



**Government of the People's Republic of Bangladesh
Skills Development Project**



National Competency Standards for Circular Knitting Machine Operation

Qualification Title: **National Skills Certificate-II in Circular Knitting
Machine Operation (RMG Sector)**

Qualification Code: **RMGCKMO0102**



Bangladesh Technical Education Board
May - 2014

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The National Competency Standard for **Circular Knitting Machine Operation Level -II (NSC-II)** is a referral document for the development of curricula, teaching and learning materials, and assessment tools. It also serves as the base document for providing trainings consistent with existing quality assurance systems.

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Approval Sheet

The National Competency Standards for **National Skills Certificate-II in Circular Knitting Machine Operation (Ready-Made Garments)** Qualification is a document developed by the Technical sub-committee for Circular Knitting Machine Operation under the Skills Development Project ADB Loan 2425 – BAN (SF).

It was approved by the Bangladesh Technical Education Board (BTEB) upon the endorsement of the Sector Working Committee at a meeting held on 12 June 2012 at the office of the Industry Skills Council.

The Standard was also approved by Standard and Curriculum Development Committee (SCDC) on 21 April 2014 at BTEB CBT Cell.

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Preface

The TVET system has a large role to play in economic growth and social development as workforce provider to the labor market and as provider of skills to those who are looking for employment. In the case of Bangladesh, the TVET sector needs major reforms to ensure that issues of quality and capacity, relevance, and access are properly addressed.

The Directorate of Technical Education (DTE) with funding from the Asian Development Bank (ADB), Swiss Agency Development for Cooperation SDC and the Government of Bangladesh (GoB) is implementing a project known as Skills Development Project (SDP). The main target of the Skills Development Project (SDP) is to improve the relevance of TVET in labor market by introducing competency-based training system: a system that proceeds from the development of a qualifications framework, competency standards, curriculum, training delivery, assessment, and quality assurance mechanisms in order to develop a competitive workforce.

The development of competency standards is regarded as the heart of a competency-based training regime. Each standard defines sets of knowledge, skills and attitudes (KSAs) that a Bangladeshi trainee should be able to demonstrate at a recognized level of competence. It provides a common framework of outcomes between the labor and education sectors, as well as among workers, trainers and trainees.

In the process of development, *Industry Skills Council* (ISC) was organized to determine competencies expected of an occupation in Bangladesh. The ISC whose membership come from “top performers” in the industry, performed occupational, competency and unit analyses based on their rich experiences in the field, existing documents, and on the advice of national and international experts. Competency standards of Sri Lanka, Philippines, Australia, Korea, Malaysia, Maldives and other countries were examined.

A series of workshops – development, review and finalization - were conducted to ensure a workable National Competency Standards for the occupation. Further, a validation instrument was developed and administered to other top industry performers to verify and confirm the draft being developed.

It is hoped that this document reflects the real needs of the industry thereby providing a concrete basis for the curriculum development and assessment. In such a way, the development of relevant and competent workforce is not farfetched.

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Acronyms

ADB	Asian Development Bank
ANTA	Australian National Training Authority
APEC	Asia Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
BMET	Bureau of Manpower Employment and Training
BTEB	Bangladesh Technical Education Board
CBLM	Competency based learning Materials
CBT	Competency Based Training
CS	Competency Standard
DACUM	Development of a Curriculum
DG	Director General
DTE	Directorate of Technical Education
GOB	Government of Bangladesh
HSC (Voc)	Higher Secondary Certificate (Vocational)
KSA	Knowledge, Skills, Attitude
MoE	Ministry of Education
MoLE	Ministry of Labor and Employment
NTVQ	National Technical Vocational Qualification
NTVQF	National Technical Vocational Qualification Framework
OHS	Occupational Health and Safety
PD	Project Director
PIU	Project Implementation Unit
PSC	Project Steering Committee
RMG	Ready Made Garments
RPL	Recognition of Prior Learning
SC	Swiss contact
SDP	Skills Development Project
SMO	Sewing Machine Operator

SSC (Voc)	Secondary School Certificate (Vocational)
STEP	Skills and Training Enhancement project (WB)
ISC	Industry Skills Council
ISC	Industry Skill Council (ISC)
TESDA	Technical Education and Skills Development Authority
TL	Team Leader
TSC	Technical Sub Committee
TVET	Technical and Vocational Education and Training
WB	World Bank

