



Skills for Employment Investment Program (SEIP)

ASSESSMENT TOOL FOR INDUSTRIAL ENGINEERING AND LEAN MANUFACTURING *(RMG SECTOR)*

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

Table of Contents

PART A – THE ASSESSOR	4
Instructions to Assessor.....	4
Assessment Evidence Guide.....	8
Assessment Evidence Plan.....	9
PART B – THE CANDIDATE	20
Instructions to Candidate	20
Self-Assessment Guide.....	21
PART C – THE ASSESSMENT	28
Assessment Agreement – Industrial Engineering and Lean Manufacturing.....	28
PART D – ASSESSMENT TOOLS	31
Specific Instructions to Assessor	31
Specific Instructions to Candidate.....	33
Written Test.....	35
Written Test - Answers.....	40
Set A: Practical Demonstration 1	45
Set A: Practical Demonstration 1 – Observation Checklist.....	48
Set A: Practical Demonstration 2	50
Set A: Practical Demonstration 2 – Observation Checklist.....	52
Set A: Practical Demonstration 3	55
Set A: Practical Demonstration 3 – Observation Checklist.....	57
Set A: Practical Demonstration 4	60
Set A: Practical Demonstration 4 – Observation Checklist.....	63
Set B: Practical Demonstration 1	66
Set B: Practical Demonstration 1 – Observation Checklist.....	70
Set B: Practical Demonstration 2	72
Set B: Practical Demonstration 2 – Observation Checklist.....	74
Set B: Practical Demonstration 3	77
Set B: Practical Demonstration 3 – Observation Checklist.....	79
Set B: Practical Demonstration 4	82
Set B: Practical Demonstration 4 – Observation Checklist.....	85
Set C: Practical Demonstration 1	88
Set C: Practical Demonstration 1 – Observation Checklist.....	91
Set C: Practical Demonstration 2.....	93
Set C: Practical Demonstration 2 – Observation Checklist.....	95
Set C: Practical Demonstration 3.....	98
Set C: Practical Demonstration 3 – Observation Checklist.....	100
Set C: Practical Demonstration 4.....	103

Set C: Practical Demonstration 4 – Observation Checklist.....	106
Oral Questions (Optional)	109
Oral Questioning Guideline	112
Oral Questions (Optional) - Answers	113
Assessment Evidence Summary Sheet.....	115
Assessment Validation Map.....	118

PART A – THE ASSESSOR

Instructions to Assessor

Assessment is the process of identifying a candidate's skills and knowledge set against the industry established standards in the workplace. It requires the candidate to consistently and over time demonstrate skills, knowledge and attitude that enable confident completion of workplace tasks in a variety of situations.

In judging assessment evidence, the assessor must ensure that the evidence is:

- authentic (the candidate's own work)
- valid (directly related to the current version of the endorsed competency standard)
- reliable (show that the candidate consistently meets the endorsed unit of competency)
- current (reflects the candidate's current capacity to perform the aspect of work covered by the endorsed unit of competency)
- sufficient (covers the full range of elements in the relevant unit of competency)

There are a number of assessment methods that may be employed including but not limited to:

- written examination
- oral questioning
- practical demonstration

A single unit of competency may be assessed or a group of units of competency may be assessed, either in an actual workplace or a simulated workplace environment.

Conducting Assessment

Prior to commencement of assessment, candidates must have the tasks clearly explained to them. Also, the assessor should provide candidates with clear advice and information about the:

- date, time and place for assessment
- structure of assessment
- number of times performance must be demonstrated or observed
- amount or type of assistance candidates can expect
- assessment environment
- resources required for assessment
- performance standards or benchmarks relevant to the qualification

As well as informing the candidate of what they will be required to do during the assessment, the assessor will also need to explain what evidence they will need to provide in response to the various assessment tasks.

If a candidate is required to submit evidence, any explanation must include specific guidance on:

- what to include as evidence
- how to present the evidence
- how to submit the evidence and to whom

Assessing Competence

Competency-based assessment does not award grades, but simply identifies if the candidate has the skills, knowledge and attitudes to undertake the required task to the specified standard.

Therefore, when assessing competency an assessor has two possible results (assessment decisions) that can be awarded:

- Competent (C)
- Not Yet Competent (NYC)

Competent (C)

If the candidate is able to successfully answer and demonstrate what is required to the expected standard of the assessment criteria, they will be deemed as 'Competent'.

The assessor will award 'Competent' if they feel the candidate has the necessary skills, knowledge and attitudes in all assessment tasks for a given package.

Not Yet Competent (NYC)

If the candidate is unable to answer and demonstrate competency to the expected standard, they will be deemed to be 'Not Yet Competent'.

This does not mean the candidate will need to complete all the assessment tasks again. When applying for reassessment, the focus will be on the specific assessment tasks that were not performed to the required standard.

The candidate may be required to:

- (a) undertake further training or instruction
- (b) undertake the specific assessment task again until they are deemed to be competent

Recording Assessment Information

When all assessment tasks are concluded, the evidence summary sheet should be completed, signed by all parties, and any outstanding activities or issues actioned.

The assessor should ensure that all appropriate forms are completed and signed by all parties.

CHECKLIST FOR ASSESSOR		
Prior to the assessment I have:	Tick (✓)	Remarks
Ensured the candidate is informed about the venue and schedule of assessment.		
Received current copies of the assessment criteria to be assessed, assessment plan and evidence plan.		
Reviewed the assessment criteria and evidence plan to ensure I clearly understood the instructions and the requirements of the assessment process.		
Identified and accommodated any special needs of the candidate.		
Checked the set-up and resources for the assessment.		
During the assessment I have:		
Introduced myself and confirmed identities of candidates.		
Collected the admission slips.		
Put candidates at ease by being friendly and helpful.		
Checked completed self-assessment guide.		
Explained to candidates the purpose, context and benefits of the assessment.		
Ensured candidates understood the assessment process and the assessment procedure.		
Provided candidates with an overview of the assessment criteria to be used.		
Gave specific and clear instructions to the candidates.		
Observed carefully the specified time limits provided in the assessment package.		
Stayed at the assessment area during the entire duration of the assessment activity.		
Ensured notes are made on unusual conditions or situations during the assessment and include these in the report.		
Did not provide any assistance during the assessment or indicated in any way whether the candidate is or is not performing the activity correctly (intervened only for health and safety reasons).		

Implemented the evidence gathering process and ensured its validity, reliability, fairness and flexibility.		
Collected appropriate evidence and matched relevance to the elements, performance criteria, range of variables and evidence guide in the relevant units of competency.		
Explained the results reporting procedure to the candidate.		
Encouraged candidates to seek clarifications if in doubt about the pre- and post-assessment activity procedures.		
Asked candidates for feedback on the assessment.		
Explained legal, health and safety, and ethical issues, if applicable.		
After the assessment I have:		
<p>Provided feedback on the assessment decision. This includes the following:</p> <ul style="list-style-type: none"> ▪ clear and constructive feedback on the assessment decision ▪ information on ways of addressing any identified gaps in competency revealed by the assessment ▪ opportunity to discuss the assessment process and outcome ▪ information on reassessment process (if necessary) ▪ information on appeal (if necessary) 		
<p>Prepared the necessary assessment reports. This includes the following:</p> <ul style="list-style-type: none"> ▪ record the assessment decision using the prescribed rating sheet ▪ maintain records of the assessment procedures, evidence collected and assessment decision ▪ endorse assessment decision to BTEB ▪ prepare recommendations for the issuance of certificate 		
Thanked candidate for participating in the assessment.		

Assessment Evidence Guide

The purpose of assessment is to confirm that an individual can perform to the standards expected by in the workplace, as expressed in the competency standards.

To attain the certificate of **Industrial Engineering and Lean Manufacturing**, a candidate must demonstrate competent skill and knowledge in all the units of competency listed below. Upon successful completion of all assessment activities, a candidate shall be awarded with a certificate.

CODE	UNIT OF COMPETENCY
Generic Competencies	
SEIP-RMG-IEL-01-G	Use basic mathematical concepts
SEIP-RMG-IEL-02-G	Carry out workplace interaction
SEIP-RMG-IEL-03-G	Operate in a team environment
SEIP-RMG-IEL-04-G	Acquire basic IT skills
Sector-specific Competencies	
SEIP-RMG-IEL-01-S	Understand the RMG business
SEIP-RMG-IEL-02-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-RMG-IEL-03-S	Perform measurements and calculations
SEIP-RMG-IEL-04-S	Read and interpret sketches and drawings
Occupation-specific Competencies	
SEIP-RMG-IEL-01-O	Identify basic garments construction
SEIP-RMG-IEL-02-O	Illustrate garments operation analysis
SEIP-RMG-IEL-03-O	Interpret work study techniques
SEIP-RMG-IEL-04-O	Interpret basic lean quality concepts
SEIP-RMG-IEL-05-O	Interpret production planning and control
SEIP-RMG-IEL-06-O	Identify basic tools for lean manufacturing
SEIP-RMG-IEL-07-O	Perform optimization techniques in different department

Assessment Evidence Plan

An assessment evidence plan is a document that assists in establishing what evidence needs to be collected by the assessor to ensure that the candidate meets all the appropriate requirements of the competency standard. It usually contains a record of:

- evidence requirements as set out in the competency standard
- who will collect the evidence
- time period needed to collect the evidence

Occupation:	Industrial Engineering and Lean Manufacturing					
Unit Name:	Use basic mathematical concepts					
Unit Code:	SEIP-RMG-IEL-01-G					
Assessment Method:	P	O	W			
	Performance <i>(including demonstration and observation)</i>	Oral questioning	Written examination <i>(including short-answer, multiple choice, and true or false questions)</i>			
Element	Performance Criteria			P	O	W
1. Identify calculation requirements in the workplace	1.1. Calculation requirements are identified from workplace information.			√		
	1.2. Mathematical problems are constructed from workplace information.			√		
2. Select appropriate mathematical methods/concepts for calculation	2.1. Appropriate method is selected to carry out the calculation requirement.			√		
	2.2. Constructed mathematical problems are solved with appropriate method.			√		
3. Use tool/instrument to perform calculations	3.1. Tools and instruments required for computation are identified.			√		
	3.2. Calculation is performed using appropriate tools and instruments accurately.			√		

Occupation:	Industrial Engineering and Lean Manufacturing					
Unit Name:	Carry out workplace interaction					
Unit Code:	SEIP-RMG-IEL-02-G					
Assessment Method:	P	O	W			
	Performance <i>(including demonstration and observation)</i>	Oral questioning	Written examination <i>(including short-answer, multiple choice, and true or false questions)</i>			
Element	Performance Criteria			P	O	W
1. Carry out workplace interaction	1.1. Workplace codes of conduct are interpreted as per organisational guidelines.					√

	1.2. Appropriate lines of communication are maintained with supervisors and colleagues.	√		
	1.3. Workplace interactions are conducted in a courteous manner to gather and convey information.	√		
	1.4. Workplace procedures and matters are comprehended.	√		
2. Read and understand workplace documents	2.1. Workplace documents are interpreted correctly.	√		
	2.2. Visual information/symbols/signage are understood correctly and followed.	√		
	2.3. Specific and relevant information are accessed from appropriate sources.	√		
	2.4. Appropriate medium is used to transfer information and ideas.	√		
3. Participate in workplace meetings and discussions	3.1. Team meetings are attended on time.		√	
	3.2. Meeting procedures and etiquette are followed.		√	
	3.3. Active participation is ensured, opinions are expressed and heard.		√	
	3.4. Inputs are provided and interpreted in line with the meeting purpose.		√	
4. Practice professional ethics at work	4.1. Responsibilities as a team member are performed.	√		
	4.2. Tasks are performed in accordance with workplace procedures.	√		
	4.3. Confidentiality is maintained.	√		
	4.4. Inappropriate and conflicting situations are avoided.	√		

Occupation:	Industrial Engineering and Lean Manufacturing					
Unit Name:	Operate in a team environment					
Unit Code:	SEIP-RMG-IEL-03-G					
Assessment Method:	P	O	W			
	Performance (including demonstration and observation)	Oral questioning	Written examination (including short-answer, multiple choice, and true or false questions)			
Element	Performance Criteria			P	O	W
1. Identify team goals and work processes	1.1. Roles and objectives of the team are identified and interpreted.					√
	1.2. Roles and responsibilities of team members are identified and interpreted.					√

