



Skills for Employment Investment Program (SEIP)

COMPETENCY STANDARD FOR INDUSTRIAL ENGINEERING AND LEAN MANUFACTURING *(RMG SECTOR)*

Finance Division, Ministry of Finance
Government of the People's Republic of Bangladesh

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Copyright

The Competency Standard for Industrial Engineering and Lean Manufacturing is a document for the development of curricula, teaching and learning materials, and assessment tools. It also serves as the document for providing training consistent with the requirements of industry in order for individuals who graduated through the established standard via competency-based assessment to be suitably qualified for a relevant job.

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List of Abbreviations

General	
BMET	Bureau of Manpower Employment and Training
B-SEP	Bangladesh Skills for Employment and Productivity
BTEB	Bangladesh Technical Education Board
DTE	Directorate of Technical Education
ILO	International Labor Organization
ISC	Industry Skills Council
NPVC	National Pre-Vocation Certificate
NTVQF	National Technical and Vocational Qualifications Framework
PPP	Public Private Partnership
SCDC	Standards and Curriculum Development Committee
SEIP	Skills for Employment Investment Program
TVET	Technical Vocational Education and Training
UoC	Unit of Competency
Occupation Specific	
BOM	Bill of Material
OHS	Occupational health and safety
PBS	Progressive bundle system
PPE	Personal protective equipment
PTS	Predetermined time standards
SOP	Standard operating procedure
SMV	Standard minute value
UPS	Unit production system
VSM	Value stream mapping

Introduction

The Skills for Employment Investment Program (SEIP) Project of the Finance Division of the Ministry of Finance has embarked on a project which aims to qualitatively and quantitatively expand the skilling capacity of identified public and private training providers by establishing and operationalising a responsive skill ecosystem and delivery mechanism through a combination of well-defined set of funding triggers and targeted capacity support.

Among the many components of the project, one is to promote a Market Responsive Inclusive Skills Training Delivery programme. Key priority economic growth sectors identified by the government have been targeted by the project to improve current job skills along with up-skilling of the existing workforce to ensure 'required skills to industry standards'. Training providers are encouraged and supported to work with industry to address identified skills and knowledge to enable industry growth and increased employment through the provision of market responsive inclusive skills training programmes. Priority sectors were identified to adopt a demand driven approach to training with effective inputs from Industry Skills Councils (ISC's), employer associations and employers.

This document is developed to improve skills and knowledge in accordance with the job roles, duties and tasks of the occupation and ensure that the required skills and knowledge are aligned to industry requirements.

The document also details the format, sequencing, wording and layout of the Competency Standard for an occupation which is comprised of Units of Competence and its corresponding Elements.

Overview

A **competency standard** is a written specification of the knowledge, skills and attitudes required for the performance of an occupation, trade or job corresponding to the industry standard of performance required in the workplace.

The purpose of a competency standards is to:

- provide a consistent and reliable set of components for training, recognising and assessing people's skills, and may also have optional support materials
- enable industry recognised qualifications to be awarded through direct assessment of workplace competencies
- encourage the development and delivery of flexible training which suits individual and industry requirements
- encourage learning and assessment in a work-related environment which leads to verifiable workplace outcomes

Competency standards are developed by a working group comprised of national and international subject-matter experts, SEIP, BTEB, ISC, and industry experts to identify the competencies required of an occupation in a particular sector.

Competency standards describe the skills, knowledge and attitude needed to perform effectively in the workplace. Competency standards acknowledge that people can achieve technical and vocational competency in many ways by emphasising what the learner can do, not how or where they learned to do it.

With competency standards, training and assessment may be conducted at the workplace or at training institute or any combination of these.

Competency standards consist of a number of units of competency. A unit of competency describes a distinct work activity that would normally be undertaken by one person in accordance with industry standards.

Units of competency are documented in a standard format that comprises of:

- unit title
- nominal duration
- unit code
- unit descriptor
- elements and performance criteria
- variables and range statement
- curricular content guide
- assessment evidence guide

Together, all the parts of a unit of competency:

- describe a work activity
- guide the assessor to determine whether the candidate is competent or not yet competent

Approval Sheet

Identification and validation of units of competency and elements for this occupation were made by experts within this sector. A series of meetings were held to accurately capture industry and employer needs and expectations, and develop the competency framework that would help to enhance the employability of the youth trained. This process started on 23 January 2017 and concluded with a validation workshop with working group on 25 July 2017, and was reviewed and revised on 17 October 2018.

Experts Involved

Industry and subject-matter experts who provided their valuable inputs to develop this competency standard [January 2017 - October 2018]:

Name	Organisation	Designation
Ahsanullah Hasan	Hameem Group	Group General Manager
Md. Atikur Rahman	Cutting Edge industries Limited	Chief Operations Officer
Engr. Md. Sharif Nowaz	BKMEA	Senior Trainer (PIC Cell) SEIP Project
Md. Ellius Hossain	Viyellatex Group	Senior Officer
Engr. Abdul Sattar	Axis Group	Head of IE and Planning
Md. Zobayer Alam	Institute of Science Trade and Technology	Head of Department
Rashmi Mehra	British Council - SD03	International Consultant and Acting Team Leader
Syed Azharul Haque	British Council - SD03	National Subject Matter Consultant - RMG Sector
Md. Amir Hossain	Dhaka Ahsania Mission	Assistant Consultant - RMG Sector

Development Workshop

Working group formation and competency standard development workshop participants [held on 9 July 2017]:

Name	Organisation	Designation
G.M Faruque	BKMEA	Vice President (Finance)
Ms. Rupali Biswas	BKMEA	Chief Coordinator
Fariduzzaman Bhuiyan Sohel	Knit Asia Limited (New Asia Group)	General Manager
Engr. Md. Sharif Nowaz	BKMEA	Senior Trainer (PIC Cell)
Engr. Abdul Sattar	Axis Group	Head of IE and Planning
Ananda Falia	BTEB	Assistant Controller

Name	Organisation	Designation
Syed Nasir Ershad	SEIP	AEPD (Public-1)
Mr. Md. Ahsan Habib	SEIP	TVET Specialist
Mr. Mohiuzzaman	SEIP	Course Specialist
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Syed Azharul Haque	British Council - SD03	National Subject Matter Consultant - RMG Sector
Md. Amir Hossain	Dhaka Ahsania Mission	Assistant Consultant - RMG Sector

Validation Workshop

Competency standard validation workshop participants [held on 25 July 2017]:

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Md. Sadequr Rahman	Knit Asia Limited	Trainer
Md. Sultan Al Maruf	SEIP	Quality Assurance Officer
Al-Mustafa Tawqin	SEIP	Quality Assurance Officer
Ananda Falia	BTEB	Assistant Controller
Engr. Abdur Razzaque	SEIP-BTEB	Specialist-1 (Competency Standards)
Syed Nasir Ershad	SEIP	AEPD (Public-1)
Mr. Md. Ahsan Habib	SEIP	TVET Specialist
Mr. Mohiuzzaman	SEIP	Course Specialist
Rashmi Mehra	British Council - SD03	International Consultant and Acting Team Leader
Syed Azharul Haque	British Council - SD03	National Subject Matter Consultant - RMG Sector
Md. Amir Hossain	Dhaka Ahsania Mission	Assistant Consultant - RMG Sector

The ensuing sections of this document comprise of a description of the relevant occupation, trade or job with all the key components of a unit of competency, including:

- a chart with an overview of all Units of Competency for the relevant occupation, trade or job including the Unit Codes and the Unit of Competency titles and corresponding Elements

- the Competency Standard that includes the Unit of Competency, Unit Descriptor, Elements and Performance Criteria, Range of Variables, Curricular Content Guide and Assessment Evidence Guide