Section 1: The Qualification

1. Title of Qualification:	
2. National Skills Certificate-II in Circular Knitting Machine Operation (RMG Sector)	
3. Qualification code:	4. Endorsement date:
RMGCKMO 0102	12 June 2012
5. Purpose of the qualification	<p>The NSC-II in Circular Knitting Machine Operation Qualification consists of a set Circular Knitting Machine Operation of competencies that a person must achieve in order to work competently in the Informal Sector as a Circular Knitting Machine Operator.</p> <p>In particular, he/she should be able to:</p> <ol style="list-style-type: none"> 1. Operate Jacquard knitting machine 2. Operate stripe knitting machine 3. Monitor production of circular knitting machine 4. Perform Minor Maintenance
6. Regulatory Arrangements	The holder of this qualification should have been assessed by a BTEB certified assessor and found to be competent in the units listed in Section 2.
7. Accreditation requirements	The qualifications shall be offered in compliance with the accreditation requirements set by BTEB.
8. Transition arrangements	In the absence of certified assessors, the BTEB shall appoint trainers who have undergone assessment trainings.
9. Contact for comments	Chairperson Bangladesh Technical Education Board (BTEB) Agargoan, Sher-E-Bangla Nagar, Dhaka.

Section 2. National Competency Standard

For National Skills Certificates in Circular Knitting Machine Operation

Generic Competencies

Code	Unit of Competency	Level	No. of Hrs
GN0101	Communicate in the Workplace	1	32
GN0102	Work in a Team Environment	1	18
GN0103	Practice workplace cleanliness	1	18
GN0104	Practice Occupational Health and Safety (OHS)	1	30
Total			98

Sector Specific Competencies

Code	Unit of Competency	Level	No. of Hrs
RMG0101	Work in the RMG sector	1	24
RMG0102	Use hand tools and power tools for the RMG sector	1	30
RMG0203	Interpret drawing and specifications in manuals for RMG sector	2	30
RMG0204	Perform measurement and calculation	2	48
Total			132

Occupation Specific Competencies

Code	Unit of Competency	Level	No. of Hrs
RMGCKM 0101	Prepare Circular Knitting Machine	1	42
RMGCKM 0102	Operate Single Jersey Circular Knitting Machine	1	52
RMGCKM 0103	Operate Double Jersey / Rib Circular Knitting Machine	1	62
RMGCKMO 0204	Operate Flat knitting machine	1	52
RMGCKMO 0205	Operate Jacquard knitting machine	2	52
RMGCKMO 0206	Operate stripe knitting machine	2	50
RMGCKMO 0207	Monitor production of circular knitting machine	2	50
RMGCKMO 0208	Perform minor Maintain	2	40
Total			400 hrs.
Grand Total			630 hours

Course Structure for National Skills Certificate in Circular Knitting Machine Operator For Level -II

The units of competencies this qualification are summarized as follows:

Sector Specific Competencies

Code	Unit of Competency	Level	No. of Hrs
RMG0203	Interpret drawing and specifications in manuals for RMG sector	2	30
RMG0204	Perform measurement and calculation	2	48
Total			78

Occupation Specific Competencies

Code	Unit of Competency	Level	No. of Hrs
RMGCKMO 0205	Operate Jacquard knitting machine	2	52
RMGCKMO 0206	Operate stripe knitting machine	2	50
RMGCKMO 0207	Monitor production of circular knitting machine	2	50
RMGCKMO 0208	Perform minor Maintain	2	40
Total			192
Grand Total			270 hours

Section 3: The Sector Specific Competencies

Unit of Competency:	Interpret Drawings and Specifications in Manuals for the RMG Sector
Unit Code:	RMG0203
Unit Descriptor:	This unit covers the knowledge, skill and attitude required in interpreting drawings and specifications in RMG manuals. It includes the following steps: identify information, identify drawings and specifications, interpret drawings and specifications, and apply occupational health and safety procedures.
Nominal Hours:	30 Hours

Elements	Performance Criteria
	Bold italicized words are detailed in the Range of Variables
1. Identify information from manuals	1.1 Appropriate <i>manuals</i> are identified. 1.2 Version and date of manual are checked to ensure up-to-date specifications of tools, Equipment, materials and procedures.
2. Identify drawings and specifications	2.1 Relevant <i>drawings</i> and <i>specifications</i> are identified. 2.2 <i>Terms and abbreviations</i> are identified. 2.3 <i>Signs and symbols</i> are identified
3. Interpret drawings and specifications	3.1 Drawings and specifications are interpreted. 3.2 Schedules, dimensions and specifications contained in drawings are interpreted.
4. Store manuals	4.1 <i>Documents</i> are stored appropriately to prevent damage, ready access and updating of information.