2. Identify own role and responsibilities within team	2.1. Personal role and responsibilities are identified within the team environment.	√		
	2.2. Reporting relationships are interpreted within team and external to team.	√		
3. Communicate and co-operate with team members	3.1. Other teammates' tasks are identified and support provided when requested.	√	√	
	3.2. The team is encouraged through sharing information or expertise, working together to solve problems, and putting team success first.	√		
	3.3. Views and opinions of other team members are interpreted and respected.	√		
4. Practice problem solving within the team	4.1. Problems faced at the individual and team level are identified and showed insight into the root-causes of the problems.	√		
	4.2. A range of solutions and courses of action are identified together with benefits, costs, and risks associated with each.	√		
	4.3. The good ideas of others to help develop solutions are recognised and advice sought from those who have solved similar problems.	√		
	4.4. It is looked beyond the obvious and not stopped at the first answers.	√		

Occupation:	Industrial Engineering and Lean Manufacturing					
Unit Name:	Apply basic IT skills					
Unit Code:	SEIP-RMG-IEL-04-G					
Assessment Method:	P	O	W			
	Performance (including demonstration and observation)	Oral questioning	Written examination (including short-answer, multiple choice, and true or false questions)			
Element	Performance Criteria			P	O	W
1. Identify and use most commonly used IT tools	1.1. History of information technology (IT) is identified and summarised.				√	
	1.2. Commonly used IT tools are identified and described.			√		
2. Understand use of computer	2.1. Basic parts of a computer are identified.					√
	2.2. Turning on and off technique of a computer is performed.			√		
	2.3. Working environment, functions and features of operating system is interpreted.				√	
	2.4. Simple trouble-shooting techniques are applied.			√		

3. Work with word processing application	3.1. Word processing application appropriate to perform activity is operated.	√		
	3.2. Basic typing technique to document is applied.	√		
	3.3. Word processing techniques to document are employed.	√		
	3.4. Personal CV writing using suitable word processing techniques is practiced.			√
	3.5. Saving and retrieving technique of a document is used.	√		
4. Work with spreadsheets	4.1. Spreadsheet working environment, functions and features are identified and interpreted.		√	
	4.2. Data entry on spreadsheet appropriate to perform activity is performed.	√		
	4.3. Data manipulation techniques to spreadsheet document are applied.	√		
	4.4. Spreadsheet document is created and saved.	√		
5. Access email and search the internet	5.1. Access email and search the internet.	√		
	5.2. Writing and sending of workplace emails is completed.	√		
	5.3. Different browsers to work online are identified and selected.		√	
	5.4. Browse different web portals and apply proper search techniques.		√	

Occupation:	Industrial Engineering and Lean Manufacturing					
Unit Name:	Understand the RMG business					
Unit Code:	SEIP-RMG-IEL-01-S					
Assessment Method:	P	O	W			
	Performance (including demonstration and observation)	Oral questioning	Written examination (including short-answer, multiple choice, and true or false questions)			
Element	Performance Criteria			P	O	W
1. Identify basic business communication practices	1.1. Communication requirements in RMG Sector are interpreted in accordance with specific job role.				√	
	1.2. Modes of communication are identified and described.	√				
	1.3. Communication policies and guidelines are interpreted and followed.	√				
2. Recognise the history of RMG	2.1. History of RMG industry in Bangladesh is explored with reference to the past and present status, and expected future trends.				√	

industry in Bangladesh	2.2. Importance of the RMG industry and its relationship to the Bangladesh labour market is stated with emphasis on manpower and economic impact.		√	
	2.3. Present and projected future trends and technologies relevant to the sector are identified.		√	
3. Identify major departments of RMG sector	3.1. Scope and nature of major departments of the RMG sector are identified.			√
	3.2. Role and responsibilities of self are identified in relation to the department and organisation as a whole.		√	
	3.3. Machines used in different departments are identified.	√		
4. List prime export markets	4.1. Types of prime export markets are categorised based on their current and future potential.			√
	4.2. Export marketing process is clearly identified and described.			√

Occupation:	Industrial Engineering and Lean Manufacturing					
Unit Name:	Apply occupational health and safety (OHS) practice in the workplace					
Unit Code:	SEIP-RMG-IEL-02-S					
Assessment Method:	P	O	W			
	Performance (including demonstration and observation)	Oral questioning	Written examination (including short-answer, multiple choice, and true or false questions)			
Element	Performance Criteria			P	O	W
1. Identify OHS policies and procedures	1.1. OHS policies and safe operating procedures are interpreted.			√		
	1.2. Safety signs and symbols are identified and followed.			√		
	1.3. Response, evacuation procedures and other contingency measures are interpreted correctly.			√		
2. Apply personal health and safety practices	2.1. OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).			√		
	2.2. Common health issues are recognised.				√	
	2.3. Common safety issues are identified.			√		
3. Report hazards and risks	3.1. Hazards and risks are identified.			√		
	3.2. Hazards and risks assessment and controls are interpreted.			√		
	4.1. Respond to alarms and warning devices.					√

4. Respond to emergencies	4.2. Emergency response plans and procedures are responded to.		√	
	4.3. First aid procedures during emergency situations are identified.		√	

Occupation:	Industrial Engineering and Lean Manufacturing					
Unit Name:	Perform measurements and calculations					
Unit Code:	SEIP-RMG-IEL-03-S					
Assessment Method:	P	O	W			
	Performance (including demonstration and observation)	Oral questioning	Written examination (including short-answer, multiple choice, and true or false questions)			
Element	Performance Criteria			P	O	W
1. Selecting measuring devices	1.1. Work instructions are confirmed and applied to the job in hand.			√		
	1.2. Materials to be measured are identified as per job specifications.			√		
	1.3. Appropriate measuring devices are selected based on materials to be measured.			√		
	1.4. Specifications are obtained from relevant documents.			√		
	1.5. Tolerance and clearance limits are identified and adjusted according to the job requirements.			√		
2. Obtain measurements for apparel	2.1. Accurate measurements are obtained in accordance with job requirements.			√		
	2.2. Systems of measurements are identified and measurement conversions done as per requirement.			√		
	2.3. Measurements are confirmed and recorded in the given company format.			√		
3. Perform simple calculations	3.1. Simple calculations involving 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 and calculations are performed and verified.			√		
	3.4. Material quantities are accurately calculated and shared with team.			√		

Occupation:	Industrial Engineering and Lean Manufacturing
Unit Name:	Read and interpret sketches and drawings

Unit Code:	SEIP-RMG-IEL-04-S					
Assessment Method:	P	O	W			
	Performance (including demonstration and observation)	Oral questioning	Written examination (including short-answer, multiple choice, and true or false questions)			
Element	Performance Criteria			P	O	W
1. Interpret information and specifications	1.1.	Appropriate manuals for work activity are identified and collected.	√			
	1.2.	Information and specifications in the manuals are interpreted and applied.	√			
2. Read and interpret sketches and drawings	2.1.	Relevant sketches and drawings are identified for job requirement.	√			
	2.2.	Key terms and abbreviations are identified and interpreted.	√		√	
	2.3.	Signs and symbols are identified and interpreted.	√			
	2.4.	Schedules, dimensions, sketches, drawings and specifications are correctly read and interpreted.	√			

Occupation:	Industrial Engineering and Lean Manufacturing					
Unit Name:	Identify basic garments construction					
Unit Code:	SEIP-RMG-IEL-01-O					
Assessment Method:	P	O	W			
	Performance (including demonstration and observation)	Oral questioning	Written examination (including short-answer, multiple choice, and true or false questions)			
Element	Performance Criteria			P	O	W
1. Comprehend process from fibres to finished garments	1.1.	Fabric manufacturing process are identified.			√	
	1.2.	Garments manufacturing processes are identified.			√	
	1.3.	Manufacturing steps are listed according to the type of garment to be manufactured.			√	
2. Identify functions of industrial sewing machine and attachment	2.1.	Different types of industrial sewing machines are identified as per specification.	√			
	2.2.	Functions of industrial sewing machines are listed as per specification.	√			
	2.3.	Different types of attachments are identified as per styling of garments.	√			
3. Identify stitch and seam on garments style	3.1.	Different types of stitches are identified as per garment style.	√			
	3.2.	Different types of seams are identified as per garment style.	√			

	3.3. Garments stitch quality is interpreted as per sample.		√	
	3.4. Garments seam quality is interpreted as per sample.		√	
4. List clothing materials used for garments	4.1. Different types of clothing materials are identified.			√
	4.2. Clothing materials are listed as per the BOM (Bill of Material) sheet.	√		

Occupation:	Industrial Engineering and Lean Manufacturing					
Unit Name:	Illustrate garments operation analysis					
Unit Code:	SEIP-RMG-IEL-02-O					
Assessment Method:	P	O	W			
	Performance (including demonstration and observation)	Oral questioning	Written examination (including short-answer, multiple choice, and true or false questions)			
Element	Performance Criteria			P	O	W
1. Interpret garments operation breakdown	1.1. Garments operation breakdown is interpreted as per styling.		√			
	1.2. Garments operation breakdown is prepared as per sample shared by the client/buyer.		√			
2. Apply line layout on styling	2.1. Line layout is interpreted as per styling.		√			
	2.2. Line layout types are selected as per job requirement.		√			

Occupation:	Industrial Engineering and Lean Manufacturing					
Unit Name:	Interpret work study techniques					
Unit Code:	SEIP-RMG-IEL-03-O					
Assessment Method:	P	O	W			
	Performance (including demonstration and observation)	Oral questioning	Written examination (including short-answer, multiple choice, and true or false questions)			
Element	Performance Criteria			P	O	W
1. Identify method study and work measurement	1.1. Method study and work measurement are defined.		√			
	1.2. Method study procedures are identified.		√			
	1.3. Work measurement techniques are identified.		√			
	2.1. Tools for SMV calculation are identified.				√	

2. Perform SMV calculation	2.2. Procedures of SMV calculation are comprehended as per plan.	√		
	2.3. Standard Minute Value (SMV) calculation formula is interpreted.	√		
	2.4. Error free SMV calculation is performed according to formula.	√		
3. Perform production capacity and target calculation	3.1. Production capacity on process, line and factory are interpreted.	√		
	3.2. Production capacity is calculated as per the formula.	√		
	3.3. Production target calculation formula is identified.	√		
	3.4. Error free production target calculation prepared as per formula.	√		
4. Perform efficiency calculation	4.1. Efficiency calculation method is identified.	√		
	4.2. Efficiency calculation formula is interpreted.			√
	4.3. Error free efficiency calculations are prepared according to the formula.	√		
5. Practice skill matrix on workers performance	5.1. Skill matrix are interpreted as per operation or process expertise.	√		
	5.2. Skill matrix is prepared as per workers performance.	√		

Occupation:	Industrial Engineering and Lean Manufacturing					
Unit Name:	Interpret basic lean quality concepts					
Unit Code:	SEIP-RMG-IEL-04-O					
Assessment Method:	P	O	W			
	Performance (including demonstration and observation)	Oral questioning	Written examination (including short-answer, multiple choice, and true or false questions)			
Element	Performance Criteria			P	O	W
1. Interpret basics of quality	1.1. Basic tools of quality are identified.					√
	1.2. Basic tools of quality are interpreted as per work order.					√
2. Interpret quality activities and garments defects	2.1. Basic quality activities are identified in garments factory.		√			
	2.2. Quality activities are interpreted as per quality assurance guide.		√			
	2.3. Different types of garments defects are identified.		√			
	2.4. Garments defects are interpreted as per sample.					√

Occupation:	Industrial Engineering and Lean Manufacturing					
Unit Name:	Interpret production planning and control					
Unit Code:	SEIP-RMG-IEL-05-O					
Assessment Method:	P	O	W			
	Performance (including demonstration and observation)	Oral questioning	Written examination (including short-answer, multiple choice, and true or false questions)			
Element	Performance Criteria			P	O	W
1. Interpret TNA plan	1.1. TNA plan is interpreted on the basis of lead time.					√
	1.2. TNA plan on a selected order is prepared.			√		√
	1.3. Particular planning on critical issues are prepared to be in schedule time.			√		
2. Perform plant capacity calculations	2.1. Capacity calculation formula is identified.			√		
	2.2. Plant capacity formula are interpreted.			√		
	2.3. Plant capacity calculations are performed.			√		
3. Identify inventory planning	3.1. Purpose of inventory planning is identified.			√		
	3.2. Different types of inventory planning are outlined.					√
	3.3. Procedure of preparing inventory planning is outlined.					√
	3.4. Material requirement planning is comprehended.				√	
4. Perform production scheduling	4.1. Production scheduling is comprehended.				√	
	4.2. Production scheduling is performed as per schedule.			√		

Occupation:	Industrial Engineering and Lean Manufacturing					
Unit Name:	Identify basic tools for lean manufacturing					
Unit Code:	SEIP-RMG-IEL-06-O					
Assessment Method:	P	O	W			
	Performance (including demonstration and observation)	Oral questioning	Written examination (including short-answer, multiple choice, and true or false questions)			
Element	Performance Criteria			P	O	W
1. Interpret lean manufacturing concepts	1.1. Basic lean manufacturing system is comprehended.					√
	1.2. Purpose of lean manufacturing system is comprehended.					√

