

KNITTING MACHINES

Competency Standards

National Vocational
Certificate Level 2

Version 1 - July 2015

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Authors

Ms. Mehwish Ahsan (HOI - Milange Institute, Lahore)

Responsible

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

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A: Setup Knitting Machine according to Work Specifications

Overview: The competency standard is designed to gain the basic knowledge about different types of setting up of knitting machines. The competency standard covers the knowledge and understanding about arranging different types of raw material used in knitting and preparing machine for knitting.

Competency Unit	Performance Criteria	Knowledge and Understanding
<p>A1: Arrange Raw Material for Knitting Operations</p>	<p><i>You must be able to:</i></p> <p>P1. Receive and interpret work order correctly.</p> <p>P2. Prepare and send demand requisition to store department for issuance of raw material.</p> <p>P3. Check the demand requisition is prepared correctly in terms of type, quantity and quality of raw material and is in accordance to work order.</p> <p>P4. Store the material according to type and category.</p>	<p><i>You must be able to:</i></p> <p>K1. Types of raw materials used in knitting operations.</p> <p>K2. Quality of different types of yarn.</p> <p>K3. Understanding work order.</p> <p>K4. Method of preparing demand requisition for arranging raw material.</p> <p>K5. Method of storing raw material according to types and category.</p>
<p>A2: Prepare Machine for Knitting</p>	<p><i>You must be able to:</i></p> <p>P1. Receive and interpret work specifications from supervisor.</p> <p>P2. Check, replace and install needles in the knitting machine according to work specifications.</p> <p>P3. Carry out yarn batching according to work</p>	<p><i>You must know and understand:</i></p> <p>K1. Work specifications.</p> <p>K2. Method of installing needles in the knitting machine.</p> <p>K3. Method of yarn batching.</p> <p>K4. Procedure of joining and knotting of yarn.</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
	<p>specifications.</p> <p>P4. Follow proper procedure for loading yarn into knitting machine.</p> <p>P5. Observe occupational health and safety at all times.</p>	<p>K5. Importance of wearing Personal Protective Equipment (PPEs).</p> <p>K6. Occupational health and safety risks involved in knitting operations.</p>

B: Carry Out Knitting Operations

Overview: The competency standard is designed to gain the basic knowledge and skills about carrying out different knitting operations using different types of knitting machines. The standard covers the specific occupational health and safety precautions required to be observed during the knitting operations.

Competency Unit	Performance Criteria	Knowledge and Understanding
<p>B1. Communicate Operational Information to Co-workers</p>	<p><i>You must be able to:</i></p> <p>P1. Maintain records and prepare production reports.</p> <p>P2. Document adjustments to machine and discuss with appropriate person.</p> <p>P3. Record operational instructions on every step.</p> <p>P4. Pass on received information to co-workers for smooth knitting operations.</p>	<p><i>You must know and understand:</i></p> <p>K1. General workplace practices.</p> <p>K2. Principles and method of communications.</p> <p>K3. Method of preparing production reports.</p> <p>K4. Factors affecting machine performance like yarn strength, sizing, ambient conditions.</p> <p>K5. Knitting methods and techniques.</p> <p>K6. Occupational health and safety precautions.</p>
<p>B2. Feed Yarn into Knitting Machine</p>	<p><i>You must be able to:</i></p> <p>P1. Load yarn into knitting creels according to production plan.</p> <p>P2. Use appropriate method to perform knotting of yarn into feeders.</p> <p>P3. Observe occupational health and safety precautions at all times to work.</p>	<p><i>You must know and understand:</i></p> <p>K1. Functions of machine parts such as cams, needles, sinkers and feeders of different types of knitting machines.</p> <p>K2. Technique of yarn knotting.</p> <p>K3. Procedure of loading yarn into knitting creels.</p> <p>K4. Occupational health and safety precautions involved in feeding yarn into knitting machine.</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
<p>B3. Produce Knitted Fabric according to Work Specifications</p>	<p><i>You must be able to:</i></p> <p>P1. Produce sample and match it with the sample provided by the client after initial check of machine by the supervisor.</p> <p>P2. Start production after approval from supervisor.</p> <p>P3. Monitor knitting machine operation to detect faults and problems during production.</p> <p>P4. Fix minor problems (e.g. machine and fabric related) during operations and report to appropriate person in case of major problems.</p> <p>P5. Use appropriate method and technique to cut roll after required weightage.</p> <p>P6. Inspect fabric using fabric inspection table to check minor defects in the roll.</p> <p>P7. Observe occupational health and safety precautions at all times to work.</p> <p>P8. Follow work and production schedules as communicated by the supervisor.</p>	<p><i>You must know and understand:</i></p> <p>K1. Fabric quality and checking parameters.</p> <p>K2. Technique of fabric roll cutting.</p> <p>K3. Matching specifications of samples received from client with the sample produced.</p> <p>K4. Fabric structure.</p> <p>K5. Minor and major problems during production.</p> <p>K6. Trouble shooting of minor problems.</p> <p>K7. Occupational health and safety precautions required to be observed during production.</p> <p>K8. Quality parameters to be observed during monitoring of knitting operations.</p> <p>K9. Method of fabric inspection/quality checking.</p>