Range of Variables:

Variable	Range (Include but not limited to):
1. Manuals	1.1 Manufacturer's Specification Manual 1.2 Repair Manual 1.3 Maintenance Procedure Manual 1.4 Periodic Maintenance Manual 1.5. Quality Manual 1.6. Manual of Instruction
2. Drawings	2.1 Technical Drawings 2.2 Sketch
3. Specifications	3.1 Product specifications 3.2 Performance specifications 3.3 Method specifications
4. Instructions	3.1 Orders 3.2 Special Orders

5. Terms and abbreviations	Refers to all terms and abbreviations associated with the construction sector
6. Signs and symbols	Include all signs and symbols associated with the construction sector

Evidence Guide:

1. Critical aspects of competency	<p>Assessment requires evidence that the candidate can</p> <p>1.1. Interpreted drawings and specifications in construction documents.</p> <p>1.2. Satisfied the requirements mentioned in the Performance Criteria and Range of Variables .</p>
2. Underpinning knowledge	<p>2.1 Types of Construction Manuals.</p> <p>2.2 Identification of Signs and Symbols.</p> <p>2.3 Identification of Units of Measurement.</p> <p>2.4 Identification of Units of Conversion.</p> <p>2.5. Drawings and Specifications.</p> <p>2.6. Terms and Abbreviations Used.</p>
3. Underpinning skills	<p>3.1. Identifying appropriate manuals</p> <p>3.2. Identifying drawings and specifications</p> <p>3.3. Interpreting drawings and specifications</p> <p>3.4. Storing manuals</p>
4. Underpinning attitudes	<p>4.1 Commitment to occupational health and safety</p> <p>4.2 Environmental concerns</p> <p>4.3 Eagerness to learn</p> <p>4.4 Tidiness and timeliness</p> <p>4.5 Respect for rights of peers and seniors in workplace</p> <p>4.6 Communication with peers and seniors in workplace</p>
5. Resource implications	<p>The following resources must be provided</p> <p>5.1 Availability of all manuals.</p> <p>5.2 Accessibility of storage area</p> <p>5.3 Instruction sheet</p> <p>5.4 Module</p>
6. Methods of assessment	<p>Competency should be assessed through:</p> <p>6.1 Direct observation</p> <p>6.2 Demonstration</p> <p>6.3 Written Exam.</p> <p>6. 4 Oral Questioning</p> <p>6.5 Portfolio</p>
7. Context of assessment	For Certification competency should be assessed individually in the actual work place or simulated environment in the after

	completion of the module.
Accreditation Requirements	
<p>Training providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.</p> <p>Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

Unit of Competency:	Perform Measurement and Calculations
Unit Code:	RMG0204
Unit Descriptor:	This unit covers the knowledge skills and attitudes required in performing measurements and calculations relating to activities in the garment sector. It includes the following steps: select measuring devices, obtain measurements, perform simple calculations, and clean-up.
Nominal Hours:	48 Hours

Elements	Performance criteria
	Bold italicized words are detailed in the Range of Variables
1. Select measuring devices	1.1 Work instructions are confirmed and applied. 1.2 Materials to be measured are identified and classified. 1.3 Appropriate measuring devices are selected based on materials to be measured 1.4 Specifications are obtained from relevant documents . 1.5 Specified machines are used as necessary. 1.6 Tolerance and clearance limits are identified and adjusted according to job requirements. 1.7 PPE and other safety devices are selected and used as per safety regulations.
2. Obtain measurements	2.1 Accurate measurements are obtained in Accordance with job requirements. 2.2 Systems of measurements are identified and Converted. 2.3 Results are confirmed and recorded.
3. Perform simple calculations	3.1 Simple calculations involving four basic Operations are carried out. 3.2 Other operations are used to complete tasks. 3.3 Appropriate formulas for calculating quantities Of materials are selected. 3.4 Calculations are performed and verified. 3.5 Material quantities are accurately calculated. 3.6 Results are interpreted and communicated to Authority.
4. Clean up	4.1 Cleaning equipment and materials are collected. 4.2 Measuring devices are cleaned, maintained and stored.

Range of Variables:

Variable	Range (Include but not limited to):
1. Materials	Refers to all materials included but not limited to the following:
2. Measuring devices	2.1 Steel tape measure 2.2 Triangle 2.3 Steel rule 2.4 Calculator 2.5 Measuring tape
3. PPE	3.1 Dust mask 3.2 Gloves 3.3 Aprons 3.3 Finger protector 3.4 Cap 3.5 Insulated pad
4. Documents	4.1 Technical Manuals 4.2 Specifications 4.3 Sketches 4.4 Drawings
5. Machines	5.1 Sewing Machine 5.1.1 Single needle lock stitch machine 5.1.2 Over lock machine 5.1.3 Button hole machine 5.1.4 Button attach machine 5.1.5 Tack machine 5.2 Knitting machine 5.3 Dyeing machine 5.4 Finishing Machine 5.5 Bleaching Machine 5.6 Block Batik Printing
6. Measurements	6.1 Length 6.2 Width 6.3 Weight 6.4 Tolerance
7. Four basic operations	7.1 Addition 7.2 Subtraction 7.3 Multiplication 7.4 Division
8. Other operations	8.1 Fractions 8.2 Percentages 8.3 Mixed numbers

