuring Cylinder 1000 ml
3	Buckets
4	Glass Beaker 500 ml and 250 ml
5	Glass Rods
6	Textile Marker
7	pH stripes
8	Thermal boiler
9	Water
10	Direct dyes (Yellow, Red, Blue)
11	Reactive dyes (Yellow, Red, Blue)
12	Salt
13	Sodium Carbonate (Soda Ash)
14	Formic Acid
15	Wetting Agents
16	Leveling Agents
17	Sequestering Agent
18	Washing-off Agents
19	Anti-foam Agents
20	Fixing Agents
21	Sodium Hydroxide
22	Cotton Fabric RFD (Knitted)
23	Cotton Towel RFD (Knitted)
24	Cotton Fabric RFD (Woven)
25	Disperse dyes (Yellow, Red, Blue)
26	Acetic acid
27	Dispersing Agents
28	Sodium Hydro sulphite (Sodium dithionite)

29	Anti creasing agent
30	PC Fabric RFD (Woven)
31	Polyester fabric RFD (Knitted)
32	Polyethylene cover
33	Masking brown tape
34	Sodium Silicate
35	Sodium Hydroxide (Caustic Soda)
36	Pigment, Vat, disperse dyes (Yellow, Red, Blue)
37	Urea
38	Anti-migrate agent
39	Sulphur dyes, Vat (Yellow, Red, Blue)
40	Hydrogen peroxide
41	Formic Acid
42	Cotton Cones of 2.25 lbs each (RFD- Ready for dyeing)
43	Indigo dyes
44	Cotton yarn
45	Sulphuric acid (also in jet)
46	Vat dyes (Yellow, Red, Blue)
47	Towel fabric (RFD- Ready for dyeing / development)
48	Cotton denim fabric (RFD- Ready for dyeing / development)
49	Pigment (Yellow, Red, Blue)
50	Binder
51	Cotton Garment RFD (Knitted)
52	Cotton Garment RFD (Woven)
53	Denim Garment
54	Denim Knitted Fabric RFD
55	Denim Woven Fabric RFD
56	Office files (Stationary related items)

Credit values

The credit value of the National Certificate Level 2 in Textile Wet Processing (Dyeing Machine Operator) is defined by estimating the amount of time/ instruction hours required to complete each competency unit and competency standard. The NVQF uses a standard credit value of 1 credit = 10 hours of learning (Following Higher Education Commission (HEC) guidelines).

The credit values are as follows:

Module	Theory ³ Days/hours	Workplace ⁴ Days/hours	Total hours
Module 1: Comply Personal Health and Safety Guidelines	20	80	30
Module 2: Communicate the Workplace Policy and Procedure	28	112	20
Module 3: Perform Basic Communication	20	80	30
Module 4: Perform Basic Computer Application	14	56	40
Module 5: Perform Winch Dyeing	14	56	60
Module 6: Perform Jigger Dyeing	12	48	60
Module 7: Perform Jet Dyeing	14	56	70
Module 8: Perform Pad batch Dyeing	14	56	70
Module 9: Perform Pad thermosol Dyeing	10	40	50
Module 10: Perform Pad steam Dyeing	10	40	50
Module 11: Perform Cone Dyeing	16	64	80
Module 12: Perform Rope Dyeing	16	64	80
Module 13: Perform Soft flow Dyeing	12	48	60
Module 14: Perform Garment Dyeing	12	48	60
Module 15: Perform Stenter Dyeing	08	32	40

³ Learning Module hours in training provider premises

⁴ Training workshop, laboratory and on-the-job workplace