C: Carry Out Repair and Maintenance of Knitting Machines

Overview: The competency standard is designed to gain the knowledge and skills to carry out repair and maintenance of knitting machines. This standard covers the procedures and skills to install machine components (needles, cams, sinkers and cylinders) and to perform cleanliness, oiling and greasing of machine parts. Occupational health and safety precautions relevant with this competency standard has also been covered in this standard.

Competency Unit	Performance Criteria	Knowledge and Understanding
C1. Replace Needles, Cams and Sinkers of the Knitting Machines	<p><i>You must be able to:</i></p> <p>P1. Select appropriate tools and equipment to replace and install needles, cams, cylinder and sinkers.</p> <p>P2. Replace and install needles, cams and sinkers of the machine according to manufacturer's instructions.</p> <p>P3. Identify problems in machine parts and report to supervisor for appropriate action.</p> <p>P4. Maintain record of replacement of machine parts.</p> <p>P5. Observe occupational health and safety precautions at all times to work.</p>	<p><i>You must know and understand:</i></p> <p>K1. Tools and equipment for replacing and installing needles, cams, cylinder and sinkers.</p> <p>K2. Functions and types of needles, cams, cylinder and sinkers in knitting machine.</p> <p>K3. Defects and problems faced during knitting operations regarding needles, cams, cylinder and sinkers.</p> <p>K4. Procedure of installing needles, cams, cylinder and sinkers of knitting machine.</p> <p>K5. Reasons of needle breakage.</p> <p>K6. Importance of record of replacement of machine parts.</p> <p>K7. Safety precautions to be followed during installing needles, cams, cylinder and sinkers.</p>
C2. Clean Machine Components	<p><i>You must be able to:</i></p> <p>P1. Identify the machine component which requires cleanliness.</p>	<p><i>You must know and understand:</i></p> <p>K1. Cleaning of main machine, cam box, cylinder,</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
	<p>P2. Select tools and materials required for cleaning of machine components.</p> <p>P3. Use appropriate method and technique to clean the machine components.</p> <p>P4. Maintain log book of cleaning of machine parts in proper order.</p>	<p>sinkers etc.</p> <p>K2. Use of L-key, screw driver, hammer, plair, wrench, air pressure, white oil, kerosene oil, and cut pieces of fabric.</p> <p>K3. Method of maintaining log book for cleaning procedures.</p>
C3. Perform Oiling of Machine Components	<p><i>You must be able to:</i></p> <p>P1. Identify the machine component which requires oiling.</p> <p>P2. Select tools and materials required for oiling of machine components.</p> <p>P3. Use appropriate method and technique to oil the machine components.</p> <p>P4. Maintain log book of oiling procedures of machine parts in proper order.</p>	<p><i>You must know and understand:</i></p> <p>K1. Oiling of needle, cylinder, cam box, sinker and feeder.</p> <p>K2. Use of L-key, screw driver, hammer, plair, wrench, air pressure, white oil, kerosene oil, and cut pieces of fabric.</p> <p>K3. Method of maintaining log book for oiling procedures.</p> <p>K4. OHS precautions.</p>
C4. Perform Greasing of Machine Components	<p><i>You must be able to:</i></p> <p>P1. Identify the machine component which requires greasing.</p> <p>P2. Select tools and materials required for greasing of machine components.</p> <p>P3. Use appropriate method and technique to grease the machine components.</p>	<p><i>You must know and understand:</i></p> <p>K1. Greasing of bearing, main bed, and main shaft.</p> <p>K2. Use of L-key, screw driver, hammer, plair, wrench, grease, and cut pieces of fabric.</p> <p>K3. Method of maintaining log book for grease procedures.</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
	P4. Maintain log book of greasing procedures of machine parts in proper order.	K4. OHS precautions.

E: Develop Professionalism

Overview: The competency standard is designed to differentiate professionalism and being professional. This way of being is made up of appearance, manner, communication, interacting, attitudes, approach, skills and openness to grow. Professionalism is a combination of taught aspects, like knowledge and skills, and learning gained through experience.