	1.3. Lean manufacturing system is applied to increase the overall efficiency of the organization.		√	
2. Identify manufacturing waste	2.1. Various types of waste in manufacturing are listed.			√
	2.2. Manufacturing wastage is identified as per guideline.		√	
3. Interpret tools and techniques of lean manufacturing	3.1. Basic lean manufacturing tools and techniques are identified.			√
	3.2. Results of basic lean manufacturing tools are comprehended.		√	
	3.3. Selected lean manufacturing tools are applied as per the guideline to enhance the productivity and efficiency of the organization.		√	
4. Perform KAIZEN event	4.1. KAIZEN events are identified.		√	
	4.2. Advantages of KAIZEN events are listed.			√
	4.3. KAIZEN event is implemented.		√	

Occupation:	Industrial Engineering and Lean Manufacturing					
Unit Name:	Perform optimization techniques in different department					
Unit Code:	SEIP-RMG-IEL-07-O					
Assessment Method:	P	O	W			
	Performance (including demonstration and observation)	Oral questioning	Written examination (including short-answer, multiple choice, and true or false questions)			
Element	Performance Criteria			P	O	W
1. Interpret industrial setup and layout	1.1. Industrial setup and layout are identified as per plant design.				√	
	1.2. Opportunity from perfect layout is illustrated.				√	
2. Perform utilization of clothing material	2.1. The efficiency of clothing material consumption is identified.				√	
	2.2. Material utilization percentage are calculated as per BOM sheet.			√	√	
3. Perform process optimization	3.1. Bottle neck process are identified in the manufacturing steps.					√
	3.2. Techniques of line balancing are identified.				√	
	3.3. Line balancing tools is identified as per line layout.				√	
	3.4. Balancing loss formula is comprehended.				√	
	3.5. Balancing loss of the line are calculated as per formula.			√		√

PART B – THE CANDIDATE

Instructions to Candidate

To be assessed as competent, you must provide evidence which demonstrates that you can perform to the necessary standard the various elements of these units of competency that comprise of the Certificate in Industrial Engineering and Lean Manufacturing. Assessment of competency requires you to consistently demonstrate skill, knowledge and aptitude (through a variety of assessment tools such as multiple choice, short-answer questions, oral questioning, workplace observation, and practical demonstration) that enables confident completion of workplace tasks in a variety of situations.

In judging the evidence, your assessor must ensure that the evidence is:

- authentic (your own work)
- valid (directly related to the current version of the units of competency)
- reliable (consistently demonstrates of your knowledge and skill)
- current (shows your current capacity to perform the work)
- sufficient (covers the full range of elements comprised within the units of competency)

Furthermore, the assessment process must:

- provide for valid, reliable, flexible and fair assessment
- provide for judgment to be made on the basis of sufficient evidence
- offer valid, authentic and current evidence
- include workplace requirements

There are two types of assessment:

1. Knowledge Assessment - is designed to enable assessment against the various *elements* contained within the units of competency through a variety of activities such as multiple choice, short-answer questions, oral questioning. It is essentially examining your theoretical knowledge.

This provides the assessor with substantial evidence of your knowledge and aptitude to perform the work relating to the specific unit of competency, in conjunction with other assessment tools such as workplace observation.

You should complete the knowledge assessment as directed by the assessor and follow all instructions as and when given. If you are unable to complete the knowledge assessment, please speak to the assessor about alternative assessment solutions.

2. Skill Assessment - is designed to enable assessment against the various *performance criteria* contained within the units of competency through, for example, demonstration of skill in a simulated or actual work environment. In essence, it is an examination of your practical ability.

This provides the assessor with substantial evidence of your ability to perform the work relating to the specific unit of competency to the standard expected by industry (the benchmark).

You should complete the skill assessment as directed by the assessor and follow all instructions as and when given, ensuring your own health and safety.

Once you have been assessed as competent against all of the units of competency comprising of the qualification being undertaken, you will be awarded your certificate.

Your assessor will discuss in more detail the requirements for assessment for each unit of competency at the appropriate time.

And please do not panic if you are not assessed as competent on any part of your qualification at your first attempt. Your assessor will discuss with you any identified skill and knowledge gaps, work through those with you and assist you as much as possible in attaining competency.

Self-Assessment Guide

Before undertaking any assessment, you should review the list of skills, knowledge and aptitudes relating to the assessment (drawn from the units of competency, its various elements and performance criteria) to determine whether you have current competency in these areas.

If you believe you can demonstrate the skills and knowledge required and can successfully complete the various assessment activities, you should then proceed to discuss your assessment with the assessor and complete Assessment Agreement.

However, should you not believe, for whatever reason, that you are not able to successfully complete the various assessment activities, then speak with the assessor. The assessor will assist you in identifying any skill and knowledge gaps, work through those with you and assist you as much as possible in attaining competency.

Please complete the self-assessment checklist below and discuss with the assessor.

Qualification:	Industrial Engineering and Lean Manufacturing	
Units of competency:	<p>Generic units:</p> <p>Use basic mathematical concepts</p> <p>Carry out workplace interaction</p> <p>Operate in a team environment</p> <p>Acquire basic IT skills</p> <p>Sector-specific units:</p> <p>Understand the RMG business</p> <p>Apply occupational health and safety (OHS) practice in the workplace</p> <p>Perform measurements and calculations</p> <p>Read and interpret sketches and drawings</p> <p>Occupation-specific units:</p> <p>Identify basic garments construction</p> <p>Illustrate garments operation analysis</p> <p>Identify work study techniques</p> <p>Interpret basic lean quality concepts</p> <p>Interpret production planning and control</p> <p>Identify basic tools for lean manufacturing</p> <p>Perform optimization techniques in different department</p>	
Instructions:	<p>1. Read each of the questions in the left-hand column of the chart</p> <p>2. Place a tick (√) in the appropriate box opposite each question to indicate your answer</p>	
Can I?	YES	NO
▪ Identify calculation requirements from workplace information		
▪ Construct mathematical problems from workplace information		

▪ Carry out appropriate method to calculation requirements		
▪ Solve constructed mathematical problems with appropriate method		
▪ Identify require tools and instruments for computation		
▪ Perform calculation using appropriate tools and instruments accurately		
▪ Interpret workplace codes of conduct as per organisational guidelines		
▪ Maintain appropriate lines of communication with supervisors and colleagues		
▪ Conduct workplace interactions in a courteous manner to gather and convey information		
▪ Comprehend workplace procedures and matters		
▪ Interpret workplace documents correctly		
▪ Understand and follow visual information/symbols/signage correctly		
▪ Access specific and relevant information from appropriate sources		
▪ Use appropriate medium to transfer information and ideas		
▪ Attend team meetings on time		
▪ Follow meeting procedures and etiquette		
▪ Ensure active participation, express opinions and heard		
▪ Interpret inputs in line with the meeting purpose		
▪ Perform responsibilities as a team member		
▪ Perform tasks in accordance with workplace procedures		
▪ Maintain confidentiality		
▪ Avoid inappropriate and conflicting situations		
▪ Identify and interpret roles and objectives of the team		
▪ Identify and interpret roles and responsibilities of team members		
▪ Identify personal role and responsibilities within the team environment		
▪ Interpret reporting relationships within team and external to team		
▪ Identify other teammates' tasks and support provided when requested		
▪ Encourage the team through sharing information or expertise, working together to solve problems, and putting team success first		
▪ Interpret views and opinions of other team members		
▪ Identify problems faced at the individual and team level and showed insight into the root-causes of the problems		
▪ Identify a range of solutions and courses of action together with benefits, costs, and risks associated with each		

▪ Recognise the good ideas of others to help develop solutions and advice sought from those who have solved similar problems		
▪ It is looked beyond the obvious and not stopped at the first answers		
▪ Identify and summary history of information technology (IT)		
▪ Identify and described commonly used it tools		
▪ Identify basic parts of a computer		
▪ Perform turning on and off technique of a computer		
▪ Interpret working environment, functions and features of operating system		
▪ Apply simple trouble-shooting techniques		
▪ Operate word processing application appropriate to perform activity		
▪ Apply basic typing technique to document		
▪ Employ word processing techniques to document		
▪ Practice personal CV writing using suitable word processing techniques		
▪ Use saving and retrieving technique of a document		
▪ Identify and interpret spreadsheet working environment, functions and features		
▪ Perform data entry on spreadsheet appropriate to perform activity		
▪ Apply data manipulation techniques to spreadsheet document		
▪ Create and save spreadsheet document		
▪ Explain use of email account in online environment		
▪ Complete writing and sending of workplace emails		
▪ Identify and select different browsers to work online		
▪ Apply browse different web portals and proper search techniques		
▪ Interpret communication requirements in RMG sector in accordance with specific job role		
▪ Identify and describe modes of communication		
▪ Interpret and follow communication policies and guidelines		
▪ Explore history of RMG industry in Bangladesh with reference to the past and present status, and expected future trends		
▪ State importance of the RMG industry and its relationship to the Bangladesh labour market with emphasis on manpower and economic impact		
▪ Identify present and projected future trends and technologies relevant to the sector		
▪ Identify scope and nature of major departments of the RMG sector		

▪ Categorize types of prime export markets based on their current and future potential		
▪ Identify and describe export marketing process is clearly		
▪ Interpret ohs policies and safe operating procedures		
▪ Identify and follow safety signs and symbols		
▪ Interpret response, evacuation procedures and other contingency measures		
▪ Apply ohs policies and procedures in the workplace including personal protective equipment (PPE)		
▪ Recognise common health issues		
▪ Identify common safety issues		
▪ Identify hazards and risks		
▪ Interpret hazards and risks assessment and controls		
▪ Respond to alarms and warning devices		
▪ Respond emergency response plans and procedures		
▪ Identify first aid procedures during emergency situations		
▪ Confirm and apply work instructions to the job in hand		
▪ Identify materials to be measured as per job specifications		
▪ Select appropriate measuring devices based on materials to be measured		
▪ Obtain specifications from relevant documents		
▪ Identify and adjust tolerance and clearance limits according to the job requirements		
▪ Obtain accurate measurements in accordance with job requirements		
▪ Identify systems of measurements and measurement conversions done as per requirement		
▪ Confirm and record measurements in the given company format		
▪ Carry out simple calculations involving basic operations		
▪ Use other operations to complete tasks		
▪ Perform and verify appropriate formulas for calculating quantities of materials are selected and calculations		
▪ Calculate and share material quantities are accurately with team		
▪ Identify and collect appropriate manuals for work activity		
▪ Interpret and apply information and specifications in the manuals		
▪ Identify relevant sketches and drawings for job requirement		
▪ Identify and interpret key terms and abbreviations		

▪ Identify and interpret signs and symbols		
▪ Interpret schedules, dimensions, sketches, drawings and specifications		
▪ Identify fabric manufacturing process		
▪ Identify garments manufacturing processes		
▪ List manufacturing steps according to the type of garment to be manufactured		
▪ Identify different types of industrial sewing machines as per specification		
▪ List functions of industrial sewing machines as per specification		
▪ Identify different types of attachments as per styling of garments		
▪ Identify different types of stitches as per garment style		
▪ Identify different types of seams as per garment style		
▪ Interpret garments stitch quality as per sample		
▪ Interpret garments seam quality as per sample		
▪ Identify different types of clothing materials		
▪ List clothing materials as per the BOM (bill of material) sheet		
▪ Interpret garments operation breakdown as per styling		
▪ Prepare garments operation breakdown as per sample shared by the client/buyer		
▪ Interpret line layout as per styling		
▪ Select line layout types as per job requirement		
▪ Define method study and work measurement		
▪ Identify method study procedures		
▪ Identify work measurement techniques		
▪ Identify tools for SMV calculation		
▪ Comprehend procedures of SMV calculation as per plan		
▪ Interpret standard minute value (SMV) calculation formula		
▪ Perform error free SMV calculation according to formula		
▪ Interpret production capacity on process, line and factory		
▪ Calculate production capacity as per the formula		
▪ Identify production target calculation formula		
▪ Prepare error free production target calculation as per formula		
▪ Identify efficiency calculation method		
▪ Interpret efficiency calculation formula		
▪ Prepare error free efficiency calculations according to the formula		