Course Structure

SL	Unit Code and Title		Level	Nominal Duration (Hours)
Generic Competencies (4 units of competency required)				
1	SEIP-RMG-IEL-01-G	Apply occupational health and safety (OHS) practice in the workplace		8
2	SEIP-RMG-IEL-02-G	Carry out workplace interaction		8
3	SEIP-RMG-IEL-03-G	Operate in a team environment		8
4	SEIP-RMG-IEL-04-G	Apply basic IT skills		16
Sub-Total				40
Sector-specific Competencies (3 units of competency required)				
1	SEIP-RMG-IEL-01-S	Explore the history of RMG Sector		20
2	SEIP-RMG-IEL-02-S	Carry out measurements and calculations		20
3	SEIP-RMG-IEL-03-S	Read and interpret sketches and drawings		20
Sub-Total				60
Occupation-specific Competencies (7 units of competency required)				
1	SEIP-RMG-IEL-01-O	Identify basic garment construction		40
2	SEIP-RMG-IEL-02-O	Perform garment operation analysis		15
3	SEIP-RMG-IEL-03-O	Perform work study		70
4	SEIP-RMG-IEL-04-O	Apply knowledge of basic lean quality		15
5	SEIP-RMG-IEL-05-O	Perform production planning and control		40
6	SEIP-RMG-IEL-06-O	Identify basic tools for lean manufacturing		50
7	SEIP-RMG-IEL-07-O	Perform optimisation		30
Sub-Total				260
Total Nominal Learning Hours				360

Competency Chart

Units of Competency	Elements		
Apply occupational health and safety (OHS) practice in the workplace SEIP-RMG-IEL-01-G	Identify OHS policies and procedures	Apply personal health and safety practices	Report hazards and risks
	Respond to emergencies		
Carry out workplace interaction SEIP-RMG-IEL-02-G	Interpret workplace communication and etiquette	Read and understand workplace documents	Participate in workplace meetings and discussions
	Practice professional ethics at work		
Operate in a team environment SEIP-RMG-IEL-03-G	Identify team goals and work process	Identify own role and responsibilities within team	Communicate and cooperate with team members
	Practice problem solving within the team		
Apply basic IT skills SEIP-RMG-IEL-04-G	Identify and use most commonly used IT tools	Understand use of computer	Work with word processing application
	Work with spreadsheets	Access email and search the internet	

Sector-specific (Common) Competencies

<p>Explore the history of RMG Sector SEIP-RMG-IEL-01-S</p>	<p>Examine the background of RMG Sector</p>	<p>Identify main industries within RMG sector</p>	<p>Identify prime local and export markets</p>
<p>Carry out calculations and measurements SEIP-RMG-IEL-02-S</p>	<p>Plan and prepare</p>	<p>Obtain measurements</p>	<p>Perform calculations</p>
<p>Read and interpret sketches and drawings SEIP-RMG-IEL-03-S</p>	<p>Interpret information and specifications</p>	<p>Read and interpret sketches and drawings</p>	

Occupation-specific (Core) Competencies

Identify basic garment construction SEIP-RMG-IEL-01-O	Explain manufacturing process	Identify industrial sewing machines and functions	Identify stitches and seams
	Record clothing materials		
Perform garment operation analysis SEIP-RMG-IEL-02-O	Prepare garments operation breakdown	Apply line layout	
Perform work study SEIP-RMG-IEL-03-O	Define work study	Define method study	Carry out work measurement
	Perform SMV calculation	Perform production capacity and target calculation	Perform efficiency calculation
Apply knowledge of basic lean quality SEIP-RMG-IEL-04-O	Identify basic tools	Identify quality activities and garment defects	
Perform production planning and control SEIP-RMG-IEL-05-O	Interpret TNA	Perform plant capacity calculation	Prepare for inventory planning
	Perform production scheduling		
Identify basic tools for lean manufacturing SEIP-RMG-IEL-06-O	Implement lean manufacturing system	Identify lean manufacturing waste	Identify tools and equipment
	Perform KAIZEN event		

Perform optimisation
SEIP-RMG-IEL-07-O

Identify industrial set-
up and layout

Perform clothing
material utilisation

Perform process
optimisation

Units and Elements Table

Generic – Compulsory (4 units of competency required)

Code	Unit of Competency	Elements of Competency	Duration (hours)
SEIP-RMG-IEL-01-G	Apply occupational health and safety (OHS) practice in the workplace	<ol style="list-style-type: none"> 1. Identify OHS policies and procedures. 2. Apply personal health and safety practices. 3. Report hazards and risks. 1. Respond to emergencies. 	8
SEIP-RMG-IEL-02-G	Carry out workplace interaction	<ol style="list-style-type: none"> 1. Interpret workplace communication and etiquette. 2. Read and understand workplace documents. 3. Participate in workplace meetings and discussions. 4. Practice professional ethics at work. 	8
SEIP-RMG-IEL-03-G	Operate in a team environment	<ol style="list-style-type: none"> 1. Identify team goals and work processes. 2. Identify own role and responsibilities within team. 3. Communicate and co-operate with team members. 4. Practice problem solving within the team. 	8
SEIP-RMG-IEL-04-G	Apply basic IT skills	<ol style="list-style-type: none"> 1. Identify and use most commonly used IT tools. 2. Understand use of computer. 3. Work with word processing application. 4. Work with spreadsheets. 5. Access email and search the internet. 	16
Total Hours			40

Sector-specific – Compulsory (3 units of competency required)

Code	Unit of Competency	Elements of Competency	Duration (hours)
SEIP-RMG-IEL-01-S	Explore the history of RMG Sector	<ol style="list-style-type: none"> 1. Examine the background of RMG sector. 2. Identify main departments within RMG sector. 3. List prime local and export markets. 	20
SEIP-RMG-IEL-02-S	Carry out measurements and calculations	<ol style="list-style-type: none"> 1. Plan and prepare. 2. Obtain measurements. 3. Perform calculations. 	20
SEIP-RMG-IEL-03-S	Read and interpret sketches and drawings	<ol style="list-style-type: none"> 1. Interpret information and specifications. 2. Read and interpret sketches and drawings. 	20
Total Hours			60

Occupation-specific – Compulsory (7 units of competency required)

Code	Unit of Competency	Elements of Competency	Duration (hours)
SEIP-RMG-IEL-01-O	Identify basic garment construction	<ol style="list-style-type: none"> 1. Explain manufacturing process. 2. Identify industrial sewing machine and functions. 3. Identify stitches and seams. 4. Record clothing materials. 	40
SEIP-RMG-IEL-02-O	Perform garments operation breakdown	<ol style="list-style-type: none"> 1. Prepare garments operation breakdown. 2. Apply line layout. 	15
SEIP-RMG-IEL-03-O	Perform work study	<ol style="list-style-type: none"> 1. Define work study. 2. Define method study. 3. Carry out work measurement. 4. Perform SMV calculation. 5. Perform production capacity and target calculation. 6. Perform efficiency calculation. 	70
SEIP-RMG-IEL-04-O	Apply knowledge of basic lean quality	<ol style="list-style-type: none"> 1. Identify basic tools of quality. 2. Identify quality activities and garment defects. 	15
SEIP-RMG-IEL-05-O	Perform production planning and control	<ol style="list-style-type: none"> 1. Interpret TNA plan. 2. Perform plant capacity calculation. 3. Prepare for inventory planning. 4. Perform production scheduling. 	40
SEIP-RMG-IEL-06-O	Identify basic tools for lean manufacturing	<ol style="list-style-type: none"> 1. Implement lean manufacturing system. 2. Identify lean manufacturing waste. 3. Identify tools and equipment. 4. Perform KAIZEN event. 	50
SEIP-RMG-IEL-07-O	Perform optimisation	<ol style="list-style-type: none"> 1. Identify industrial set-up and layout. 2. Perform clothing material utilisation. 3. Perform process optimisation. 	30
Total Hours			260

Generic Competencies

Unit Title:	Apply occupational health and safety (OHS) practice in the workplace
Unit Code:	SEIP-RMG-IEL-01-S
Nominal Hours:	8 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to apply occupational health and safety (OHS) practices in the workplace. It specifically includes identifying OHS policies and procedures, applying personal health and safety practices, reporting hazards and risks, and responding to emergencies.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Identify OHS policies and procedures	<p>1.1. <u>OHS policies</u> and safe operating procedures are interpreted</p> <p>1.2. Safety signs and symbols are identified and followed.</p> <p>1.3. Response, evacuation procedures and other contingency measures are interpreted correctly.</p>
2. Apply personal health and safety practices	<p>2.1. OHS policies and procedures are interpreted in the workplace including <u>personal protective equipment (PPE)</u>.</p> <p>2.2. Common health issues are recognised.</p> <p>2.3. Common safety issues are identified.</p>
3. Report hazards and risks	<p>3.1. Hazards and risks are identified.</p> <p>3.2. Hazards and risks assessment and controls are interpreted.</p>
4. Respond to emergencies	<p>4.1. Respond to alarms and warning devices.</p> <p>4.2. <u>Emergency response plans and procedures</u> are responded to.</p> <p>4.3. <u>First aid procedures</u> during emergency situations are identified.</p>