	8.4 Conversions 8.5 Scales
9. Calculations	9.1 Area 9.2 Volume 9.3 Circumference 9.4 Clearance

Evidence Guide:

1. Critical aspects of competency	1.1 Demonstrated knowledge in performing measurement and calculation according to job requirements. 1.2 Satisfying the requirements mentioned in the Performance Criteria and Range of Variables
2. Underpinning knowledge	2.1 Types of Measuring Devices 2.2 Measurement and Calculation 2.3 Recording 2.4 Collection and storing materials. 2.5 Fraction and Decimals 2.6 Linear Measurement 2.7 Unit Of Conversion 2.8 Dimension 2.9 Ratio And Proportion 2.10 Allowances And Tolerances 2.11 Presentation Of Data and Information 2.12 Tolerances 2.13 Care in the Use of Measuring Devices
3. Underpinning Skills	3.1 Selecting measuring devices 3.2 Obtaining measurements 3.3 Performing calculations 3.4 Cleaning up
4. Underpinning attitudes	4.1 Commitment to occupational health and safety 4.2 Environmental concerns 4.3 Eagerness to learn 4.4 Tidiness and timeliness 4.5 Respect for rights of peers and seniors in workplace 4.6 Communication with peers and seniors in workplace
5. Resource Implications	The following resources must be provided 5.1 Suitable ventilated work area/shop with

	<p>facilities and accessories</p> <p>5.2 Easy access and scope of measurement</p> <p>5.3 Availability of quality measuring and calculating devices</p> <p>5.4 Information on construction materials appropriate to the relevant construction field</p> <p>5.5 Instruction sheet</p> <p>5.6 Module</p>
6. Method of Assessment	<p>Competency should be assessed through:</p> <p>6.1 Direct observation</p> <p>6.2 Demonstration</p> <p>6.3 Written Exam.</p> <p>6. 4 Oral Questioning</p> <p>6.5 Portfolio</p>
7. Context of Assessment	<p>For Certification competency should be assessed individually in the actual work place or simulated environment in the after completion of the module.</p>
<p>Accreditation Requirements</p> <p>Training providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.</p> <p>Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

Section 4: The Occupation Specific Competencies

Unit of Competency	Operate Jacquard Knitting Machine
Unit Code	RMGCKMO 0204
Unit Descriptor	This unit covers the knowledge, skills and attitude (KSAs) required in operating Jacquard knitting machine. It includes Set Machine, Yarn Creeping, Run the machine & Clean the work place.
Nominal Hours	52 Hours

Element	Performance Criteria
	Bold italicized words are detailed in the Range of Variables
1. Collect tools and materials	1.1 PPE are Collected and used. 1.2 Tools and materials are selected and collected 1.3 Materials are arranged.
2. Set Machine	2.1 Machine is cleaned. 2.2 Lubricant is checked as required. 2.3 Motion devices are checked as required. 2.4 Machine parts are checked and adjusted. 2.5 Damage needle is changed. 2.6 Damage sinker is changed. 2.7 Jack and jack pin are checked 2.8 Cam and Comb system are checked 2.9 Needle Gauge are checked and adjusted. 2.10 Stitch density checked and adjusted as required.
3. Yarn Creeping	3.1 Yarn is collected. 3.2 Yarn is inserted into the needle eye. 3.3 Thread tension are checked. 3.4 Thread tension devices are checked 3.5 Loop length is adjusted
4. knit the Fabrics	4.1 Machine is started on slow motion with inch switch. 4.2 Machine is started on full motion with green switch 4.3 Knitting speed is adjusted 4.4 Machine is stopped with red switch. 4.5 Cloth roller is set on take up/ take down

	<p>4.6 Fabric is wrapped on cloth roller.</p> <p>4.7 Broken yarn is identified and knotted</p> <p>4.8 Quality is checked and faults are rectified.</p>
5. Clean the work place	<p>5.1 Tools Equipment and Machines are cleaned.</p> <p>5.2 Work place is cleaned.</p> <p>5.3 Waste materials are collected and disposed in proper place.</p>

Range of Variables

Variable	Range (Include but not limited to)
1. PPE	<p>1.1 Mask</p> <p>1.2 Apron</p> <p>1.3 Scarf</p>
2. Tools and equipment	<p>2.1 Sample Cutter</p> <p>2.2 Yarn Guide</p> <p>2.3 Yarn Feeder</p> <p>2.4 Yarn Tension Meter</p> <p>2.5 Needle Sensor</p> <p>2.6 Tape Tensioner</p> <p>2.7 Industrial Weight Scales</p> <p>2.8 Fabric Roller</p> <p>2.9 Machine Brush</p> <p>2.10 Needle Detector</p>
3. Machine parts	<p>3.1 Yarn Carrier</p> <p>3.2 Break stop motion</p> <p>3.3 Yarn guides</p> <p>3.4 Dial</p> <p>3.5 Cylinder</p> <p>3.6 Dial cams</p> <p>3.7 Cylinder cams</p> <p>3.8 Dial needles</p> <p>3.9 Cylinder needles</p> <p>3.10 Oiling and air following devices</p> <p>3.11 Sensors</p> <p>3.12 Take up rollers</p> <p>3.13 Batch rollers</p>