▪ Interpret skill matrix as per operation or process expertise		
▪ Prepare skill matrix as per workers performance		
▪ Identify basic tools of quality		
▪ Interpret basic tools of quality as per work order		
▪ Identify basic quality activities in garments factory		
▪ Interpret quality activities as per quality assurance guide		
▪ Identify different types of garments defects		
▪ Interpret garments defects as per sample		
▪ Interpret TNA plan on the basis of lead time		
▪ Prepare TNA plan on a selected order		
▪ Prepare particular planning on critical issues to be in schedule time		
▪ Identify capacity calculation formula		
▪ Interpret plant capacity formula		
▪ Perform plant capacity calculations		
▪ Identify purpose of inventory planning		
▪ Outline different types of inventory planning		
▪ Outline procedure of preparing inventory planning		
▪ Comprehend material requirement planning		
▪ Comprehend production scheduling		
▪ Perform production scheduling as per schedule		
▪ Comprehend basic lean manufacturing system		
▪ Comprehend purpose of lean manufacturing system		
▪ Apply lean manufacturing system to increase the overall efficiency of the organization		
▪ List various types of waste in manufacturing		
▪ Identify manufacturing wastage as per guideline		
▪ Identify basic lean manufacturing tools and techniques		
▪ Comprehend results of basic lean manufacturing tools		
▪ Apply selected lean manufacturing tools as per the guideline to enhance the productivity and efficiency of the organization		
▪ Identify kaizen events		
▪ List advantages of kaizen events		
▪ Implement kaizen event		
▪ Identify industrial setup and layout as per plant design		
▪ Illustrate opportunity from perfect layout		

▪ Identify the efficiency of clothing material consumption		
▪ Calculate material utilization percentage as per BOM sheet		
▪ Identify bottle neck process in the manufacturing steps		
▪ Identify techniques of line balancing		
▪ Identify line balancing tools as per line layout		
▪ Comprehend balancing loss formula		
▪ Calculate balancing loss of the line as per formula		
I agree to undertake assessment in the knowledge that the information gathered will only be used for educational and professional development purposes, and can only be accessed by concerned assessment personnel and my manager/supervisor.		
Candidate's signature:		Date:

PART C – THE ASSESSMENT

Assessment Agreement – Industrial Engineering and Lean Manufacturing.

The purpose of assessment is to confirm that you can perform to the standards expected in the workplace of an occupation, as expressed in the competency standards (after completion of self-assessment and in agreement with assessor).

To help achieve this, an assessment agreement is required to navigate both you and the assessor through the assessment process.

The assessment agreement is designed to provide a clear understanding of what and how you will be assessed and to nominate the tools that may be used to collect the assessment evidence.

You, the assessor and/or workplace supervisor should agree on the assessment requirements, dates and deadlines.

Therefore, to attain the Certificate of Industrial Engineering and Lean Manufacturing, you must demonstrate competence in the following units, as established in the assessment agreement:

CODE	UNIT OF COMPETENCY
Generic Competencies	
SEIP-RMG-IEL-01-G	Use basic mathematical concepts
SEIP-RMG-IEL-02-G	Carry out workplace interaction
SEIP-RMG-IEL-03-G	Operate in a team environment
SEIP-RMG-IEL-04-G	Acquire basic IT skills
Sector-specific Competencies	
SEIP-RMG-IEL-01-S	Understand the RMG business
SEIP-RMG-IEL-02-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-RMG-IEL-03-S	Perform measurements and calculations
SEIP-RMG-IEL-04-S	Read and interpret sketches and drawings
Occupation-specific Competencies	
SEIP-RMG-IEL-01-O	Identify basic garments construction
SEIP-RMG-IEL-02-O	Illustrate garments operation analysis
SEIP-RMG-IEL-03-O	Interpret work study techniques
SEIP-RMG-IEL-04-O	Interpret basic lean quality concepts
SEIP-RMG-IEL-05-O	Interpret production planning and control
SEIP-RMG-IEL-06-O	Identify basic tools for lean manufacturing
SEIP-RMG-IEL-07-O	Perform optimization techniques in different department

After successful completion of learning and assessment, you shall be awarded with a certificate.

Assessment Agreement	
Occupation:	Industrial Engineering and Lean Manufacturing
Assessment Centre:	
Candidate Name:	
Assessor Name:	
Unit of Competency	
Generic Competencies	
SEIP-RMG-IEL-01-G	Use basic mathematical concepts
SEIP-RMG-IEL-02-G	Carry out workplace interaction
SEIP-RMG-IEL-03-G	Operate in a team environment
SEIP-RMG-IEL-04-G	Acquire basic IT skills
Sector-specific Competencies	
SEIP-RMG-IEL-01-S	Understand the RMG business
SEIP-RMG-IEL-02-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-RMG-IEL-03-S	Perform measurements and calculations
SEIP-RMG-IEL-04-S	Read and interpret sketches and drawings
Occupation-specific Competencies	
SEIP-RMG-IEL-01-O	Identify basic garments construction
SEIP-RMG-IEL-02-O	Illustrate garments operation analysis
SEIP-RMG-IEL-03-O	Interpret work study techniques
SEIP-RMG-IEL-04-O	Interpret basic lean quality concepts
SEIP-RMG-IEL-05-O	Interpret production planning and control
SEIP-RMG-IEL-06-O	Identify basic tools for lean manufacturing
SEIP-RMG-IEL-07-O	Perform optimization techniques in different department
Resources Required for Assessment	
<p>Candidates must have access to the following:</p> <ul style="list-style-type: none"> ▪ copies of activities, questions, projects nominated by the assessor ▪ relevant organisational policies, protocols and procedural documents (if required) ▪ devices or tools to record answers ▪ appropriate actual or simulated workplace ▪ all necessary tools and equipment used in performance of the work-based task ▪ any other resources normally used in the workplace 	
Assessment Instructions	

Candidates should respond to the formative and summative assessments either verbally or in writing as agreed with the assessor. Written responses can be recorded in the spaces provided (if more space is required attach additional pages) or submitted in a word-processed document.

If candidates answer verbally, the assessor should record their answers in detail.

Candidates should also undertake observable tasks that provide evidence of performance. The assessor must provide instruction to candidates on what is expected during observation, and arrange a suitable time and location for demonstration of these skills.

Candidates must fully understand what they are required to do to complete these assessment tasks successfully, then sign the declaration.

Performance Standards

To receive a **satisfactory** result for the assessments, candidates must complete all activities, questions, projects, and tasks nominated by the assessor, to the required standard.

Completion of all tasks for a unit of competency, to a satisfactory level, will contribute to an assessment of competence for that specific individual unit (or units if holistic assessment approach is taken).

Successful completion of all the units of competency that comprise of the qualification Industrial Engineering and Lean Manufacturing, will result in the candidate being issued with the relevant, nationally recognised certificate.

Assessors must clearly explain the required performance standards.

Declaration

I declare that:

- the assessment requirements have been clearly explained to me
- all the work completed towards assessment will be my own
- cheating and plagiarism are unacceptable

Candidate Signature:		Date:	
Assessor Signature:		Date:	

PART D – ASSESSMENT TOOLS

Specific Instructions to Assessor

Please read carefully and prepare as necessary:

1. The assessor shall (practical demonstration assessment activities):
 - provide the candidate with the necessary tools, equipment, machinery and materials for completion of one (1) set of the following practical demonstration activities:
 - Set A:
 - **Identify** types of industrial sewing machine and their functions
 - Prepare layout sheet (partial) **for** woven basic shirt
 - Calculate **SMV** for garment
 - **Develop** sewing production schedule based on forecasting
 - Set B:
 - **Identify** types of **trims and accessories** and their use
 - Prepare layout sheet (partial) **for** 5-pocket basic pant
 - Calculate **SMV** for garment
 - **Develop** sewing production schedule based on forecasting
 - Set C:
 - **Identify** types of stitch and their use
 - Prepare layout sheet (partial) **for** knitted full sleeve polo shirt
 - Calculate **SMV** for garment
 - **Develop** sewing production schedule based on forecasting
 - provide the candidate with the copy of the specific instruction to candidate
 - allow each practical demonstration to be performed within one (1) hour including preparation of the materials
 - ensure that the candidate **FULLY** understands the instructions before proceeding to the performance of the assessment activity
 - allow fifteen (15) minutes for the candidate to familiarise themselves with the resources to be used during the practical demonstrations
 - ensure that the candidate is wearing appropriate personal protective equipment (PPE) before allowing them to proceed with the assessment activity
2. Assessment shall be based on the performance criteria in each of the units of competency. The evidence gathering method shall be comprised of:
 - (a) Written Test (1 hour) – **knowledge evidence**
 - (b) Practical Demonstration (4 hours) – **performance evidence**The practical demonstration activities will be divided into four (4) tasks (contained in one set):
 - (i) Practical Demonstration 1 (1 hour)

- (ii) Practical Demonstration 2 (1 hour)
 - (iii) Practical Demonstration 3 (1 hour)
 - (iv) Practical Demonstration 4 (1 hour)
3. Final assessment is your responsibility as the accredit/certified assessor.
4. At the conclusion of each assessment activity, you will provide feedback to the candidate of the assessment result. The feedback will indicate whether the candidate is:

COMPETENT

NOT YET COMPETENT

5. The list of tools, equipment, machinery and materials to be provided for completion of the practical demonstration assessment activities can be found at:
- Set A – Practical Demonstration 1 page 44
 - Set A – Practical Demonstration 2: page 50
 - Set A – Practical Demonstration 3: page 55
 - Set A – Practical Demonstration 4: page 59
 - Set B – Practical Demonstration 1: page 64
 - Set B – Practical Demonstration 2: page 70
 - Set B – Practical Demonstration 3: page 75
 - Set B – Practical Demonstration 4: page 79
 - Set C – Practical Demonstration 1: page 83
 - Set C – Practical Demonstration 2: page 88
 - Set C – Practical Demonstration 3: page 92
 - Set C – Practical Demonstration 4: page 96

Specific Instructions to Candidate

You should respond to the assessment either in writing or verbally as agreed with the assessor. Written responses can be recorded in the spaces provided; if more space is required attach additional pages or submit a word-processed document.

If you answer verbally, the assessor should record your answers in detail. Please check your recorded answers carefully and thoroughly to ensure that they are accurate.

You may also be undertaking observable activities (i.e. practical demonstration) that provide evidence of performance. The assessor must provide you with clear instructions on what is expected during this type of assessment and arrange a suitable time and location for demonstration of these skills.

To receive a satisfactory result for the assessments, you must complete all of the assessment activities; including questions, projects and tasks nominated by the assessor, to the required standard.

This assessment is based upon the units of competency in Industrial Engineering and Lean Manufacturing. Using the performance criteria as a benchmark, evidence will be gathered through:

1. Written Test (1 hour) – a variety of multiple-choice, true or false and short answer theory questions to support your competence with regard to the required knowledge (**knowledge evidence**).
2. Practical Demonstration (4 hours) – observable tasks outlined in the elements and performance criteria of the units of competency, completed to support a judgement of satisfactory performance to the required standard (**performance evidence**).

There will be one (1) set of practical demonstration activities to complete. The assessor will direct you as to which 'set' you will be required to complete out of the following:

- Set A:
 - **Identify** types of industrial sewing machine and their functions (1 hour)
 - Prepare layout sheet (partial) **for** woven basic shirt (1 hour)
 - Calculate **SMV** for garment (1 hour)
 - **Develop** sewing production schedule based on forecasting (1 hour)
 - Set B:
 - **Identify** types of trims and accessories and their use (1 hour)
 - Prepare layout sheet (partial) **for** 5-pocket basic pant (1 hour)
 - Calculate **SMV** for garment (1 hour)
 - **Develop** sewing production schedule based on forecasting (1 hour)
 - Set C:
 - **Identify** types of stitch and their use (1 hour)
 - Prepare layout sheet (partial) **for** knitted full sleeve polo shirt (1 hour)
 - Calculate **SMV** for garment (1 hour)
 - **Develop** sewing production schedule based on forecasting (1 hour)
3. The assessor will provide all necessary tools, equipment, machinery and materials required to complete each assessment activity.
 4. These assessments cover all units of competency for Industrial Engineering and Lean Manufacturing.

5. The assessor will provide you with feedback of your performance after completion of each assessment activity. This feedback shall indicate whether you are:
- COMPETENT**
 - NOT YET COMPETENT**
6. Complete of all assessment activities, to a satisfactory level, will contribute to a final assessment of competence.