Competency Unit	Performance Criteria	Knowledge and Understanding
E1 - Communicate with Co-Workers	Trainee will be able to : P1. Communicate within a department. P2. Communication with other departments. P3. Dealing with vendors. P4. Interaction with other organisations. P5. Using various media to communicate effectively.	Trainee will be able to : K1. Identify factors required to communicate effectively and precisely within same organisation. K2. Explain elements required to deal with vendors and the other organisations. K3. Justify the appropriate use of electronic and relative media as per need
E2 - Manage Time	Trainee will be able to: P1. Manage time to complete the assigned work. P2. Manage workload as per task. P3. Meet the specific deadlines. P4. Handle time division with co-workers.	Trainee will be able to : K1. Identify the importance of time division and allocation according to task priorities, involving management and co-workers.

Competency Unit	Performance Criteria	Knowledge and Understanding
E3 - Upgrade Skills	Trainee will be able to : P1. Participate in Skill test. P2. Attend seminars / workshops. P3. Involve in competitions time to time. P4. Perform market research. P5. Analyse upcoming market trends.	Trainee will be able to : K1. Describe the importance of trends and market research. K2. Identify the need of skills sets by getting involved in seminars, workshops and competitions.
E4 - Keep the workplace clean	Trainee will be able to : P1. Keep their workplace organised. P2. Ensure clean working environment.	Trainee will be able to : K1. Describe the importance of clean and organised workplace.
E5 - Work in a team	Trainee will be able to : P1. Demonstrate good team skills. P2. Carry an appropriate appearance. P3. Show comfort and tolerance. P4. Present and observe good work ethics.	Trainee will be able to : K1. Identify the importance of being a good team player.

Competency Unit	Performance Criteria	Knowledge and Understanding
E6. Ensure Health and Safety	<p>Trainee will be able to :</p> <p>P1. Store all flammables in proper safe place</p> <p>P2. Ensure the proper ventilation of the workplace</p> <p>P3. Check Pattern drums and pattern wheels totally guarded</p> <p>P4. Make sure Isolation equipment fitted according to manufacturer's instructions</p> <p>P5. Fit Positive feed drive belts with a suitable guard according to given instructions</p> <p>P6. Adjust Electrical interlocking guards to rotating cylinder machines</p> <p>P7. Fit Inching buttons to all machines and readily distinguishable by touch</p> <p>P8. Check Guards are fitted on hose machines where a full cabinet base is not provided</p> <p>P9. Check Drip trays are provided for each machine</p> <p>P10. Make sure Gantry systems of yarn support guarded</p> <p>P11. Confirm Emergency stop buttons are immediately accessible and identifiable</p> <p>P12. Check Creeling operations - musculoskeletal strains and RSI aspects of</p>	<p>Trainee will be able to :</p> <p>K1. Identify the materials which can caught fire</p> <p>K2. Classify emergency situations</p> <p>K3. Define the importance of following operating instructions given for tools</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
	<p>long term hand or arm movements reduced as much as possible</p> <p>P13. Make sure Safe systems of work for access for threading of yarn are working properly</p> <p>P14. Check Safe system of work for removal of rolls or layers of fabric</p> <p>P15. Verify Half hose and sock machines – safe system of work for removing work from the bin</p> <p>P16. Press offs - wire hook only inserted when machine is stationary</p> <p>P17. Clean Drip trays regularly</p> <p>P18. Ensure Machine handle always left at rest before machine is started</p> <p>P19. Verify Safe system of work in place to prevent operators wearing loose clothing, jewellery, long hair and unsuitable footwear</p>	

List of tools and equipment

Documents, policies and guidelines

Total no. Of students = 25

Tools and Equipment (Non-consumables)	Quantity
Circular Knitting Machine	2
Fabric Inspection Table	5
Fabric Cutter for GSM	5
Weighing Scale	5
Yarn Rate Testing Meter	5
Yarn Tension Meter	5
V-Belt Flat machine	5
Jacquard Machine	5
Hand Circular Knit Machine	5
Tool Box	5
White Board	1
Computer	5
Internet Connection	1

List of consumables

1. Needles
2. Feeders
3. Cams
4. Cam Levers
5. Sinkers
6. Tensioners
7. Weights
8. Combs
9. Master Wheel
10. Timing Belts
11. Winders
12. Brackets
13. Oil Pump
14. Rack Lever
15. Sun Proof platting
16. Inch tape
17. Sensors
18. Lycra Attachment
19. Brushes
20. Note Books
21. Pencils
22. Erasers
23. Sharpeners
24. Chalks
25. Board Markers
26. Yarns

National Vocational and Technical Training Commission (NAV TTC)

 5th Floor Evacuee Trust Complex Sector F-5/1, Islamabad.

 +92 51 9044 04

 +92 51 9044 04

 info@navttc.org

 www.navttc.org