	<p>3.14 Motor</p> <p>3.15 Belts</p> <p>3.16 Pulleys and gears</p> <p>3.17 Clutches</p>
4. Needle Gauge	4.1 E 3G,5G,6G,7G,8G,9G,10G,12G,14G,15G,16G and 3.5.7 multi-gauge
5. Yarn	<p>5.1 100% Cotton</p> <p>5.2 PC blended (Polyester & Cotton)</p> <p>5.3 VC blended (Viscose Cotton)</p> <p>5.4 TC (Teton, Cotton)</p> <p>5.5 CVC (Chief value cotton)</p> <p>5.6 100% Polyester</p> <p>5.7 Mélange</p>
6. Needle	<p>6.1 Bo-141.52-001,002,003,004</p> <p>6.2 Bo-61-48,001,002, Dual 6.374.05-001,002</p> <p>6.3 Bata. 61.48-001</p>
7. Fabric	<p>7.1 Single jersey</p> <p>7.2 Double jersey(Rib fabric /Inter lock fabric)</p> <p>7.3 Fleece fabric</p>

Evidence Guide

1. Critical aspects of competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Checked Lubricant and adjusted machine parts properly</p> <p>1.2 Maintained Knitting Chart.</p> <p>1.3 Checked Thread tension as per requirement.</p> <p>1.4 Assembled needles using selector.</p> <p>1.5 Adjusted Tension key.</p> <p>1.6 Checked Quality and rectified faults.</p>
2. Underpinning knowledge	<p>2.1 Types of tools, equipment & materials.</p> <p>2.2 Parts of machine.</p> <p>2.3 Knitting Chart</p> <p>2.4 Quality and faults of Knitting fabric</p> <p>2.5 Pieces of Knitting fabric.</p> <p>2.6 Importance of lubricant, Weaving Thread tension & Needle Sharpness.</p> <p>2.7 Safety Procedures</p> <p>2.8 Needle Setting, suitability of setting operation</p>

3. Underpinning skills	<p>3.1 Reading instructions sheet(chart)</p> <p>3.2 Cleaning and Lubricating Machine.</p> <p>3.3 Checking and Adjusting Machine parts.</p> <p>3.4 Checking Thread tension.</p> <p>3.5 Assembling Needles.</p> <p>3.6 Adjusting Yarn on the nose.</p> <p>3.7 Assembling Nose on machine head</p> <p>3.8 Adjusting Tension key.</p> <p>3.9 Running Machine head bidirectional using hand.</p> <p>3.10 Lock and keying Side-key of machine</p> <p>3.11 Controlling machine speed</p> <p>3.12 Using Safety guard and following safety procedure</p>
4. Underpinning attitudes	<p>4.1 Commitment to occupational health and safety</p> <p>4.2 Environmental concerns</p> <p>4.3 Eagerness to learn</p> <p>4.4 Tidiness and timeliness</p> <p>4.5 Respect for rights of peers and seniors in workplace</p> <p>4.6 Communication with peers and seniors in workplace</p>
5. Resource Implications	<p>The following resources must be provided</p> <p>5.1. Tools Equipment facilities appropriate to processes</p> <p>5.2. Materials relevant to the proposed activity</p> <p>5.3 Suitable workplace</p>
6. Methods of Assessment	<p>Competency should be assessed through:</p> <p>6.1 Direct observation</p> <p>6.2 Demonstration</p> <p>6.3 Written Exam.</p> <p>6. 4 Oral Questioning</p> <p>6.6 Portfolio</p>
7. Context for assessment	<p>For Certification competency should be assessed individually in the actual work place or simulated environment in the after completion of the module.</p>
<p>Accreditation Requirements</p> <p>Training providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.</p>	

Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.