Written Test

WRITTEN TEST - INSTRUCTIONS	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing
Unit of Competency	
Generic Competencies	
SEIP-RMG-IEL-01-G	Use basic mathematical concepts
SEIP-RMG-IEL-02-G	Carry out workplace interaction
SEIP-RMG-IEL-03-G	Operate in a team environment
SEIP-RMG-IEL-04-G	Acquire basic IT skills
Sector-specific Competencies	
SEIP-RMG-IEL-01-S	Understand the RMG business
SEIP-RMG-IEL-02-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-RMG-IEL-03-S	Perform measurements and calculations
SEIP-RMG-IEL-04-S	Read and interpret sketches and drawings
Occupation-specific Competencies	
SEIP-RMG-IEL-01-O	Identify basic garments construction
SEIP-RMG-IEL-02-O	Illustrate garments operation analysis
SEIP-RMG-IEL-03-O	Interpret work study techniques
SEIP-RMG-IEL-04-O	Interpret basic lean quality concepts
SEIP-RMG-IEL-05-O	Interpret production planning and control
SEIP-RMG-IEL-06-O	Identify basic tools for lean manufacturing
SEIP-RMG-IEL-07-O	Perform optimization techniques in different department
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	
Instructions:	
<p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ this written examination is based on the performance criteria from all the units of competency in Industrial Engineering and Lean Manufacturing ▪ this assessment activity will be used to measure your underpinning knowledge ▪ write your answers on the paper provided 	

- answer all the questions as best as possible
- you have 1 (one) hour to complete this test

WRITTEN TEST

Short Answer Questions

Write a short answer in the space provided (not to exceed more than approximately twenty-five (25) words).

1. What are the main job responsibilities of an Industrial Engineer?	
2. What is the use of printer for industrial engineering jobs?	
3. Should you put your date of birth in your CV?	
4. What are the prime export markets for Bangladesh?	
5. What does PPE mean?	
6. How many seams are there according to BSI?	
7. Which tool is commonly used to calculate cycle time?	
8. What is the formula used to calculate line efficiency?	
9. Name some examples of quality defects in garments.	
10. What are the preferred lean manufacturing tools and techniques applied for the garment industry?	
11. What does 'skill matrix' mean?	

12. What is a BOM (Bill of Materials)?	
13. What is the difference between seam and stitch?	
14. What are the basic tools of quality?	
15. What is line balancing?	
16. What are the lean principles?	
17. What is a TNA plan?	
18. What is manufacturing waste?	
19. What are the line balancing tools?	
20. Which techniques are used in line balancing?	
21. What is bottle neck process?	
22. What are KAIZEN events?	
23. What is production scheduling comprised of?	

24. What formula do you use to calculate Standard Minute Value (SMV)?	
25. What are work measurement techniques?	
26. List the elements of garment operation breakdown?	
27. What are processes of garment manufacturing?	
28. What types of industrial sewing machine are commonly used in a garment factory?	
29. What are the methods of fabric manufacturing process?	
30. What defects are mostly commonly found in the garment manufacturing process?	
Feedback to candidate:	
Assessment decision for this assessment activity:	
<input type="checkbox"/> Competent <input type="checkbox"/> Not Yet Competent	
Candidate Signature:	Date:
Assessor Signature:	Date:

Written Test - Answers

Answers are highlighted in **bold** and *italics*.

WRITTEN TEST	
Short Answer Questions	
Write a short answer in the space provided (not to exceed more than approximately twenty-five (25) words).	
1. What are the main job responsibilities of an Industrial Engineer?	<ul style="list-style-type: none"> ▪ Capacity calculation ▪ Target setting ▪ Line balancing
2. What is the use of printer for industrial engineering jobs?	To print necessary papers and formats which will be used by the industrial engineering personnel.
3. Should you put your date of birth in your CV?	Yes
4. What are the prime export markets for Bangladesh?	<ul style="list-style-type: none"> ▪ USA ▪ Asia ▪ Europe
5. What does PPE mean?	Personal protective equipment
6. How many seams are there according to BSI?	Six
7. Which tool is commonly used to calculate cycle time?	Stopwatch
8. What is the formula used to calculate line efficiency?	$\{(Total\ Production\ X\ SMV) / (No.\ of\ SMV\ earners\ X\ Working\ minutes)\} X\ 100$
9. Name some examples of quality defects in garments.	<ul style="list-style-type: none"> ▪ Hole ▪ Tear ▪ Stain
10. What are the preferred lean manufacturing tools and techniques applied for the garment industry?	<ul style="list-style-type: none"> ▪ Value steam mapping (VSM) ▪ Workplace organization ▪ Visual Management ▪ Kanban and super market ▪ Standardization of work process ▪ Cellular manufacturing ▪ SMED ▪ Problem-solving ▪ TPM ▪ Kaizen

11. What does 'skill matrix' mean?	<i>Skill matrix is a table that shows the skills of individuals in a team and any gaps between the skills of employees and the skills needed for their job.</i>
12. What is a BOM (Bill of Materials)?	<i>Bill of Material is a list of raw materials needed to be sourced to make garment and make it ready for shipment as per buyer's requirement. In garment manufacturing, BOM is generally prepared by production merchants. Then it is approved by responsible person and handed over to purchase department to start sourcing of raw materials.</i>
13. What is the difference between seam and stitch?	<i>A seam is defined as a line where two or more fabrics (or other sheet material) are joined together by means of stitches. A stitch is defined as the configuration of the interlacing of sewing thread in a specific repeated unit</i>
14. What are the basic tools of quality?	<ul style="list-style-type: none"> ▪ Check sheet ▪ Control chart ▪ Histogram ▪ Ishikawa diagram ▪ Pareto chart ▪ Scatter diagram ▪ Flow chart
15. What is line balancing?	<i>Line balancing is “to design a smooth production flow by allotting processes to workers so as to allow each worker to complete the allotted workload within an even time”. It is a system where we meet the production expectations and can find the same amount of work in process in every operation at any point in the day.</i>
16. What are the lean principles?	<ul style="list-style-type: none"> ▪ Value ▪ Value stream mapping ▪ Flow ▪ Pull ▪ Perfection
17. What is a TNA plan?	<i>Time and Action plan which includes:</i> <ul style="list-style-type: none"> ▪ Lead time ▪ Combined execution plan ▪ Cutting plan ▪ Sewing plan ▪ Finishing and packing plan ▪ Shipment plan
18. What is manufacturing waste?	<ul style="list-style-type: none"> ▪ Over production ▪ Over processing







	<ul style="list-style-type: none"> ▪ <i>Excess transportation</i> ▪ <i>Excess inventory</i> ▪ <i>Excess motion</i> ▪ <i>Waiting</i> ▪ <i>Re- work</i> ▪ <i>Unused talents</i> ▪ <i>Disconnectivity</i>
19. What are the line balancing tools?	<ul style="list-style-type: none"> ▪ <i>Production sheets</i> ▪ <i>Daily production report</i> ▪ <i>The inventory levels by operation</i> ▪ <i>Stop watch</i> ▪ <i>Calculator</i>
20. Which techniques are used in line balancing?	<ul style="list-style-type: none"> ▪ <i>Split the task</i> ▪ <i>Share the task</i> ▪ <i>Use parallel work station</i> ▪ <i>Improving material supply</i> ▪ <i>Motivation</i>
21. What is bottle neck process?	<ul style="list-style-type: none"> ▪ <i>Process SMV</i> ▪ <i>Capacity</i> ▪ <i>Capacity utilization</i> ▪ <i>Idle time</i> ▪ <i>Work in process</i> ▪ <i>Set-up time</i> ▪ <i>Direct labour content</i> ▪ <i>Direct labour utilization</i> ▪ <i>Hourly production</i> ▪ <i>Material supply</i>
22. What are KAIZEN events?	<ul style="list-style-type: none"> ▪ <i>MUDA</i> ▪ <i>MURA</i> ▪ <i>MURI</i> ▪ <i>GEMBA KAIZEN</i>
23. What is production scheduling comprised of ?	<p><i>Production scheduling is comprised of:</i></p> <ul style="list-style-type: none"> ▪ <i>Lead time</i> ▪ <i>Working days</i> ▪ <i>Holidays</i> ▪ <i>Calendar days</i> ▪ <i>Risk factors</i>
24. What formula do you use to calculate Standard Minute Value (SMV)?	<ul style="list-style-type: none"> ▪ <i>Cycle time</i>

	<ul style="list-style-type: none"> ▪ Observed time ▪ Basic time ▪ Performance rating ▪ Allowances
25. What are work measurement techniques?	<ul style="list-style-type: none"> ▪ Time study ▪ Activity sampling ▪ Predetermined motion time systems ▪ Synthesis from standard data ▪ Estimating
26. List the elements of garment operation breakdown?	<ul style="list-style-type: none"> ▪ Style of the garments ▪ Front part ▪ Back part ▪ Assembling part ▪ Make section
27. What are processes of garment manufacturing?	<ul style="list-style-type: none"> ▪ Design ▪ Pattern making ▪ Sample making ▪ Production pattern making ▪ Grading ▪ Marker making ▪ Fabric spreading ▪ Fabric cutting ▪ Cutting parts numbering and bundling ▪ Sewing ▪ Finishing ▪ Packing
28. What types of industrial sewing machine are commonly used in a garment factory?	<ul style="list-style-type: none"> ▪ Single needle ▪ Double needle ▪ Over lock ▪ Flat Lock ▪ Feed of the arm ▪ Kansai Multi needle ▪ Blind stitch ▪ Bar tuck ▪ Button hole ▪ Button stitch ▪ Eyehole/key hole
29. What are the methods of fabric manufacturing process?	<ul style="list-style-type: none"> ▪ Fibre ▪ Yarn

	<ul style="list-style-type: none"> ▪ <i>Woven fabric</i> ▪ <i>Knit fabric</i> ▪ <i>Dying, printing and finishing</i> ▪ <i>Yarn dyed fabrics</i>
<p>30. What defects are mostly commonly found in the garment manufacturing process?</p>	<p><i>Fabric defects:</i></p> <ul style="list-style-type: none"> ▪ <i>Drop stitches</i> ▪ <i>Dye marks</i> ▪ <i>Laddering</i> ▪ <i>Stains</i> ▪ <i>Bad selvedge</i> ▪ <i>Shade variation</i> <p><i>Workmanship defects:</i></p> <ul style="list-style-type: none"> ▪ <i>Seam puckering</i> ▪ <i>Broken stitches</i> ▪ <i>Open/broken seams</i> ▪ <i>Drop/skipped/stitch</i> ▪ <i>Shading variation</i> ▪ <i>Untrimmed thread</i> <p><i>Trim defects:</i></p> <ul style="list-style-type: none"> ▪ <i>Trim broken</i> ▪ <i>Trim differs</i> ▪ <i>Trim bleeding</i>

Set A: Practical Demonstration 1

PRACTICAL DEMONSTRATION 1			
Candidate Name:			
Assessor Name:			
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing		
Task:	Identify types of industrial sewing machine and their functions		
Assessment Centre:			
Date of Assessment:			
Time of Assessment:			
Instructions:			
Read and understand the directions carefully:			
<ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Industrial Engineering and Lean Manufacturing ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have one (1) hour to complete this demonstration 			
Procedure:			
<ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times 			
Job Specification Information:			
<p>For this task, you will be assessed individually, in pairs or in small groups.</p> <p>In the training workshop, there will be a number of industrial sewing machines. You will be required to:</p> <ol style="list-style-type: none"> 1. Identify the type of industrial sewing machine (including any attachments). 2. State the specific functions of each industrial sewing machine. <p>Complete your answers in the form provided.</p>			
Drawing, Plan, Diagram or Sketch:			
No.	Machine	Name of Machine	Function of Machine

1.			
2.			
3.			
4.			
5.			
6.			

7.			
8.			
9.			
10.			