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
1. OHS policies	<p>1.1. Organisational OHS policies</p> <p>1.2. International OHS requirements</p> <p>1.3. Fire safety rules and regulations</p>
2. Emergency response plans and procedures	<p>2.1. Firefighting procedures</p> <p>2.2. Earthquake response procedures</p> <p>2.3. Emergency response plans and procedures</p> <p>2.4. Medical and first aid</p>

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
3. First aid procedure	3.1. Washing of open wound 3.2. Washing chemically infected area 3.3. Applying bandage 3.4. Taking appropriate medicine
4. Personal protective equipment	4.1. Safety glasses 4.2. Ear plugs 4.3. Gloves 4.4. Apron 4.5. Helmet 4.6. Mask 4.7. Safety shoes

Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment must evidence that the candidate: <ol style="list-style-type: none"> 1.1. Identified OHS policies and procedures 1.2. Applied personal health and safety practices (including PPE) 1.3. Reported hazards and risks 1.4. Responded to emergencies
2. Underpinning knowledge	<ol style="list-style-type: none"> 2.1. Workplace OHS policies and procedures 2.2. Work safety procedures 2.3. Emergency response procedures: <ol style="list-style-type: none"> 2.3.1. Firefighting 2.3.2. Earthquake response 2.3.3. Accident response 2.4. Types of hazards (biological, chemical and physical) and their effects 2.5. OHS awareness 2.6. Personal protective equipment (PPE)
3. Underpinning skills	<ol style="list-style-type: none"> 3.1. Identifying OHS policies and procedures 3.2. Applying personal health and safety practices 3.3. Reporting hazards and risks 3.4. Responding to emergencies

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.

4. Underpinning attitudes	<ul style="list-style-type: none">4.1. Committed to occupational health and safety practices4.2. Communicates well with peers, subordinates and seniors in workplace4.3. Prompt in carrying out activities4.4. Tidy and punctual4.5. Sincere and honest concerning duties4.6. Responsible during emergencies
5. Resource implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none">5.1. Workplace (simulated or actual)5.2. Personal protective equipment (PPE)5.3. Firefighting equipment5.4. Emergency response manual5.5. First aid kits5.6. Stationary5.7. Learning manual
6. Methods of assessment	<p>Methods of assessment may include but is not limited to:</p> <ul style="list-style-type: none">6.1. Written test6.2. Oral test6.3. Observation6.4. Demonstration6.5. Portfolio
7. Context of assessment	<ul style="list-style-type: none">7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency.7.2. Assessment must be done by a suitably qualified/certified assessor.

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

Unit Title:	Carry out workplace interaction
Unit Code:	SEIP-RMG-IEL-02-G
Nominal Hours:	8 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to carry out workplace interaction. It specifically includes workplace communication, etiquette, understanding workplace documents, workplace meetings and discussions, and professional ethics at work.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Interpret workplace communication and etiquette	<p>1.1. Workplace codes of conduct are interpreted as per organisational guidelines.</p> <p>1.2. Appropriate lines of communication are maintained with supervisors and colleagues.</p> <p>1.3. Workplace interactions are conducted in a <u>courteous manner</u> to gather and convey information.</p> <p>1.4. <u>Workplace procedures and matters</u> are comprehended.</p>
2. Read and understand workplace documents	<p>2.1. Workplace documents are interpreted correctly.</p> <p>2.2. Visual information/symbols/signage are understood correctly and followed.</p> <p>2.3. Specific and relevant information are accessed from <u>appropriate sources</u>.</p> <p>2.4. Appropriate medium is used to transfer information and ideas.</p>
3. Participate in workplace meetings and discussions	<p>3.1. Team meetings are attended on time.</p> <p>3.2. Meeting procedures and etiquette are followed.</p> <p>3.3. Active participation is ensured, opinions are expressed and heard.</p> <p>3.4. Inputs are provided and interpreted in line with the meeting purpose.</p>
4. Practice professional ethics at work	<p>4.1. Responsibilities as a team member are performed.</p> <p>4.2. Tasks are performed in accordance with workplace procedures.</p> <p>4.3. Confidentiality is maintained.</p> <p>4.4. Inappropriate and conflicting situations are avoided.</p>

Range of Variables	
Variable	Range (may include but not limited to)
1. Courteous manner	1.1. Effective questioning 1.2. Active listening 1.3. Speaking skills 1.4. Writing skill 1.5. Email etiquette
2. Workplace procedures and matters	2.1. Notes 2.2. Arranging a meeting 2.3. Agenda 2.4. Simple reports such as progress and incident reports 2.5. Job sheets 2.6. Operational manuals 2.7. Brochures and promotional material 2.8. Visual and graphic materials 2.9. Standards 2.10. OHS information 2.11. Signs
3. Appropriate sources	3.1. Human Resources (HR) Department 3.2. Managers 3.3. Supervisors 3.4. Management Information System (MIS)

Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment must evidence that the candidate: <ol style="list-style-type: none"> 1.1. Interpreted workplace communication and etiquette 1.2. Interpreted workplace instructions and symbols 1.3. Performed active participation in workplace meetings
2. Underpinning knowledge	<ol style="list-style-type: none"> 2.1. Workplace communication and etiquette 2.2. Workplace documents, signs and symbols 2.3. Meeting procedure and etiquette 2.4. Professional ethics
3. Underpinning skills	<ol style="list-style-type: none"> 3.1. Demonstrating workplace communication and etiquette 3.2. Interpreting workplace instructions and symbols 3.3. Demonstrating active participation in workplace meeting 3.4. Applying professional ethics at work

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.

4. Underpinning attitudes	4.1. Prompt in carrying out activities 4.2. Tidy and punctual 4.3. Respectful of peers, subordinates and seniors in the workplace 4.4. Concerned about the work environment 4.5. Sincere and honest concerning duties
5. Resource implications	The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Workplace procedures 5.3. Standard operating procedure 5.4. Workplace documents, signs and symbols 5.5. Codes of conduct 5.6. Projector 5.7. Stationary 5.8. Learning manual
6. Methods of assessment	Methods of assessment may include but is not limited to: 6.1. Written test 6.2. Oral test 6.3. Observation 6.4. Demonstration 6.5. Portfolio
7. Context of assessment	7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency. 7.2. Assessment must be done by a suitably qualified/certified assessor.

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

Unit Title:	Operate in a team environment
Unit Code:	SEIP-RMG-IEL-03-G
Nominal Hours:	8 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to operate in a team environment. It specifically includes identifying team goals and work processes, roles and responsibilities, team communication and problem solving within the team.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Identify team goals and work processes	<p>1.1. Roles and objectives of the team are identified and interpreted.</p> <p>1.2. Roles and responsibilities of team members are identified and interpreted.</p>
2. Identify own role and responsibilities within team	<p>2.1. Personal role and responsibilities are identified within the team environment.</p> <p>2.2. Reporting relationships are interpreted within team and external to team.</p>
3. Communicate and co-operate with team members	<p>3.1. Other teammates' tasks are identified and support provided when requested.</p> <p>3.2. The team is encouraged through <u>sharing information</u> or expertise, working together to solve problems, and putting team success first.</p> <p>3.3. Views and opinions of other team members are interpreted and respected.</p>
4. Practice problem solving within the team	<p>4.1. Problems faced at the individual and team level are identified and showed insight into the root-causes of the problems.</p> <p>4.2. A range of solutions and courses of action are identified together with benefits, costs, and risks associated with each.</p> <p>4.3. The good ideas of others to help develop solutions are recognised and advice sought from those who have solved similar problems.</p> <p>4.4. It is looked beyond the obvious and not stopped at the first answers.</p>

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
1. Sharing information	1.1. Agenda 1.2. Minutes 1.3. progress and incident reports 1.4. Operational manuals 1.5. Visual and graphic materials 1.6. Emails and SMS 1.7. Phone directory 1.8. Policy, procedure and standards 1.9. OHS information

Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment must evidence that the candidate: 1.1. Identified own role and responsibilities within team 1.2. Communicated and co-operated with team members 1.3. Demonstrated problem solving within the team
2. Underpinning knowledge	2.1. Team goals and work processes 2.2. Roles and responsibilities 2.3. Finding problems and solving them
3. Underpinning skills	3.1. Identifying own role and responsibilities within team 3.2. Communicating and co-operating with team members 3.3. Demonstrating problem solving within the team
4. Underpinning attitudes	4.1. Active on teamwork 4.2. Prompt in carrying out activities 4.3. Tidy and punctual 4.4. Respectful of peers, subordinates and seniors in the workplace 4.5. Sincere and honest concerning duties
5. Resource implications	The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Projector 5.3. Stationary 5.4. Learning manual

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.