Unit of Competency	Operate Stripe knitting machine
Unit Code	RMGCKMO 0204
Unit Descriptor	This unit covers the knowledge, skills and attitude (KSAs) required in operating Stripe knitting machine. It includes jogging switch, wrapping fabric pushing switch and knotting yarn.
Nominal Hours	50 Hours

Element	Performance Criteria
	Bold italicized words are detailed in the Range of Variables
1. Collect tools and materials	1.1 <i>PPE</i> are Collected and used. 1.2 <i>Tools</i> and materials are selected and collected 1.3 Materials are arranged.
2. Set Machine	2.1 Machine is cleaned. 2.2 Lubricant is checked. 2.3 Motion devices are checked. 2.4 <i>Machine parts</i> are checked and adjusted. 2.5 Damage needle is changed. 2.6 Damage sinker is changed.
3.Yarn Creeping	3.1 <i>Yarn</i> is collected. 3.2 Yarn is inserted into the <i>needle</i> eye 3.3 Yarn tension are checked. 3.4 Yarn tension devices are checked 3.5 Loop length is set
4.Knit Fabrics	4.1 Machine head is run bidirectional using hand. 4.2 Guide is hanged with fabric with small weight. 4.3 Side-key is locked and keyed. 4.4 Broken yarn is identified and knotted 4.5 Quality is checked and faults are rectified. 4.6 Knitted pieces are tied in a bundle. 4.7 Knitted pieces are transferred for next operation.
5. Clean the work place	5.1 Tools and equipment are cleaned 5.2 Machines and place are cleaned. 5.3 Waste materials are collected and disposed.

Range of Variables

Variable	Range (Include but not limited to)
1. PPE	1.1 Mask 1.2 Apron 1.3 Scarf
2. Tools and Equipment	2.1 Cutter 2.2 Sample Cutter 2.3 Screw driver 2.4 Needle transferor 2.5 Turf 2.6 Holder stick 2.7 Weight balance
5. Machine parts	5. 1. Chassis 5. 2. Main foot 5. 3. Side foot 5. 4. Supporting ring 5.5 Needle cylinder 5. 6. Guide way 5. 7. Yarn carrier 5. 8. Cam box ring 5. 9. Yarn feed device 5. 10. Central machine axis 5. 11. Protective cover 5.12. Working platform 5. 13. Upper step 5. 14. Lowest step 5. 15. Horizontal axis 5. 16. Safety railing 5. 17. Roller 5. 18. Holding rods 5.19 Sinker 5.20 Needle
6. Yarn	2.1 100% Cotton 2.2 PC blended (Polyester & Cotton) 2.3 VC blended (Viscose Cotton) 2.4 TC (Teton, Cotton) 2.5 CVC (Chief value cotton) 2.6 100% Polyester 2.7 Mélange

6. Needle	6.1 Bo-141.52-001,002,003,004 6.2 Bo-61-48,001,002 6.3 74.05-001,002 Bata. 61.48-001,
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Evidence Guide

1. Critical aspects of competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Checked Lubricant and adjusted machine parts properly 1.2 Maintained Knitting Chart. 1.3 Checked Thread tension as per requirement. 1.4 Assembled needles using selector. 1.5 Adjusted Tension key. 1.6 Checked Quality and rectified faults.
2. Underpinning knowledge	<ul style="list-style-type: none"> 2.1 Types of tools, equipment & materials. 2.2 Parts of machine. 2.3 Knitting Chart 2.4 Quality and faults of Knitting fabric 2.5 Pieces of Knitting fabric. 2.6 Importance of lubricant, Weaving Thread tension & Needle Sharpness. 2.7 Safety Procedures 2.1 2.8 Needle Setting, suitability of setting operation
3. Underpinning skills	<ul style="list-style-type: none"> 3.1 Reading instructions sheet(chart) 3.2 Cleaning and Lubricating Machine. 3.3 Checking and Adjusting Machine parts. 3.4 Checking Thread tension. 3.5 Assembling Needles. 3.6 Adjusting Yarn on the nose. 3.7 Assembling Nose on machine head 3.8 Adjusting Tension key. 3.9 Running Machine head bidirectional using hand. 3.10 Lock and keying Side-key of machine 3.11 Controlling machine speed 3.12 Using Safety guard and following safety procedure
4. Underpinning attitudes	<ul style="list-style-type: none"> 4.1 Commitment to occupational health and safety 4.2 Environmental concerns 4.3 Eagerness to learn 4.5 Tidiness and timeliness 4.5 Respect for rights of peers and seniors in workplace

	4.6 Communication with peers and seniors in workplace
5. Resource Implications	The following resources must be provided 5.1. Tools Equipment facilities appropriate to processes 5.2. Materials relevant to the proposed activity 5.3 Suitable workplace
6. Methods of Assessment	Competency should be assessed through: 6.1 Direct observation 6.2 Demonstration 6.3 Written Exam. 6. 4 Oral Questioning 6.5 Portfolio
7. Context for assessment	For Certification competency should be assessed individually in the actual work place or simulated environment in the after completion of the module.
<p>Accreditation Requirements</p> <p>Training providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.</p> <p>Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

Unit of Competency	Monitor Production Process of Circular Knitting Machine
Unit Code	RMGCKMO 0205
Unit Descriptor	This unit covers the knowledge, skills and attitude required to Monitor Production Process of Circular Knitting Machine. It includes checking, recording and monitoring of Circular Knitting Machine.
Nominal Hours	50 Hours

Element	Performance Criteria
	Bold italicized words are detailed in the Range of Variables
1. Check Product quality	1.1 <i>PPE</i> are Collected and used. 1.2 Product quality is checked in running machine. 1.2 Defects are identified and rectified.
2. Record Production.	2.1 Product is unloaded. 2.2 Production records and other documentation are accurately completed.
3. Machine Monitoring	3.1 <i>Machine</i> Monitoring is ensured to correct operation. 3.2 Machine <i>faults</i> are identified and reported to proper authority.
4. Monitor cleaning work	4.1 Cleaning of machines and place are ensured. 4.2 Dispose of waste materials are ensured.