Resources Required:

Tools:	N/A
Equipment:	Industrial sewing machines (as per above)
Machinery:	N/A
Materials:	Pen Answer Form
PPE:	Apron


Set A: Practical Demonstration 1 – Observation Checklist

PRACTICAL DEMONSTRATION 1 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing	
Task:	Identify types of industrial sewing machine and their functions	
Assessment Centre:		
Date of Assessment:		
Instructions:	<p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate 	
OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	No
Workplace documents are interpreted correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed specific and relevant information from appropriate sources.	<input type="checkbox"/>	<input type="checkbox"/>
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	<input type="checkbox"/>	<input type="checkbox"/>
Common safety issues are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks assessment and controls are interpreted.	<input type="checkbox"/>	<input type="checkbox"/>
Identified and followed safety signs and symbols.	<input type="checkbox"/>	<input type="checkbox"/>
Identified Single needle machine and stated its functions.	<input type="checkbox"/>	<input type="checkbox"/>
Identified Button Hole machine and stated its functions.	<input type="checkbox"/>	<input type="checkbox"/>
Identified Eyehole machine and stated its functions.	<input type="checkbox"/>	<input type="checkbox"/>
Identified Flat lock machine and stated its functions.	<input type="checkbox"/>	<input type="checkbox"/>
Identified Kansai multi needle machine and stated its functions.	<input type="checkbox"/>	<input type="checkbox"/>
Identified Double needle machine and stated its functions.	<input type="checkbox"/>	<input type="checkbox"/>

Identified Feed of the arm machine and stated its functions.	<input type="checkbox"/>	<input type="checkbox"/>
Identified Over lock machine and stated its functions.	<input type="checkbox"/>	<input type="checkbox"/>
Identified Button stitch machine and stated its functions.	<input type="checkbox"/>	<input type="checkbox"/>
Identified Flat lock machine and stated its functions.	<input type="checkbox"/>	<input type="checkbox"/>
Maintained appropriate lines of communication with supervisors and colleagues.	<input type="checkbox"/>	<input type="checkbox"/>
Conducted workplace interactions in courteous manner to gather and convey information.	<input type="checkbox"/>	<input type="checkbox"/>
Used appropriate medium to transfer information and ideas.	<input type="checkbox"/>	<input type="checkbox"/>
Recorded, translated and obeyed instructions.	<input type="checkbox"/>	<input type="checkbox"/>
Used workplace terminology correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Performed responsibilities as a team member.	<input type="checkbox"/>	<input type="checkbox"/>
Performed tasks in accordance with workplace procedures.	<input type="checkbox"/>	<input type="checkbox"/>
Followed agreed reporting lines as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Solved problems effectively and evaluated outcome of the implemented solution.	<input type="checkbox"/>	<input type="checkbox"/>
Identified other teammates' tasks and provided support.	<input type="checkbox"/>	<input type="checkbox"/>
Encouraged the team through sharing information or expertise, working together to solve problems, and putting team success first.	<input type="checkbox"/>	<input type="checkbox"/>
Respected and valued diversity in team functioning.	<input type="checkbox"/>	<input type="checkbox"/>
Understood and valued views and opinions of other team members.	<input type="checkbox"/>	<input type="checkbox"/>
Feedback to candidate:		
Assessment decision for this assessment activity:		
<input type="checkbox"/> Competent <input type="checkbox"/> Not Yet Competent		
Candidate Signature:		Date:
Assessor Signature:		Date:

Set A: Practical Demonstration 2

PRACTICAL DEMONSTRATION 2				
Candidate Name:				
Assessor Name:				
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing			
Task:	Prepare layout sheet (partial) for woven basic shirt			
Assessment Centre:				
Date of Assessment:				
Time of Assessment:				
Instructions:				
<p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Industrial Engineering and Lean Manufacturing ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have one (1) hour to complete this demonstration 				
Procedure:				
<ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times 				
Job Specification Information:				
<ol style="list-style-type: none"> 1. Identify, read and interpret job specifications, drawings and other workplace documents. 2. Identify and collect required tools, equipment and material for task. 3. Inspect worksite for hazards and implement appropriate controls (if necessary). 4. Identify and collect appropriate PPE. 5. Identify any IT tools required. 6. Complete the below template of operation breakdown using Word. 7. Carry out calculations of estimated time and production per hour. 8. Save template to appropriate folder and email to assessor. 9. Clean, maintain and store tools and equipment. 10. Clean workplace and dispose of waste materials. 				
Drawing, Plan, Diagram or Sketch:				
Layout Sheet of Woven Basic Shirt				
Buyer	ABC	Sample		
		<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">Front view</td> <td style="text-align: center;">Back view</td> </tr> </table>	Front view	Back view
Front view	Back view			

Style	505021				
No.	Operation breakdown	Machine type	Estimated time	Hourly target (60% efficiency)	Remarks
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
Resources Required:					
Tools:	N/A				
Equipment:	N/A				
Machinery:	N/A				
Materials:	Paper Pen Pencil Calculator				
PPE:	Apron				

Set A: Practical Demonstration 2 – Observation Checklist

PRACTICAL DEMONSTRATION 2 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing	
Task:	Prepare layout sheet (partial) for woven basic shirt	
Assessment Centre:		
Date of Assessment:		
Instructions:	<p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate 	
OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	No
Workplace documents are interpreted correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed specific and relevant information from appropriate sources.	<input type="checkbox"/>	<input type="checkbox"/>
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	<input type="checkbox"/>	<input type="checkbox"/>
Common safety issues are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks assessment and controls are interpreted.	<input type="checkbox"/>	<input type="checkbox"/>
Identified and followed safety signs and symbols.	<input type="checkbox"/>	<input type="checkbox"/>
Identified tools and equipment required for task.	<input type="checkbox"/>	<input type="checkbox"/>
Identified required IT tools.	<input type="checkbox"/>	<input type="checkbox"/>
Operated computer (including turning on and off).	<input type="checkbox"/>	<input type="checkbox"/>
Carried out word processing using basic typing technique.	<input type="checkbox"/>	<input type="checkbox"/>
Carried out data entry using spreadsheet.	<input type="checkbox"/>	<input type="checkbox"/>
Applied simple troubleshooting techniques (if required).	<input type="checkbox"/>	<input type="checkbox"/>

Identified manufacturing process to be applied.	<input type="checkbox"/>	<input type="checkbox"/>
Identified industrial sewing machines.	<input type="checkbox"/>	<input type="checkbox"/>
Interpreted garment operation breakdown.	<input type="checkbox"/>	<input type="checkbox"/>
Analysed garment and requirements.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated standard minute value (SMV).	<input type="checkbox"/>	<input type="checkbox"/>
Calculated production capacity and target.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated efficiency using appropriate method.	<input type="checkbox"/>	<input type="checkbox"/>
Performed simple calculations using appropriate device.	<input type="checkbox"/>	<input type="checkbox"/>
Saved document as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed internet and appropriate browser.	<input type="checkbox"/>	<input type="checkbox"/>
Emailed layout sheet.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned, maintained and stored tools and equipment.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned workplace and disposed of waste material.	<input type="checkbox"/>	<input type="checkbox"/>
Followed quality control and quality assurance system procedures for each job.	<input type="checkbox"/>	<input type="checkbox"/>
Checked and verified quality of product.	<input type="checkbox"/>	<input type="checkbox"/>
Ensured conformance to specification in every case at all situations.	<input type="checkbox"/>	<input type="checkbox"/>
Applied and monitored quality system improvement.	<input type="checkbox"/>	<input type="checkbox"/>
Maintained appropriate lines of communication with supervisors and colleagues.	<input type="checkbox"/>	<input type="checkbox"/>
Conducted workplace interactions in courteous manner to gather and convey information.	<input type="checkbox"/>	<input type="checkbox"/>
Used appropriate medium to transfer information and ideas.	<input type="checkbox"/>	<input type="checkbox"/>
Recorded, translated and obeyed instructions.	<input type="checkbox"/>	<input type="checkbox"/>
Used workplace terminology correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Performed responsibilities as a team member.	<input type="checkbox"/>	<input type="checkbox"/>
Performed tasks in accordance with workplace procedures.	<input type="checkbox"/>	<input type="checkbox"/>
Followed agreed reporting lines as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Solved problems effectively and evaluated outcome of the implemented solution.	<input type="checkbox"/>	<input type="checkbox"/>
Identified other teammates' tasks and provided support.	<input type="checkbox"/>	<input type="checkbox"/>
Encouraged the team through sharing information or expertise, working together to solve problems, and putting team success first.	<input type="checkbox"/>	<input type="checkbox"/>
Respected and valued diversity in team functioning.	<input type="checkbox"/>	<input type="checkbox"/>
Understood and valued views and opinions of other team members.	<input type="checkbox"/>	<input type="checkbox"/>
Feedback to candidate:		

Assessment decision for this assessment activity:			
<input type="checkbox"/> Competent		<input type="checkbox"/> Not Yet Competent	
Candidate Signature:		Date:	
Assessor Signature:		Date:	

Set A: Practical Demonstration 3

PRACTICAL DEMONSTRATION 3	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing
Task:	Calculate SMV for garment
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	
Instructions:	
<p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Industrial Engineering and Lean Manufacturing ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have one (1) hour to complete this demonstration 	
Procedure:	
<ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times 	
Job Specification Information:	
<ol style="list-style-type: none"> 1. Identify, read and interpret job specifications, drawings and other workplace documents. 2. Identify and collect required tools, equipment and material for task. 3. Inspect worksite for hazards and implement appropriate controls (if necessary). 4. Identify and collect appropriate PPE. 5. Identify any IT tools required. 6. Review production data and operation breakdown. 7. Prepared BOM. 8. Calculate SMV and enter data on spreadsheet. 9. Calculate plant capacity and factory efficiency. 10. Produce production plan and schedule. 11. Save spreadsheet, calculations and plans to appropriate folder and email to assessor. 12. Clean, maintain and store tools and equipment. 13. Clean workplace and dispose of waste materials. 	
Drawing, Plan, Diagram or Sketch:	
<p>Following formula to calculate standard minute value (SMV) for a garment:</p> <ul style="list-style-type: none"> ▪ Basic time = (Observed Rating * Observed Time)/Standard Rating ▪ Standard Rating considered as 100% 	

- **SMV = Basic time + All Allowances (Relaxation allowance = 15%; Machine attention allowance = 10%)**

No.	Element	Observed Rating	Observed Time (Min)	Occurrence
1.	Pick up and sort bundle	95	0.18	1/10
2.	Align first sleeve to opening	100	0.08	1/1
3.	Over lock and attach first sleeve head	90	1.12	1/1
4.	Re-position	95	0.03	1/1
5.	Align second sleeve	90	0.09	1/1
6.	Over lock attached sleeves	100	1.1	1/1
7.	Aside garment	110	0.06	1/1
8.	Close bundle and complete ticket	90	0.60	1/10

Resources Required:

Tools:	Stopwatch Cycle check data Calculator Computer
Equipment:	N/A
Machinery:	N/A
Materials:	Paper Pen Pencil
PPE:	Apron

Set A: Practical Demonstration 3 – Observation Checklist

PRACTICAL DEMONSTRATION 3 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing	
Task:	Calculate SMV for garment	
Assessment Centre:		
Date of Assessment:		
Instructions:	<p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate 	
OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	No
Workplace documents are interpreted correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed specific and relevant information from appropriate sources.	<input type="checkbox"/>	<input type="checkbox"/>
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	<input type="checkbox"/>	<input type="checkbox"/>
Common safety issues are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks assessment and controls are interpreted.	<input type="checkbox"/>	<input type="checkbox"/>
Identified and followed safety signs and symbols.	<input type="checkbox"/>	<input type="checkbox"/>
Identified tools and equipment required for task.	<input type="checkbox"/>	<input type="checkbox"/>
Identified required IT tools.	<input type="checkbox"/>	<input type="checkbox"/>
Operated computer (including turning on and off).	<input type="checkbox"/>	<input type="checkbox"/>
Carried out data entry using spreadsheet.	<input type="checkbox"/>	<input type="checkbox"/>
Applied simple troubleshooting techniques (if required).	<input type="checkbox"/>	<input type="checkbox"/>
Calculated garment using SAM method.	<input type="checkbox"/>	<input type="checkbox"/>

Prepared BOM including list of clothing materials.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated SMV using appropriate method.	<input type="checkbox"/>	<input type="checkbox"/>
Developed production plan.	<input type="checkbox"/>	<input type="checkbox"/>
Calculate plant capacity.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated factory efficiency.	<input type="checkbox"/>	<input type="checkbox"/>
Produce production schedule.	<input type="checkbox"/>	<input type="checkbox"/>
Applied work study using appropriate method.	<input type="checkbox"/>	<input type="checkbox"/>
Saved documents as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed internet and appropriate browser.	<input type="checkbox"/>	<input type="checkbox"/>
Emailed documents.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned, maintained and stored tools and equipment.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned workplace and disposed of waste material.	<input type="checkbox"/>	<input type="checkbox"/>
Followed quality control and quality assurance system procedures for each job.	<input type="checkbox"/>	<input type="checkbox"/>
Checked and verified quality of product.	<input type="checkbox"/>	<input type="checkbox"/>
Ensured conformance to specification in every case at all situations.	<input type="checkbox"/>	<input type="checkbox"/>
Applied and monitored quality system improvement.	<input type="checkbox"/>	<input type="checkbox"/>
Maintained appropriate lines of communication with supervisors and colleagues.	<input type="checkbox"/>	<input type="checkbox"/>
Conducted workplace interactions in courteous manner to gather and convey information.	<input type="checkbox"/>	<input type="checkbox"/>
Used appropriate medium to transfer information and ideas.	<input type="checkbox"/>	<input type="checkbox"/>
Recorded, translated and obeyed instructions.	<input type="checkbox"/>	<input type="checkbox"/>
Used workplace terminology correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Performed responsibilities as a team member.	<input type="checkbox"/>	<input type="checkbox"/>
Performed tasks in accordance with workplace procedures.	<input type="checkbox"/>	<input type="checkbox"/>
Followed agreed reporting lines as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Solved problems effectively and evaluated outcome of the implemented solution.	<input type="checkbox"/>	<input type="checkbox"/>
Identified other teammates' tasks and provided support.	<input type="checkbox"/>	<input type="checkbox"/>
Encouraged the team through sharing information or expertise, working together to solve problems, and putting team success first.	<input type="checkbox"/>	<input type="checkbox"/>
Respected and valued diversity in team functioning.	<input type="checkbox"/>	<input type="checkbox"/>
Understood and valued views and opinions of other team members.	<input type="checkbox"/>	<input type="checkbox"/>
Feedback to candidate:		