6. Methods of assessment

Methods of assessment may include but is not limited to:

- 6.1. Written test
- 6.2. Oral test
- 6.3. Observation
- 6.4. Demonstration
- 6.5. Portfolio

7. Context of assessment

- 7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency.
- 7.2. Assessment must be done by a suitably qualified/certified assessor.

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

Unit Title:	Apply basic IT skills
Unit Code:	SEIP-RMG-IEL-04-G
Nominal Hours:	16 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to apply basic IT skills in the workplace. It specifically includes identifying IT tools, using computer, word processing and spreadsheet applications, email and searching on internet.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Identify and use most commonly used IT tools	<p>1.1. History of information technology (IT) is identified and summarised.</p> <p>1.2. Commonly used <u>IT tools</u> are identified and described.</p>
2. Understand use of computer	<p>2.1. Basic parts of a computer are identified.</p> <p>2.2. Turning on and off technique of a computer is performed.</p> <p>2.3. Working environment, functions and features of operating system is interpreted.</p> <p>2.4. Simple trouble-shooting techniques are applied.</p>
3. Work with word processing application	<p>3.1. Word processing application appropriate to perform activity is operated.</p> <p>3.2. Basic typing technique to document is applied.</p> <p>3.3. Word processing techniques to document are employed.</p> <p>3.4. Personal CV writing using suitable word processing techniques is practiced.</p> <p>3.5. Saving and retrieving technique of a document is used.</p>
4. Work with spreadsheets	<p>4.1. Spreadsheet working environment, functions and features are identified and interpreted.</p> <p>4.2. Data entry on spreadsheet appropriate to perform activity is performed.</p> <p>4.3. <u>Data manipulation techniques</u> to spreadsheet document are applied.</p> <p>4.4. Spreadsheet document is created and saved.</p>
5. Access email and search the internet	<p>5.1. Use of email account in online environment is explained.</p> <p>5.2. Writing and sending of workplace emails is completed.</p> <p>5.3. Different <u>browsers</u> to work online are identified and selected.</p> <p>5.4. Browse different web portals and apply proper search techniques.</p>

Range of Variables	
Variable	Range (may include but not limited to)
1. IT tools	1.1. Cell phone 1.2. Tablets 1.3. Computers, laptops, notebooks 1.4. Internet 1.5. Software 1.6. Satellite
2. Data manipulation techniques	2.1. Sum 2.2. Average 2.3. Count 2.4. Max 2.5. Min 2.6. If 2.7. Sort 2.8. Fill 2.9. Header 2.10. Footer 2.11. Print
3. Browsers	3.1. Internet Explorer 3.2. Firefox 3.3. Google Chrome 3.4. Opera 3.5. Safari 3.6. Omni Web 3.7. Microsoft Edge

Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment must evidence that the candidate: <ol style="list-style-type: none"> 1.1. Identified commonly used IT tools 1.2. Performed simple trouble-shooting with computer 1.3. Performed typing on word processing software, saved and retrieved documents 1.4. Performed data entry with spread sheet 1.5. Used email account for different online purposes

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.

2. Underpinning knowledge	<ul style="list-style-type: none">2.1. IT and IT tools2.2. Computer trouble-shooting2.3. Techniques to access internet
3. Underpinning skills	<ul style="list-style-type: none">3.1. Demonstrating simple trouble-shooting with computer3.2. Demonstrating typing on word processing software3.3. Demonstrating data entry with spread sheet3.4. Opening email account and using it for different purposes
4. Underpinning attitudes	<ul style="list-style-type: none">4.1. Active on teamwork4.2. Prompt in carrying out activities4.3. Tidy and punctual4.4. Respectful of peers, subordinates and seniors in the workplace4.5. Sincere and honest concerning duties
5. Resource implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none">5.1. Workplace (simulated or actual)5.2. IT tools5.3. Computer/laptop/notebook5.4. Software5.5. Internet5.6. Projector5.7. Stationary5.8. Learning manual
6. Methods of assessment	<p>Methods of assessment may include but is not limited to:</p> <ul style="list-style-type: none">6.1. Written test6.2. Oral test6.3. Observation6.4. Demonstration6.5. Portfolio
7. Context of assessment	<ul style="list-style-type: none">7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency.7.2. Assessment must be done by a suitably qualified/certified assessor.

Accreditation Requirements

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Sector-specific Competencies

Unit Title:	Explore the history of RMG Sector
Unit Code:	SEIP-RMG-IEL-01-S
Nominal Hours:	20 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to explore the history of RMG Sector in Bangladesh. It specifically includes examining the background of RMG sector, identifying the main departments within the RMG sector, and identifying prime local and export markets.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Examine the background of RMG sector	1.1. Historical background of RMG sector is examined and described. 1.2. Backward and forward linkages are identified.
2. Identify main departments within RMG sector	2.1. <u>Main departments</u> of the RMG sector are identified. 2.2. Importance of RMG sector and main departments is explored and analysed. 2.3. Common <u>types of machine</u> used in RMG sector are identified.
3. Identify prime local and export markets	3.1. Prime local markets and <u>export markets</u> are identified. 3.2. Local and export markets are listed.

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
1. Main departments	1.1. PDS 1.2. Store 1.3. Cutting 1.4. Embellishment 1.5. Sewing 1.6. Washing 1.7. Finishing 1.8. Quality 1.9. Industrial engineering 1.10. Production planning 1.11. Production control 1.12. Maintenance 1.13. Merchandising

Range of Variables	
Variable	Range (may include but not limited to)
2. Types of machine	2.1. Single needle 2.2. Double needle 2.3. Overlock 2.4. Flatlock 2.5. Feed of the arm 2.6. Kansai multi needle 2.7. Bartuck 2.8. Button needle 2.9. Button stitch 2.10. Snap attach
3. Export markets	3.1. United States 3.2. European 3.3. Asian

Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment must evidence that the candidate: 1.1. Illustrated history of RMG sector 1.2. Identified prime local and export markets
2. Underpinning knowledge	2.1. History of RMG sector 2.2. Main departments 2.3. Common types of machinery 2.4. Prime local and export markets
3. Underpinning skills	3.1. Describing the history of RMG sector 3.2. Identifying prime local and export markets
4. Underpinning attitudes	4.1. Eager to learn 4.2. Considerate of personal grooming 4.3. Patient and attentive 4.4. Active on team work 4.5. Tidy and punctual 4.6. Sincere and honest concerning duties

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.

5. Resource implications

The following resources must be provided:

- 5.1. Workplace (simulated or actual)
- 5.2. Map/globe
- 5.3. Projector
- 5.4. Stationary
- 5.5. Learning manual

6. Methods of assessment

Methods of assessment may include but is not limited to:

- 6.1. Written test
- 6.2. Oral test
- 6.3. Observation
- 6.4. Demonstration
- 6.5. Portfolio

7. Context of assessment

- 7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency.
- 7.2. Assessment must be done by a suitably qualified/certified assessor.