Range of Variables

Variable	Range Include but not limited to:
1. PPE	1.1 Mask 1.2 Apron 1.3 Scarf
2. Machine	2.1 Single Jersey Circular Knitting Machine. 2.2 Double Interlock Circular Knitting Machine. 2.3 Operate Jacquard knitting machine 2.4 Flat knitting machine. 2.5 Jacquard knitting machine

	2.6 Stripe knitting machine
3. Faults	3.1 Holes 3.2 Creasing

Evidence Guide

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1. Checked product according to requirements 1.2. Unloaded product according to system
2. Underpinning knowledge	2.1 Fabric fault 2.2 Machine fault
3. Underpinning skills	3.1. Checking fabric fault 3.2. Checking machine fault 3.3 Monitoring product
4. Underpinning attitudes	4.1 Commitment to occupational health and safety 4.2 Environmental concerns 4.3 Eagerness to learn 4.4 Tidiness and timeliness 4.6 Respect for rights of peers and seniors in workplace 4.6 Communication with peers and seniors in workplace
5. Resource implications	The following resources should be provided 5.1. Workplace facilities 5.2 Tools, equipment and Materials relevant to the proposed activity 5.3. Learning modules
6. Methods of assessment	Competency should be assessed through: 6.1 Direct observation 6.2 Demonstration 6.3 Written Exam. 6. 4 Oral Questioning
7. Context for assessment	For Certification competency should be assessed individually in the actual work place or simulated environment in the after completion of the module.

Accreditation Requirements

Training providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.

Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.

Unit of Competency	Perform Minor Maintenance
Unit Code	RMGCKMO0206
Unit Descriptor	This unit covers the skill, knowledge skills and attitude required to perform minor maintenance of circular knitting machine. It includes changing machine oil, worn out elements and cleaning different devices.
Nominal Hours	40 Hours

Element	Performance Criteria
	Bold italicized words are detailed in the Range of Variables
1. Change machine oil	1.1 <i>PPE</i> are Collected and used. 1.2 <i>Oil</i> condition is observed. 1.3 Oil level is observed. 1.4 Oil is filled up as necessity.
2. Change damaged parts	2.1 Damage <i>needle</i> are replaced 2.2 Damage sinker is replaced.
3. Clean different devices.	3.1 Cam box is cleaned. 3.2 Sinker box is cleaned 3.3 QAP (Quality adjustment Pulley)/ VDQ (Variable diameter quality) system is cleaned. 3.4 Positive / non positive feeder, Blower, Teeth belt, yarn career, line fan unit are cleaned. 3.5 Jack/Jack pin is cleaned
4. Clean the work place	4.1 Waste materials are collected and disposed. 4.2 Work place is cleaned.

Range of Variables

Variable	Range Included but not limited to:
1. PPE	1.1 Mask 1.2 Apron 1.3 Scarf

2. Oil	1.1 Machine oil (Water soluble) 1.2 Lubricating oil. 1.3 Grease
3. Needle	2.1 Bo-141.52-001,002,003,004 2.2 Bo-61-48,001,002 2.3 74.05-001,002 Bata. 61.48-001,

Evidence Guide

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Observed oil condition and oil level. 1.2 Changed damaged needle and sinker. 1.3 Cleaned cam box and sinker box 1.4 Clean quality adjustment pulley/variable diameter quality system 1.5 Cleaned feeder, blower, teeth belt, yarn carrier, jack and jack pin.
2. Underpinning knowledge	2.1 Oil condition and oil level. 2.2 Quality adjustment pulley. 2.3 Variable diameter quality system.
3. Underpinning skills	3.1 Filling Oil 3.2 Changing Damage needle 3.3 Replacing damage sinker. 3.4 Cleaning Cam box. 3.5 Cleaning sinker box. 3.6 Cleaning QAP system. 3.7 Cleaning Positive feeder, Blower, Teeth belt, yarn career, line fan unit.
4. Underpinning attitudes	4.1 Commitment to occupational health and safety 4.2 Environmental concerns 4.3 Eagerness to learn 4.4 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.6 Communication with peers and seniors in workplace
5. Resource implications	The following resources must be provided 5.1. Tools, equipment and facilities appropriate to processes 5.2. Materials relevant to the proposed activities