Assessment decision for this assessment activity:			
<input type="checkbox"/> Competent		<input type="checkbox"/> Not Yet Competent	
Candidate Signature:		Date:	
Assessor Signature:		Date:	

Set A: Practical Demonstration 4

PRACTICAL DEMONSTRATION 4	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing
Task:	Develop sewing production schedule based on forecasting
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	
Instructions:	
<p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Industrial Engineering and Lean Manufacturing ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have one (1) hour to complete this demonstration 	
Procedure:	
<ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times 	
Job Specification Information:	
<ol style="list-style-type: none"> 1. Identify, read and interpret job specifications, drawings and other workplace documents. 2. Identify and collect required tools, equipment and material for task. 3. Inspect worksite for hazards and implement appropriate controls (if necessary). 4. Identify and collect appropriate PPE. 5. Identify any IT tools required. 6. Review production data. 7. Calculate production capacity (daily). 8. Calculate production efficiency (daily). 9. Identify inventory planning requirements. 10. Develop production schedule (with 5% wastage). 11. Calculate line balancing loss. 12. Check calculations. 13. Review developed production schedule. 14. Complete production schedule and calculations using Word. 15. Save calculations and schedule to appropriate folder and email to assessor. 16. Clean, maintain and store tools and equipment. 17. Clean workplace and dispose of waste materials. 	

Drawing, Plan, Diagram or Sketch:

- Buyer: XYZ Apparels
- Style no.: 5050
- Order No.: FS221
- Order qty: 16000 pcs
- Product SMV: 11.23 min.
- No. of SMV earners in the line: 46
- Line to be used: 1
- Day wise daily line efficiency: Day 1: 28%, Day 2: 37%, Day 3: 45%, Day 4: 54%, Day 5: 62%,
- Sewing starts from: June 08 (Saturday)
- Consider all Fridays closed

Date	Day	Daily production	Cumulative production	Balance to produce	Remarks
June-8	Saturday				
June-9	Sunday				
June-10	Monday				
June-11	Tuesday				
June-12	Wednesday				
June-13	Thursday				
June-14	Friday				
June-15	Saturday				
June-16	Sunday				
June-17	Monday				
June-18	Tuesday				
June-19	Wednesday				
June-20	Thursday				
June-21	Friday				
June-22	Saturday				
June-23	Sunday				
June-24	Monday				
June-25	Tuesday				
June-26	Wednesday				

Prepared by

Checked by

Approved by

Resources Required:

Tools: N/A

Equipment:	Calculator Computer
Machinery:	N/A
Materials:	Paper Pen Pencil BOM
PPE:	Apron Mask

Set A: Practical Demonstration 4 – Observation Checklist






PRACTICAL DEMONSTRATION 4 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing	
Task:	Develop sewing production schedule based on forecasting	
Assessment Centre:		
Date of Assessment:		
Instructions:	<p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate 	
OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	No
Workplace documents are interpreted correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed specific and relevant information from appropriate sources.	<input type="checkbox"/>	<input type="checkbox"/>
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	<input type="checkbox"/>	<input type="checkbox"/>
Common safety issues are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks assessment and controls are interpreted.	<input type="checkbox"/>	<input type="checkbox"/>
Identified and followed safety signs and symbols.	<input type="checkbox"/>	<input type="checkbox"/>
Identified tools and equipment required for task.	<input type="checkbox"/>	<input type="checkbox"/>
Identified required IT tools.	<input type="checkbox"/>	<input type="checkbox"/>
Operated computer (including turning on and off).	<input type="checkbox"/>	<input type="checkbox"/>
Carried out data entry using Word.	<input type="checkbox"/>	<input type="checkbox"/>
Applied simple troubleshooting techniques (if required).	<input type="checkbox"/>	<input type="checkbox"/>
Identified SMV.	<input type="checkbox"/>	<input type="checkbox"/>

Identified production capacity and target.	<input type="checkbox"/>	<input type="checkbox"/>
Identified inventory requirements.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated daily production capacity.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated daily production target.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated production efficiency.	<input type="checkbox"/>	<input type="checkbox"/>
Developed production schedule.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated line balancing loss (if applicable).	<input type="checkbox"/>	<input type="checkbox"/>
Checked calculations and corrected if necessary.	<input type="checkbox"/>	<input type="checkbox"/>
Reviewed production schedule.	<input type="checkbox"/>	<input type="checkbox"/>
Finalised production schedule and calculations using Word.	<input type="checkbox"/>	<input type="checkbox"/>
Saved document and calculations as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed internet and appropriate browser.	<input type="checkbox"/>	<input type="checkbox"/>
Emailed documents.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned, maintained and stored tools and equipment.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned workplace and disposed of waste material.	<input type="checkbox"/>	<input type="checkbox"/>
Followed quality control and quality assurance system procedures for each job.	<input type="checkbox"/>	<input type="checkbox"/>
Checked and verified quality of product.	<input type="checkbox"/>	<input type="checkbox"/>
Ensured conformance to specification in every case at all situations.	<input type="checkbox"/>	<input type="checkbox"/>
Applied and monitored quality system improvement.	<input type="checkbox"/>	<input type="checkbox"/>
Maintained appropriate lines of communication with supervisors and colleagues.	<input type="checkbox"/>	<input type="checkbox"/>
Conducted workplace interactions in courteous manner to gather and convey information.	<input type="checkbox"/>	<input type="checkbox"/>
Used appropriate medium to transfer information and ideas.	<input type="checkbox"/>	<input type="checkbox"/>
Recorded, translated and obeyed instructions.	<input type="checkbox"/>	<input type="checkbox"/>
Used workplace terminology correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Performed responsibilities as a team member.	<input type="checkbox"/>	<input type="checkbox"/>
Performed tasks in accordance with workplace procedures.	<input type="checkbox"/>	<input type="checkbox"/>
Followed agreed reporting lines as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Solved problems effectively and evaluated outcome of the implemented solution.	<input type="checkbox"/>	<input type="checkbox"/>
Identified other teammates' tasks and provided support.	<input type="checkbox"/>	<input type="checkbox"/>
Encouraged the team through sharing information or expertise, working together to solve problems, and putting team success first.	<input type="checkbox"/>	<input type="checkbox"/>
Respected and valued diversity in team functioning.	<input type="checkbox"/>	<input type="checkbox"/>
Understood and valued views and opinions of other team members.	<input type="checkbox"/>	<input type="checkbox"/>


Feedback to candidate:			
Assessment decision for this assessment activity:			
<input type="checkbox"/> Competent		<input type="checkbox"/> Not Yet Competent	
Candidate Signature:		Date:	
Assessor Signature:		Date:	

Set B: Practical Demonstration 1

PRACTICAL DEMONSTRATION 1											
Candidate Name:											
Assessor Name:											
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing										
Task:	Identify types of trims and accessories and their use										
Assessment Centre:											
Date of Assessment:											
Time of Assessment:											
Instructions:											
Read and understand the directions carefully:											
<ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Industrial Engineering and Lean Manufacturing ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have one (1) hour to complete this demonstration 											
Procedure:											
<ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times 											
Job Specification Information:											
For this task, you will be assessed individually, in pairs or in small groups.											
In the training workshop, there will be a number of trims and accessories. You will be required to:											
1. Identify the type of trim and accessory.											
2. State the specific use of each trim and accessory.											
Complete your answers in the form provided.											
Drawing, Plan, Diagram or Sketch:											
<table border="1"> <thead> <tr> <th>No.</th> <th>Trim/Accessory</th> <th>Name</th> <th>Use/function of Trim/Accessory</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				No.	Trim/Accessory	Name	Use/function of Trim/Accessory				
No.	Trim/Accessory	Name	Use/function of Trim/Accessory								

1.			
2.			
3.			
4.			
5.			

6.			
7.			
8.			
9.			
10.			

11.			
12.			

Resources Required:

Tools:	N/A
Equipment:	Trims and accessories (as per above)
Machinery:	N/A
Materials:	Pen Answer Form
PPE:	Apron


Set B: Practical Demonstration 1 – Observation Checklist

PRACTICAL DEMONSTRATION 1 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing	
Task:	Identify types of trims and accessories and their use	
Assessment Centre:		
Date of Assessment:		
Instructions:	<p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate 	
OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	No
Workplace documents are interpreted correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed specific and relevant information from appropriate sources.	<input type="checkbox"/>	<input type="checkbox"/>
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	<input type="checkbox"/>	<input type="checkbox"/>
Common safety issues are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks assessment and controls are interpreted.	<input type="checkbox"/>	<input type="checkbox"/>
Identified and followed safety signs and symbols.	<input type="checkbox"/>	<input type="checkbox"/>
Identified trims and stated their use/function.	<input type="checkbox"/>	<input type="checkbox"/>
Identified accessories and stated their use/function.	<input type="checkbox"/>	<input type="checkbox"/>
Maintained appropriate lines of communication with supervisors and colleagues.	<input type="checkbox"/>	<input type="checkbox"/>
Conducted workplace interactions in courteous manner to gather and convey information.	<input type="checkbox"/>	<input type="checkbox"/>
Used appropriate medium to transfer information and ideas.	<input type="checkbox"/>	<input type="checkbox"/>

Recorded, translated and obeyed instructions.	<input type="checkbox"/>	<input type="checkbox"/>
Used workplace terminology correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Performed responsibilities as a team member.	<input type="checkbox"/>	<input type="checkbox"/>
Performed tasks in accordance with workplace procedures.	<input type="checkbox"/>	<input type="checkbox"/>
Followed agreed reporting lines as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Solved problems effectively and evaluated outcome of the implemented solution.	<input type="checkbox"/>	<input type="checkbox"/>
Identified other teammates' tasks and provided support.	<input type="checkbox"/>	<input type="checkbox"/>
Encouraged the team through sharing information or expertise, working together to solve problems, and putting team success first.	<input type="checkbox"/>	<input type="checkbox"/>
Respected and valued diversity in team functioning.	<input type="checkbox"/>	<input type="checkbox"/>
Understood and valued views and opinions of other team members.	<input type="checkbox"/>	<input type="checkbox"/>
Feedback to candidate:		
Assessment decision for this assessment activity:		
<input type="checkbox"/> Competent <input type="checkbox"/> Not Yet Competent		
Candidate Signature:		Date:
Assessor Signature:		Date:

Set B: Practical Demonstration 2

PRACTICAL DEMONSTRATION 2			
Candidate Name:			
Assessor Name:			
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing		
Task:	Prepare layout sheet (partial) for 5-pocket basic pant		
Assessment Centre:			
Date of Assessment:			
Time of Assessment:			
Instructions:			
Read and understand the directions carefully:			
<ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Industrial Engineering and Lean Manufacturing ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have one (1) hour to complete this demonstration 			
Procedure:			
<ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times 			
Job Specification Information:			
<ol style="list-style-type: none"> 1. Identify, read and interpret job specifications, drawings and other workplace documents. 2. Identify and collect required tools, equipment and material for task. 3. Inspect worksite for hazards and implement appropriate controls (if necessary). 4. Identify and collect appropriate PPE. 5. Identify any IT tools required. 6. Complete the below template of operation breakdown using Word. 7. Carry out calculations of estimated time and production per hour. 8. Save template to appropriate folder and email to assessor. 9. Clean, maintain and store tools and equipment. 10. Clean workplace and dispose of waste materials. 			
Drawing, Plan, Diagram or Sketch:			
Layout sheet of a 5-pocket basic pant			
Buyer	ABC	Sample	
		Front view	Back view

Style	605022				
No.	Operation breakdown	Machine type	Estimated time	Hourly target (60% efficiency)	Remarks
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
Resources Required:					
Tools:	N/A				
Equipment:	N/A				
Machinery:	N/A				
Materials:	Paper Pen Pencil Calculator				
PPE:	Apron				