Accreditation Requirements

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Unit Title:	Carry out measurements and calculations
Unit Code:	SEIP-RMG-IEL-02-S
Nominal Hours:	20 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required for carry out measurements and calculations in the workplace. It specifically includes planning and preparing to take measurements, obtaining measurements, and performing calculations.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Plan and prepare	<p>1.1. Work instructions are confirmed and applied to the job in hand.</p> <p>1.2. Materials to be measured are identified as per job specification.</p> <p>1.3. Appropriate <u>measuring device</u> is identified and selected based on materials to be measured.</p> <p>1.4. Specifications are obtained and verified from relevant <u>documents</u>.</p>
2. Obtain measurements	<p>2.1. Method of obtaining measurement is selected and applied.</p> <p>2.2. <u>Measurements</u> are obtained using appropriate device in accordance with job requirement.</p> <p>2.3. Measurements, including area, volume, tolerance and clearance limits, are confirmed and applied.</p>
3. Perform calculations	<p>3.1. <u>Calculations</u>, using basic operations, for determining material requirement are taken.</p> <p>3.2. Appropriate <u>formulas</u> for calculating quantities are selected.</p> <p>3.3. Quantities are estimated from the calculation taken.</p> <p>3.4. Material quantities are calculated, confirmed and recorded within tolerances.</p>

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
1. Measuring device	<p>1.1. Measuring tape</p> <p>1.2. Steel rule</p> <p>1.3. Calculator</p> <p>1.4. Sets square</p>
2. Documents	<p>2.1. Technical manuals</p> <p>2.2. Specifications</p> <p>2.3. Sketches</p> <p>2.4. Drawings</p> <p>2.5. Charts</p> <p>2.6. Photographs</p>

Range of Variables	
Variable	Range (may include but not limited to)
3. Measurements	3.1. Length 3.2. Width 3.3. Weight 3.4. Tolerance
4. Calculations	4.1. Addition 4.2. Subtraction 4.3. Multiplication 4.4. Division 4.5. Area 4.6. Volume 4.7. Circumference 4.8. CBM 4.9. Volumetric weight
5. Formulas	5.1. Fractions 5.2. Percentages 5.3. Mixed numbers 5.4. Conversions 5.5. Scales

Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment required evidence that the candidate: <ol style="list-style-type: none"> 1.1. Identified and selected appropriate measuring devices 1.2. Carried out measurements for apparel 1.3. Identified and selected correct mathematical formula 1.4. Performed calculations as per job requirement
2. Underpinning knowledge	<ol style="list-style-type: none"> 2.1. Measuring devices 2.2. Basic mathematical formulas 2.3. Simple calculation techniques 2.4. Garment allowances and tolerances 2.5. Recording data procedures
3. Underpinning skills	<ol style="list-style-type: none"> 3.1. Identifying appropriate measuring devices 3.2. Carrying out measurements for apparel 3.3. Performing calculations as per job requirement

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.

4. Underpinning attitudes	4.1. Committed to occupational health and safety practices 4.2. Communicates well with peers, subordinates and seniors in workplace 4.3. Prompt in carrying out activities 4.4. Tidy and punctual 4.5. Sincere and honest concerning duties
5. Resource implications	The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Computer/laptop/notebook 5.3. Calculator 5.4. Measuring tape 5.5. Projector 5.6. Stationary 5.7. Learning manual
6. Methods of assessment	Methods of assessment may include but is not limited to: 6.1. Written test 6.2. Oral test 6.3. Observation 6.4. Demonstration 6.5. Portfolio
7. Context of assessment	7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency. 7.2. Assessment must be done by a suitably qualified/certified assessor.

Accreditation Requirements

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Unit Title:	Read and interpret sketches and drawings
Unit Code:	SEIP-RMG-IEL-03-S
Nominal Hours:	20 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to read and interpret sketches and drawings. It specifically includes interpreting information and specifications, and reading and interpreting sketches and drawings.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Interpret information and specifications	<p>1.1. Appropriate <u>manuals</u> for work activity are identified and collected.</p> <p>1.2. Information and <u>specifications</u> in the manuals is interpreted and applied.</p>
2. Read and interpret sketches and drawings	<p>2.1. Relevant <u>sketches and drawings</u> are identified for job requirement.</p> <p>2.2. Key <u>terms and abbreviations</u> are identified and interpreted.</p> <p>2.3. <u>Signs and symbols</u> are identified and interpreted.</p> <p>2.4. Schedules, dimensions, sketches, drawings and specifications are correctly read and interpreted.</p>

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
1. Manuals	<p>1.1. Buyers specification</p> <p>1.2. Compliance</p> <p>1.3. Maintenance procedure</p> <p>1.4. Periodic maintenance</p> <p>1.5. Quality assurance</p> <p>1.6. Standard operating procedure (SOP)</p>
2. Sketches and drawings	<p>2.1. Technical</p> <p>2.2. Measurement</p> <p>2.3. Design</p>
3. Specifications	<p>3.1. Product</p> <p>3.2. Performance</p> <p>3.3. Method</p>
4. Terms and abbreviations	4.1. Refers to all terms and abbreviations associated with the RMG Sector
5. Signs and symbols	5.1. Includes all signs and symbols associated with the RMG Sector

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.

1. Critical aspects of competency	Assessment must evidence that the candidate: 1.1. Identified information and specifications 1.2. Read and interpreted sketches and drawings
2. Underpinning knowledge	2.1. Manuals 2.2. Units of measurement 2.3. Units of conversion 2.4. Sketch, drawings and specifications
3. Underpinning skills	3.1. Read and identifying information and specifications (from manual) 3.2. Reading and interpreting sketches and drawings
4. Underpinning attitudes	4.1. Eager to learn 4.2. Tidy and punctual 4.3. Concerned about proper use of computer and peripherals 4.4. Concerns for other's rights 4.5. Sincere and honest concerning duties
5. Resource implications	The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Computer/laptop/notebook 5.3. Software 5.4. Stationary 5.5. Learning manual
6. Methods of assessment	Methods of assessment may include but is not limited to: 6.1. Written test 6.2. Oral test 6.3. Observation 6.4. Demonstration 6.5. Portfolio
7. Context of assessment	7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency. 7.2. Assessment must be done by a suitably qualified/certified assessor.

Accreditation Requirements

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Occupation-specific Competencies

Unit Title:	Identify basic garment construction
Unit Code:	SEIP-RMG-IEL-01-O
Nominal Hours:	40 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to identify basic garment construction. It specifically explaining manufacturing process, identifying industrial sewing machines and functions, identifying stitches and seams, recording clothing materials.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Explain manufacturing process	1.1. <u>Fabric manufacturing process</u> is identified and explained. 1.2. <u>Garment manufacturing process</u> is identified and explained.
2. Identify industrial sewing machines and functions	2.1. Types of <u>industrial sewing machine</u> are identified. 2.2. Functions of industrial sewing machine are identified and described. 2.3. Types of <u>attachments</u> used with industrial sewing machine are identified.
3. Identify stitches and seams	3.1. Types of <u>stitches</u> are identified as per garment style. 3.2. Types of <u>seams</u> are identified as per garment style. 3.3. Garment stitch quality is examined as per sample. 3.4. Garment seam quality is examined as per sample.
4. Record clothing materials	4.1. Different types of <u>clothing materials</u> are identified. 4.2. Clothing materials are itemised and recorded as per the BOM (Bill of Material) sheet.