	5.3. Suitable workplace
6. Methods of assessment	Competency should be assessed through: 6.1 Direct observation 6.2 Demonstration 6.3 Written Exam. 6. 4 Oral Questioning 6.5 Portfolio
7. Context for assessment	For Certification competency should be assessed individually in the actual work place or simulated environment in the after completion of the module.
<p>Accreditation Requirements</p> <p>Training providers must be accredited by Bangladesh Technical Education Board (BTEB), the national quality assurance body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any national qualification.</p> <p>Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.</p>	

Annexes

Annex 1. Competency Map for Circular Knitting Machine Operation

OCCUPATION SPECIFIC COMPETENCIES	Prepare circular knitting machine	Operate Single Jersey Circular Knitting Machine	Operate Double Interlock Circular Knitting Machine	Operate flat knitting machine	Operate Jacquard knitting machine
	1	1	1	1	2
	Operate stripe Knitting machine	Monitor Production Process of Circular Knitting Machine	Perform minor maintenance		
SECTOR SPECIFIC COMPETENCIES	Work in the RMG sector	Use hand tools and power tools for the RMG sector	Interpret drawings and specifications in manuals for RMG sector	Perform measurement and calculation	
	2	2	2	2	
	1	1	2	2	

GENERIC COMPETENCIES	Communicate in the workplace	Work in a Team Environment	Practice workplace cleanliness	Practice occupational health and safety	
	1	1	1	1	

Annex 2. Bangladesh National Qualifications Framework

TVQF Level	Education Type			Current Qualification Structure	Job Classification
	Pre-Voc	VE	TE		
TVQF 6			Diploma	4-year Diploma	Supervisor/Middle Manager/Sub-Assistant Engineer
TVQF 5		**NSC-V		NSS Master	Highly-Skilled Worker/Supervisor
TVQF 4		**NSC-IV		NSS 1/HSC (Voc) Year 11/12	Skilled Worker
TVQF 3		**NSC-III		NSS 2/SSC (Voc) Year 10	Semi-Skilled Worker
TVQF 2		**NSC-II		NSS 3/SSC (Voc) Year 9	Basic Skilled Worker
TVQF 1		**NSC-I		NSS Basic/Basic Trade Course	Basic Worker
Pre-Voc 2	*NPVC-II			None	Pre-Vocational Trainee
Pre-Voc 1	*NPVC-I			None	Pre-Vocational Trainee

*NPVC – National Pre-Vocational Certificate

**NSC – National Skill Certificate

Annex 3. Qualification Level Descriptors

BTVQ F Level	Knowledge	Skills	Responsibility	Job Class
6	Comprehensive actual and theoretical knowledge within a specific study area with an awareness of the limits of that knowledge.	Specialised and restricted range of cognitive and practical skills required to provide leadership in the development of creative solutions to defined problems	Manage a team or teams in workplace activities where there is unpredictable change Identify and design learning programs to develop performance of team members	Supervisor/Middle-Level Manager/Sub Assistant Engineer
5	Very broad knowledge of the underlying, concepts, principles, and processes in a specific study area	Very broad range of cognitive and practical skills required to generate solutions to specific problems in one or more study areas.	Take overall responsibility for completion of tasks in work or study Apply past experiences in solving similar problems	Highly Skilled Worker/Supervisor (NSC 4)
4	Broad knowledge of the underlying, concepts, principles, and processes in a specific study area	Range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying the full range of methods, tools, materials and information	Take responsibility, within reason, for completion of tasks in work or study Apply past experiences in solving similar problems	Skilled Worker
3	Moderately broad knowledge in a specific study area.	Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools	Work or study under supervision with some autonomy	Semi Skilled worker
2	Basic underpinning knowledge in a specific study area.	Basic skills required to carry out simple tasks	Work or study under indirect supervision in a structured context	Medium Skilled Worker
1	Elementary understanding of the underpinning knowledge in a specific study area.	Limited range of skills required to carry out simple tasks	Work or study under direct supervision in a structured context	Basic Skilled Worker
Pre-Voc 2	Limited general knowledge	Very limited range of skills and use of tools required to carry out simple tasks	Work or study under direct supervision in a well-defined, structured context.	Pre-Vocation Trainee (NPVC 2)
Pre-Voc 1	Extremely limited general knowledge	Minimal range of skills required to carry out simple tasks	Simple work or study exercises, under direct supervision in a clear, well defined structured context	Pre-Vocation Trainee (NPVC 1)

Annex 4. Key for Coding

<u>Code</u>	<u>Description</u>
GN	Generic Competencies

Occupational Sector

RMG	Ready-Made Garments
LEG	Light Engineering
CON	Construction
INF	Informal Sector

Occupation

SMO	Sewing Machine Operator
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