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
1. Fabric manufacturing process	1.1. Fibre 1.2. Yarn 1.3. Woven fabric 1.4. Knit fabric 1.5. Dying 1.6. Printing 1.7. Finishing 1.8. Yarn dyed fabrics

Range of Variables	
Variable	Range (may include but not limited to)
2. Garment manufacturing process	<ul style="list-style-type: none"> 2.1. Design 2.2. Pattern making 2.3. Fit sample making 2.4. Production pattern making 2.5. Grading 2.6. Marker making 2.7. Fabric spreading 2.8. Fabric cutting 2.9. Cutting parts numbering and bundling 2.10. Sewing 2.11. Finishing and packing
3. Industrial sewing machine	<ul style="list-style-type: none"> 3.1. Single needle 3.2. Double needle 3.3. Over lock 3.4. Flat Lock 3.5. Fed of the arm 3.6. Kansai Multi needle 3.7. Blind stitch 3.8. Bar tuck 3.9. Button hole 3.10. Button stitch 3.11. Eyehole/key hole
4. Attachments	<ul style="list-style-type: none"> 4.1. Feed 4.2. Guide 4.3. Folder
5. Stitches and seams	<ul style="list-style-type: none"> 5.1. Stitches: <ul style="list-style-type: none"> 5.1.1. Chain 5.1.2. Lock 5.1.3. Hand 5.2. Seams: <ul style="list-style-type: none"> 5.2.1. Super imposed 5.2.2. French 5.2.3. Lapped 5.2.4. Lap felled 5.2.5. Bound 5.2.6. Flat 5.2.7. Decorative 5.2.8. Edge neatening

Range of Variables	
Variable	Range (may include but not limited to)
6. Clothing materials	6.1. Fabric (main material) 6.2. Trims and accessories (sub materials)

Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment must evidence that the candidate: <ol style="list-style-type: none"> 1.1. Explained fabric manufacturing process 1.2. Explained garment manufacturing process 1.3. Identified industrial sewing machines and their functions 1.4. Identified different types of stitches and seams 1.5. Identified clothing materials
2. Underpinning knowledge	<ol style="list-style-type: none"> 2.1. Fabric manufacturing process 2.2. Garment manufacturing process 2.3. Industrial sewing machines (including attachments) 2.4. Stitches 2.5. Seams 2.6. Clothing materials
3. Underpinning skills	<ol style="list-style-type: none"> 3.1. Explaining fabric manufacturing process 3.2. Explaining garment manufacturing process 3.3. Identifying industrial sewing machines and their functions 3.4. Identifying types of stitches and seams 3.5. Identifying clothing materials 3.6. Itemising and recording clothing materials as per BOM
4. Underpinning attitudes	<ol style="list-style-type: none"> 4.1. Tidy and punctual 4.2. Prompt in carrying out activities 4.3. Sincere and honest concerning duties 4.4. Active on teamwork 4.5. Eager to learn 4.6. Respectful of peers, subordinates and seniors in the workplace 4.7. Communicate with peers and seniors in the workplace

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.

5. Resource implications

The following resources must be provided:

- 5.1. Workplace (simulated or actual)
- 5.2. Computer/laptop/notebook
- 5.3. Industrial sewing machine
- 5.4. Attachments
- 5.5. Fabric (samples)
- 5.6. Garment (samples)
- 5.7. Trims and accessories
- 5.8. Stitches and seams (samples)
- 5.9. Bill of Materials (samples)
- 5.10. Projector
- 5.11. Stationary
- 5.12. Learning manual

6. Methods of assessment

Methods of assessment may include but is not limited to:

- 6.1. Written test
- 6.2. Oral test
- 6.3. Observation
- 6.4. Demonstration
- 6.5. Portfolio

7. Context of assessment

- 7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency.
- 7.2. Assessment must be done by a suitably qualified/certified assessor.

Accreditation Requirements

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Unit Title:	Perform garment operation analysis
Unit Code:	SEIP-RMG-IEL-02-O
Nominal Hours:	15 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to perform garment operation analysis. It specifically includes preparing garments operation breakdown and applying line layout.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Prepare garments operation breakdown	<p>1.1. <u>Garments operation breakdown</u> elements are identified as per styling.</p> <p>1.2. Garments operation breakdown is prepared as per buyer sample.</p>
2. Apply line layout	<p>2.1. <u>Line layout</u> is interpreted as per styling.</p> <p>2.2. Line <u>layout type</u> is selected as per job requirement.</p>

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
1. Garments operation breakdown	<p>1.1. Style of the garments</p> <p>1.2. Front part</p> <p>1.3. Back part</p> <p>1.4. Assembling part</p> <p>1.5. Make section</p>
2. Line layout	<p>2.1. Operation breakdown</p> <p>2.2. Machine selection</p> <p>2.3. Operator selection</p> <p>2.4. Standard Minute Value (SMV)</p> <p>2.5. Line balancing information</p>
3. Layout type	<p>3.1. Straight</p> <p>3.2. Side by side machine</p> <p>3.3. U- shaped line</p> <p>3.4. Modular line</p> <p>3.5. Progressive Bundle System (PBS)</p> <p>3.6. Unit Production System (UPS)</p>

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.

1. Critical aspects of competency	Assessment must evidence that the candidate: 1.1. Identified garments operation breakdown elements 1.2. Prepared garments operation breakdown 1.3. Interpreted line layout 1.4. Identified layout types 1.5. Applied line layout on styling
2. Underpinning knowledge	2.1. Garments operation breakdown 2.2. Line layout 2.3. Layout types
3. Underpinning skills	3.1. Preparing garments operation breakdown 3.2. Apply line layout on styling
4. Underpinning attitudes	4.1. Tidy and punctual 4.2. Prompt in carrying out activities 4.3. Sincere and honest concerning duties 4.4. Active on teamwork 4.5. Eager to learn 4.6. Respectful of peers, subordinates and seniors in the workplace 4.7. Communicate with peers and seniors in the workplace
5. Resource implications	The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Computer/laptop/notebook 5.3. Sewing machine 5.4. Garments (samples) 5.5. Instruction sheet 5.6. Standard operating procedure (samples) 5.7. Projector 5.8. Stationary 5.9. Learning manual
6. Methods of assessment	Methods of assessment may include but is not limited to: 6.1. Written test 6.2. Oral test 6.3. Observation 6.4. Demonstration 6.5. Portfolio

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.

7. Context of assessment

- 7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency.
- 7.2. Assessment must be done by a suitably qualified/certified assessor.

Accreditation Requirements

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Unit Title:	Perform work study
Unit Code:	SEIP-RMG-IEL-03-O
Nominal Hours:	70 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to perform work study. It specifically includes defining work study, defining method study, carrying out work measurement, performing SMV calculation, performing production capacity and target calculation, and performing efficiency calculation.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Define work study	1.1. Work study is defined. 1.2. Importance of work study is explained. 1.3. Basic procedure of work study is identified and described.
2. Define method study	2.1. Method study is defined. 2.2. <u>Method study process</u> is identified and explained. 2.3. Primary and secondary questioning techniques are identified.
3. Carry out work measurement	3.1. Purpose of work measurement is explained. 3.2. <u>Work measurement techniques</u> are identified. 3.3. <u>Work measurement procedure</u> is identified and implemented to assess effectiveness. 3.4. Employee ratings and allowances for work content are identified.
4. Perform SMV calculation	4.1. <u>Tools for SMV calculation</u> are identified. 4.2. Procedure for SMV calculation is identified. 4.3. <u>SMV calculation formula</u> is interpreted. 4.4. SMV calculation is performed according to formula.
5. Perform production capacity and target calculation	5.1. <u>Production capacity</u> on process, line and factory are identified. 5.2. Production capacity calculation formula is interpreted. 5.3. Production capacity is calculated as per formula. 5.4. <u>Production target calculation formula</u> is interpreted. 5.5. Production target is calculated as per formula.
6. Perform efficiency calculation	6.1. <u>Efficiency calculation method</u> is identified. 6.2. Efficiency calculation formula is interpreted. 6.3. Efficiency calculations are prepared according to formula.

Range of Variables	
Variable	Range (may include but not limited to)
1. Method study process	<ul style="list-style-type: none"> 1.1. Select 1.2. Record 1.3. Examine 1.4. Develop 1.5. Measure 1.6. Install 1.7. Maintain
2. Work measurement techniques	<ul style="list-style-type: none"> 2.1. Work sampling 2.2. Stop-watch time 2.3. Predetermined time standards (PTS) 2.4. Standard rate
3. Work measurement procedure	<ul style="list-style-type: none"> 3.1. Select 3.2. Record 3.3. Examine 3.4. Measure 3.5. Compile 3.6. Define
4. Tools for SMV calculation	<ul style="list-style-type: none"> 4.1. Stop watch 4.2. Cycle check data 4.3. Paper, pen, pencils 4.4. Calculator 4.5. Computer
5. Standard Minute Value (SMV) calculation formula	<ul style="list-style-type: none"> 5.1. Cycle time 5.2. Observed time 5.3. Basic time 5.4. Performance rating 5.5. Allowances
6. Production capacity	<ul style="list-style-type: none"> 6.1. Working hour 6.2. SMV 6.3. Total SMV earners 6.4. Working days
7. Production target calculation formula	<ul style="list-style-type: none"> 7.1. Production capacity 7.2. Efficiency 7.3. Absenteeism

Range of Variables	
Variable	Range (may include but not limited to)
8. Efficiency calculation method	8.1. Production output 8.2. SMV 8.3. SMV earners 8.4. Working hours

Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment must evidence that the candidate: <ol style="list-style-type: none"> 1.1. Defined work study 1.2. Defined work method 1.3. Identified work measurement techniques and procedure 1.4. Carried out work measurement 1.5. Performed SMV calculation 1.6. Performed production capacity and target calculation 1.7. Performed efficiency calculation
2. Underpinning knowledge	<ol style="list-style-type: none"> 2.1. Work study 2.2. Work method 2.3. Work measurement techniques 2.4. Work measurement procedure 2.5. SMV calculation formula 2.6. Production capacity calculation formula 2.7. Production target calculation formula 2.8. Efficiency calculation formula
3. Underpinning skills	<ol style="list-style-type: none"> 3.1. Defining work study and work method 3.2. Carrying out work measurement 3.3. Performing SMV calculation 3.4. Performing production capacity calculation 3.5. Performing production target calculation 3.6. Performing efficiency calculation
4. Underpinning attitudes	<ol style="list-style-type: none"> 4.1. Tidy and punctual 4.2. Prompt in carrying out activities 4.3. Sincere and honest concerning duties 4.4. Active on teamwork 4.5. Eager to learn 4.6. Respectful of peers, subordinates and seniors in the workplace 4.7. Communicate with peers and seniors in the workplace

Evidence Guide

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5. Resource implications	The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Computer/laptop/notebook 5.3. Calculator 5.4. Projector 5.5. Stationary 5.6. Learning manual
6. Methods of assessment	Methods of assessment may include but is not limited to: 6.1. Written test 6.2. Oral test 6.3. Observation 6.4. Demonstration 6.5. Portfolio
7. Context of assessment	7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency. 7.2. Assessment must be done by a suitably qualified/certified assessor.

Accreditation Requirements

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Unit Title:	Apply knowledge of basic lean quality
Unit Code:	SEIP-RMG-IEL-04-O
Nominal Hours:	15 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to apply knowledge of basic lean quality. It specifically includes identifying basic tools of quality and identifying quality activities and garment defects.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Identify basic tools of quality	1.1. <u>Basic tools of quality</u> are identified and described. 1.2. Basic tools of quality are interpreted as per work order.
2. Identify quality activities and garment defects	2.1. Basic quality activities are identified and explained. 2.2. Types of <u>garment defect</u> are identified. 2.3. Garment defects are interpreted as per sample.

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
1. Basic tools of quality	1.1. Check sheet 1.2. Control chart 1.3. Histogram 1.4. Ishikawa diagram 1.5. Pareto chart 1.6. Scatter diagram 1.7. Flow chart

Range of Variables	
Variable	Range (may include but not limited to)
2. Garment defect	<p>2.1. Fabric defects:</p> <ul style="list-style-type: none"> 2.1.1. Drop stitches 2.1.2. Dye marks 2.1.3. Laddering 2.1.4. Stains 2.1.5. Bad selvedge 2.1.6. Shade variation <p>2.2. Workmanship defects:</p> <ul style="list-style-type: none"> 2.2.1. Seam puckering 2.2.2. Broken stitches 2.2.3. Open/broken seams 2.2.4. Drop/skipped/stitch 2.2.5. Shading variation 2.2.6. Untrimmed thread <p>2.3. Trim defects:</p> <ul style="list-style-type: none"> 2.3.1. Trim broken 2.3.2. Trim differs 2.3.3. Trim bleeding

Evidence Guide	
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1. Critical aspects of competency	<p>Assessment must evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1. Identified and interpreted basic tools of quality 1.2. Identified basic quality activities 1.3. Identified and interpreted garment defects
2. Underpinning knowledge	<ul style="list-style-type: none"> 2.1. Tools of quality 2.2. Quality activities 2.3. Garment defects 2.4. Quality assurance
3. Underpinning skills	<ul style="list-style-type: none"> 3.1. Identifying basic tools of quality 3.2. Interpreting basic tools of quality as per work order 3.3. Identifying basic quality activities 3.4. Identifying garment defects 3.5. Interpreting garment defects as per sample

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.

4. Underpinning attitudes	4.1. Tidy and punctual 4.2. Prompt in carrying out activities 4.3. Sincere and honest concerning duties 4.4. Active on teamwork 4.5. Eager to learn 4.6. Respectful of peers, subordinates and seniors in the workplace 4.7. Communicate with peers and seniors in the workplace
5. Resource implications	The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Computer/laptop/notebook 5.3. Basic tools of quality (sheets, diagrams, charts) 5.4. Garments (defective samples) 5.5. Work sheets 5.6. Projector 5.7. Stationary 5.8. Learning manual
6. Methods of assessment	Methods of assessment may include but is not limited to: 6.1. Written test 6.2. Oral test 6.3. Observation 6.4. Demonstration 6.5. Portfolio
7. Context of assessment	7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency. 7.2. Assessment must be done by a suitably qualified/certified assessor.

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Unit Title:	Perform production planning and control
Unit Code:	SEIP-RMG-IEL-05-O
Nominal Hours:	40 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to perform production planning and control. It specifically includes interpreting TNA plan, performing plant capacity calculation, preparing for inventory planning, and performing production scheduling.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Interpret TNA plan	<p>1.1. <u>Time and action plan</u> (TNA plan) is interpreted on basis of lead time.</p> <p>1.2. TNA plan on a selected order is prepared.</p> <p>1.3. Planning on critical issues is carried out for inclusion in time schedule.</p>
2. Perform plant capacity calculation	<p>2.1. <u>Plant capacity calculation</u> formula is identified.</p> <p>2.2. Plant capacity formula is interpreted.</p> <p>2.3. Plant capacity calculation is carried out.</p>
3. Prepare for inventory planning	<p>3.1. Importance of inventory planning is explained.</p> <p>3.2. <u>Types of inventory</u> planning are identified.</p> <p>3.3. <u>Material requirement planning</u> is described.</p> <p>3.4. Procedure of preparing inventory planning is identified.</p>
4. Perform production scheduling	<p>4.1. <u>Production scheduling</u> is explained.</p> <p>4.2. Production scheduling is carried out.</p>

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
1. Time and action plan	<p>1.1. Lead time</p> <p>1.2. Combined execution</p> <p>1.3. Cutting</p> <p>1.4. Sewing</p> <p>1.5. Finishing and packing</p> <p>1.6. Shipment</p>
2. Plant capacity calculation	<p>2.1. Total number of machines</p> <p>2.2. Total hours factory runs a day</p> <p>2.3. Total number of workers</p>

Range of Variables	
Variable	Range (may include but not limited to)
3. Types of inventory	3.1. Fabrics 3.2. Trims and accessories 3.3. Finished goods 3.4. Work in process 3.5. Machinery 3.6. Tools and equipment
4. Material requirement planning	4.1. Technical package 4.2. Styling 4.3. Materials type 4.4. Required materials per unit 4.5. Sourcing lead time
5. Production scheduling	5.1. Lead time 5.2. Working days 5.3. Holidays 5.4. Calendar days 5.5. Risk factors

Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment must evidence that the candidate: <ol style="list-style-type: none"> 1.1. Interpreted TNA plan 1.2. Performed plant capacity calculation 1.3. Identified types of inventory planning 1.4. Identified material requirement planning 1.5. Prepared for inventory planning 1.6. Carried out production scheduling
2. Underpinning knowledge	<ol style="list-style-type: none"> 2.1. TNA plans 2.2. Plant capacity calculation formula 2.3. Inventory planning 2.4. Material requirement planning 2.5. Production scheduling
3. Underpinning skills	<ol style="list-style-type: none"> 3.1. Interpreting TNA plan 3.2. Performing plant capacity calculation formula 3.3. Preparing for inventory planning 3.4. Carrying out production scheduling

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.

4. Underpinning attitudes	4.1. Tidy and punctual 4.2. Prompt in carrying out activities 4.3. Sincere and honest concerning duties 4.4. Active on teamwork 4.5. Eager to learn 4.6. Respectful of peers, subordinates and seniors in the workplace 4.7. Communicate with peers and seniors in the workplace
5. Resource implications	The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Computer/laptop/notebook 5.3. TNA Plan (samples) 5.4. Calculator 5.5. Work sheet 5.6. Projector 5.7. Stationary 5.8. Learning manual
6. Methods of assessment	Methods of assessment may include but is not limited to: 6.1. Written test 6.2. Oral test 6.3. Observation 6.4. Demonstration 6.5. Portfolio
7. Context of assessment	7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency. 7.2. Assessment must be done by a suitably qualified/certified assessor.

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Unit Title:	Identify basic tools for lean manufacturing
Unit Code:	SEIP-RMG-IEL-06-O
Nominal Hours:	50 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to identify basic tools for lean manufacturing. It specifically includes implementing lean manufacturing system, identifying lean manufacturing waste, identifying tools and techniques, and performing KAIZEN event.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Implement lean manufacturing system	<p>1.1. <u>Basic lean manufacturing systems</u> are identified.</p> <p>1.2. Purpose of lean manufacturing system is explained.</p> <p>1.3. Lean manufacturing system is implemented to increase overall organisational efficiency.</p>
2. Identify lean manufacturing waste	<p>2.1. <u>Types of waste</u> in lean manufacturing are identified.</p> <p>2.2. Lean manufacturing wastage solutions are identified.</p>
3. Identify tools and techniques	<p>3.1. Basic lean manufacturing <u>tools and techniques</u> are identified.</p> <p>3.2. Impact of application of tools and techniques to lean manufacturing is described.</p> <p>3.3. Lean manufacturing tools are applied to enhance organisational productivity and efficiency.</p>
4. Perform KAIZEN event	<p>4.1. <u>KAIZEN events</u> are identified.</p> <p>4.2. Advantages of KAIZEN events are identified and explained.</p> <p>4.3. KAIZEN event is implemented.</p>

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
1. Basic lean manufacturing systems	<p>1.1. Value</p> <p>1.2. Value stream mapping</p> <p>1.3. Flow</p> <p>1.4. Pull</p> <p>1.5. Perfection</p>

Range of Variables	
Variable	Range (may include but not limited to)
2. Types of waste	2.1. Over production 2.2. Over processing 2.3. Excess transportation 2.4. Excess inventory 2.5. Excess motion 2.6. Waiting 2.7. Re- work 2.8. Unused talents 2.9. Dis-connectivity
3. Tools and techniques	3.1. Value steam mapping (VSM) 3.2. Workplace organisation 3.3. Visual management 3.4. Kanban and super market 3.5. Standardisation of work process 3.6. Cellular manufacturing 3.7. SMED 3.8. Problem solving 3.9. TPM 3.10. Kaizen
4. KAIZEN events	4.1. Current situation 4.2. Planning and preparation 4.3. Implementation 4.4. Follow-up

Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment must evidence that the candidate: <ol style="list-style-type: none"> 1.1. Identified basic lean manufacturing systems 1.2. Implemented lean manufacturing system 1.3. Identified types of waste 1.4. Identified basic lean manufacturing tools and techniques 1.5. Applied lean manufacturing tools to organisational production 1.6. Performed KAIZEN event

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.

2. Underpinning knowledge	<ul style="list-style-type: none">2.1. Lean manufacturing systems2.2. Lean manufacturing waste2.3. Tools and techniques2.4. KAIZEN events
3. Underpinning skills	<ul style="list-style-type: none">3.1. Implementing lean manufacturing system3.2. Identifying types of lean manufacturing waste3.3. Applying tools and techniques to organisational production3.4. Performing KAIZEN event
4. Underpinning attitudes	<ul style="list-style-type: none">4.1. Tidy and punctual4.2. Prompt in carrying out activities4.3. Sincere and honest concerning duties4.4. Active on teamwork4.5. Eager to learn4.6. Respectful of peers, subordinates and seniors in the workplace4.7. Communicate with peers and seniors in the workplace
5. Resource implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none">5.1. Workplace (simulated or actual)5.2. Computer/laptop/notebook5.3. Projector5.4. Stationary5.5. Learning manual
6. Methods of assessment	<p>Methods of assessment may include but is not limited to:</p> <ul style="list-style-type: none">6.1. Written test6.2. Oral test6.3. Observation6.4. Demonstration6.5. Portfolio
7. Context of assessment	<ul style="list-style-type: none">7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency.7.2. Assessment must be done by a suitably qualified/certified assessor.

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Unit Title:	Perform optimisation
Unit Code:	SEIP-RMG-IEL-07-O
Nominal Hours:	30 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to perform optimisation. It specifically includes identifying industrial set-up and layout, performing clothing material utilisation, and perform process optimisation.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Identify industrial set-up and layout	1.1. Industrial set-up and layout are identified as per plant design. 1.2. Provisional layout is demonstrated.
2. Perform clothing material utilisation	2.1. Efficiency of <u>clothing material consumption</u> is identified. 2.2. Material utilisation percentage is calculated as per BOM sheet.
3. Perform process optimisation	3.1. <u>Bottle neck process</u> is identified. 3.2. <u>Line balancing techniques</u> are identified. 3.3. <u>Line balancing tools</u> are identified as per line layout. 3.4. <u>Balancing loss formula</u> is interpreted. 3.5. Balancing loss of the line is calculated as per formula.

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
1. Clothing material consumption	1.1. Types of fabric 1.2. Styling of apparel 1.3. Fabric width 1.4. Marker efficiency 1.5. Shrinkage of fabric 1.6. Size ratio break up 1.7. Trims type 1.8. Accessories type

Range of Variables	
Variable	Range (may include but not limited to)
2. Bottle neck process	2.1. Process SMV 2.2. Capacity 2.3. Capacity utilisation 2.4. Idle time 2.5. Work in process 2.6. Set-up time 2.7. Direct labour content 2.8. Direct labour utilisation 2.9. Hourly production 2.10. Material supply
3. Line balancing techniques	3.1. Split task 3.2. Share task 3.3. Use parallel work station 3.4. Improving material supply 3.5. Motivation
4. Line balancing tools	4.1. Production sheets 4.2. Daily production report 4.3. Inventory levels by operation 4.4. Stop watch 4.5. Calculator
5. Balancing loss formula	5.1. Number of allocated machines 5.2. Number of calculated machines

Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment must evidence that the candidate: <ol style="list-style-type: none"> 1.1. Identified industrial set-up and layout 1.2. Demonstrated provisional layout 1.3. Performed clothing material utilisation 1.4. Calculated material utilisation percentage 1.5. Performed process optimisation

Evidence Guide

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2. Underpinning knowledge	<ul style="list-style-type: none">2.1. Industrial set-up2.2. Industrial layout2.3. Clothing material consumption2.4. Bottle neck process2.5. Line balancing techniques2.6. Line balancing tools2.7. Balancing loss formula
3. Underpinning skills	<ul style="list-style-type: none">3.1. Carrying out provisional industrial layout3.2. Performing clothing material utilisation3.3. Calculating material utilisation percentage3.4. Performing process optimisation
4. Underpinning attitudes	<ul style="list-style-type: none">4.1. Tidy and punctual4.2. Prompt in carrying out activities4.3. Sincere and honest concerning duties4.4. Active on teamwork4.5. Eager to learn4.6. Respectful of peers, subordinates and seniors in the workplace4.7. Communicate with peers and seniors in the workplace
5. Resource implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none">5.1. Workplace (simulated or actual)5.2. Computer/laptop/notebook5.3. Calculator5.4. Projector5.5. Stationary5.6. Learning manual
6. Methods of assessment	<p>Methods of assessment may include but is not limited to:</p> <ul style="list-style-type: none">6.1. Written test6.2. Oral test6.3. Observation6.4. Demonstration6.5. Portfolio
7. Context of assessment	<ul style="list-style-type: none">7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency.7.2. Assessment must be done by a suitably qualified/certified assessor.

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