Set B: Practical Demonstration 2 – Observation Checklist

PRACTICAL DEMONSTRATION 2 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing	
Task:	Prepare layout sheet (partial) for 5-pocket basic pant	
Assessment Centre:		
Date of Assessment:		
Instructions:	<p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate 	
OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	No
Workplace documents are interpreted correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed specific and relevant information from appropriate sources.	<input type="checkbox"/>	<input type="checkbox"/>
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	<input type="checkbox"/>	<input type="checkbox"/>
Common safety issues are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks assessment and controls are interpreted.	<input type="checkbox"/>	<input type="checkbox"/>
Identified and followed safety signs and symbols.	<input type="checkbox"/>	<input type="checkbox"/>
Identified tools and equipment required for task.	<input type="checkbox"/>	<input type="checkbox"/>
Identified required IT tools.	<input type="checkbox"/>	<input type="checkbox"/>
Operated computer (including turning on and off).	<input type="checkbox"/>	<input type="checkbox"/>
Carried out word processing using basic typing technique.	<input type="checkbox"/>	<input type="checkbox"/>
Carried out data entry using spreadsheet.	<input type="checkbox"/>	<input type="checkbox"/>
Applied simple troubleshooting techniques (if required).	<input type="checkbox"/>	<input type="checkbox"/>

Identified manufacturing process to be applied.	<input type="checkbox"/>	<input type="checkbox"/>
Identified industrial sewing machines.	<input type="checkbox"/>	<input type="checkbox"/>
Interpreted garment operation breakdown.	<input type="checkbox"/>	<input type="checkbox"/>
Analysed garment and requirements.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated standard minute value (SMV).	<input type="checkbox"/>	<input type="checkbox"/>
Calculated production capacity and target.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated efficiency using appropriate method.	<input type="checkbox"/>	<input type="checkbox"/>
Performed simple calculations using appropriate device.	<input type="checkbox"/>	<input type="checkbox"/>
Saved document as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed internet and appropriate browser.	<input type="checkbox"/>	<input type="checkbox"/>
Emailed layout sheet.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned, maintained and stored tools and equipment.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned workplace and disposed of waste material.	<input type="checkbox"/>	<input type="checkbox"/>
Followed quality control and quality assurance system procedures for each job.	<input type="checkbox"/>	<input type="checkbox"/>
Checked and verified quality of product.	<input type="checkbox"/>	<input type="checkbox"/>
Ensured conformance to specification in every case at all situations.	<input type="checkbox"/>	<input type="checkbox"/>
Applied and monitored quality system improvement.	<input type="checkbox"/>	<input type="checkbox"/>
Maintained appropriate lines of communication with supervisors and colleagues.	<input type="checkbox"/>	<input type="checkbox"/>
Conducted workplace interactions in courteous manner to gather and convey information.	<input type="checkbox"/>	<input type="checkbox"/>
Used appropriate medium to transfer information and ideas.	<input type="checkbox"/>	<input type="checkbox"/>
Recorded, translated and obeyed instructions.	<input type="checkbox"/>	<input type="checkbox"/>
Used workplace terminology correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Performed responsibilities as a team member.	<input type="checkbox"/>	<input type="checkbox"/>
Performed tasks in accordance with workplace procedures.	<input type="checkbox"/>	<input type="checkbox"/>
Followed agreed reporting lines as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Solved problems effectively and evaluated outcome of the implemented solution.	<input type="checkbox"/>	<input type="checkbox"/>
Identified other teammates' tasks and provided support.	<input type="checkbox"/>	<input type="checkbox"/>
Encouraged the team through sharing information or expertise, working together to solve problems, and putting team success first.	<input type="checkbox"/>	<input type="checkbox"/>
Respected and valued diversity in team functioning.	<input type="checkbox"/>	<input type="checkbox"/>
Understood and valued views and opinions of other team members.	<input type="checkbox"/>	<input type="checkbox"/>
Feedback to candidate:		

Assessment decision for this assessment activity:			
<input type="checkbox"/> Competent		<input type="checkbox"/> Not Yet Competent	
Candidate Signature:		Date:	
Assessor Signature:		Date:	

Set B: Practical Demonstration 3

PRACTICAL DEMONSTRATION 3	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing
Task:	Calculate SMV for garment
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	
Instructions:	
<p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Industrial Engineering and Lean Manufacturing ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have one (1) hour to complete this demonstration 	
Procedure:	
<ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times 	
Job Specification Information:	
<ol style="list-style-type: none"> 1. Identify, read and interpret job specifications, drawings and other workplace documents. 2. Identify and collect required tools, equipment and material for task. 3. Inspect worksite for hazards and implement appropriate controls (if necessary). 4. Identify and collect appropriate PPE. 5. Identify any IT tools required. 6. Review production data and operation breakdown. 7. Prepared BOM. 8. Calculate SMV and enter data on spreadsheet. 9. Calculate plant capacity and factory efficiency. 10. Produce production plan and schedule. 11. Save spreadsheet, calculations and plans to appropriate folder and email to assessor. 12. Clean, maintain and store tools and equipment. 13. Clean workplace and dispose of waste materials. 	
Drawing, Plan, Diagram or Sketch:	
<p>Following formula to calculate standard minute value (SMV) for a garment:</p> <ul style="list-style-type: none"> ▪ Basic time = (Observed Rating * Observed Time)/Standard Rating ▪ Standard Rating considered as 100% 	

- **SMV = Basic time + All Allowances (Relaxation allowance = 15%; Machine attention allowance = 10%)**

No.	Element	Observed Rating	Observed Time (Min)	Occurrence
1.	Pick up and sort bundle	95	0.18	1/10
2.	Align first sleeve to opening	100	0.08	1/1
3.	Over lock and attach first sleeve head	90	1.12	1/1
4.	Re-position	95	0.03	1/1
5.	Align second sleeve	90	0.09	1/1
6.	Over lock attached sleeves	100	1.1	1/1
7.	Aside garment	110	0.06	1/1
8.	Close bundle and complete ticket	90	0.60	1/10

Resources Required:

Tools:	Stopwatch Cycle check data Calculator Computer
Equipment:	N/A
Machinery:	N/A
Materials:	Paper Pen Pencil
PPE:	Apron

Set B: Practical Demonstration 3 – Observation Checklist

PRACTICAL DEMONSTRATION 3 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing	
Task:	Calculate SMV for garment	
Assessment Centre:		
Date of Assessment:		
Instructions:	<p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate 	
OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	No
Workplace documents are interpreted correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed specific and relevant information from appropriate sources.	<input type="checkbox"/>	<input type="checkbox"/>
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	<input type="checkbox"/>	<input type="checkbox"/>
Common safety issues are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks assessment and controls are interpreted.	<input type="checkbox"/>	<input type="checkbox"/>
Identified and followed safety signs and symbols.	<input type="checkbox"/>	<input type="checkbox"/>
Identified tools and equipment required for task.	<input type="checkbox"/>	<input type="checkbox"/>
Identified required IT tools.	<input type="checkbox"/>	<input type="checkbox"/>
Operated computer (including turning on and off).	<input type="checkbox"/>	<input type="checkbox"/>
Carried out data entry using spreadsheet.	<input type="checkbox"/>	<input type="checkbox"/>
Applied simple troubleshooting techniques (if required).	<input type="checkbox"/>	<input type="checkbox"/>
Calculated garment using SAM method.	<input type="checkbox"/>	<input type="checkbox"/>

Prepared BOM including list of clothing materials.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated SMV using appropriate method.	<input type="checkbox"/>	<input type="checkbox"/>
Developed production plan.	<input type="checkbox"/>	<input type="checkbox"/>
Calculate plant capacity.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated factory efficiency.	<input type="checkbox"/>	<input type="checkbox"/>
Produce production schedule.	<input type="checkbox"/>	<input type="checkbox"/>
Applied work study using appropriate method.	<input type="checkbox"/>	<input type="checkbox"/>
Saved documents as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed internet and appropriate browser.	<input type="checkbox"/>	<input type="checkbox"/>
Emailed documents.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned, maintained and stored tools and equipment.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned workplace and disposed of waste material.	<input type="checkbox"/>	<input type="checkbox"/>
Followed quality control and quality assurance system procedures for each job.	<input type="checkbox"/>	<input type="checkbox"/>
Checked and verified quality of product.	<input type="checkbox"/>	<input type="checkbox"/>
Ensured conformance to specification in every case at all situations.	<input type="checkbox"/>	<input type="checkbox"/>
Applied and monitored quality system improvement.	<input type="checkbox"/>	<input type="checkbox"/>
Maintained appropriate lines of communication with supervisors and colleagues.	<input type="checkbox"/>	<input type="checkbox"/>
Conducted workplace interactions in courteous manner to gather and convey information.	<input type="checkbox"/>	<input type="checkbox"/>
Used appropriate medium to transfer information and ideas.	<input type="checkbox"/>	<input type="checkbox"/>
Recorded, translated and obeyed instructions.	<input type="checkbox"/>	<input type="checkbox"/>
Used workplace terminology correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Performed responsibilities as a team member.	<input type="checkbox"/>	<input type="checkbox"/>
Performed tasks in accordance with workplace procedures.	<input type="checkbox"/>	<input type="checkbox"/>
Followed agreed reporting lines as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Solved problems effectively and evaluated outcome of the implemented solution.	<input type="checkbox"/>	<input type="checkbox"/>
Identified other teammates' tasks and provided support.	<input type="checkbox"/>	<input type="checkbox"/>
Encouraged the team through sharing information or expertise, working together to solve problems, and putting team success first.	<input type="checkbox"/>	<input type="checkbox"/>
Respected and valued diversity in team functioning.	<input type="checkbox"/>	<input type="checkbox"/>
Understood and valued views and opinions of other team members.	<input type="checkbox"/>	<input type="checkbox"/>
Feedback to candidate:		

Assessment decision for this assessment activity:

Competent

Not Yet Competent

Candidate Signature:

Date:

Assessor Signature:

Date:

Set B: Practical Demonstration 4

PRACTICAL DEMONSTRATION 4	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing
Task:	Develop sewing production schedule based on forecasting
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	
Instructions:	
<p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Industrial Engineering and Lean Manufacturing ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have one (1) hour to complete this demonstration 	
Procedure:	
<ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times 	
Job Specification Information:	
<ol style="list-style-type: none"> 1. Identify, read and interpret job specifications, drawings and other workplace documents. 2. Identify and collect required tools, equipment and material for task. 3. Inspect worksite for hazards and implement appropriate controls (if necessary). 4. Identify and collect appropriate PPE. 5. Identify any IT tools required. 6. Review production data. 7. Calculate production capacity (daily). 8. Calculate production efficiency (daily). 9. Identify inventory planning requirements. 10. Develop production schedule (with 5% wastage). 11. Calculate line balancing loss. 12. Check calculations. 13. Review developed production schedule. 14. Complete production schedule and calculations using Word. 15. Save calculations and schedule to appropriate folder and email to assessor. 16. Clean, maintain and store tools and equipment. 17. Clean workplace and dispose of waste materials. 	
Drawing, Plan, Diagram or Sketch:	
Buyer: XYZ Apparels Style no.: 5050	

Order No.: FS221
 Order qty: 16000 pcs
 Product SMV: 11.23 min.
 No. of SMV earners in the line: 46
 Line to be used: 1
 Day wise daily line efficiency: Day 1: 28%, Day 2: 37%, Day 3: 45%, Day 4: 54%,
 Day 5: 62%,
 Sewing starts from: June 08 (Saturday)
 Consider all Fridays closed

Date	Day	Daily production	Cumulative production	Balance to produce	Remarks
June-8	Saturday				
June-9	Sunday				
June-10	Monday				
June-11	Tuesday				
June-12	Wednesday				
June-13	Thursday				
June-14	Friday				
June-15	Saturday				
June-16	Sunday				
June-17	Monday				
June-18	Tuesday				
June-19	Wednesday				
June-20	Thursday				
June-21	Friday				
June-22	Saturday				
June-23	Sunday				
June-24	Monday				
June-25	Tuesday				
June-26	Wednesday				

Prepared by

Checked by

Approved by

Resources Required:

Tools: N/A

Equipment: Calculator
Computer

Machinery:	N/A
Materials:	Paper Pen Pencil BOM
PPE:	Apron Mask

Set B: Practical Demonstration 4 – Observation Checklist

PRACTICAL DEMONSTRATION 4 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing	
Task:	Develop sewing production schedule based on forecasting	
Assessment Centre:		
Date of Assessment:		
Instructions:	<p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate 	
OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	No
Workplace documents are interpreted correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed specific and relevant information from appropriate sources.	<input type="checkbox"/>	<input type="checkbox"/>
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	<input type="checkbox"/>	<input type="checkbox"/>
Common safety issues are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks assessment and controls are interpreted.	<input type="checkbox"/>	<input type="checkbox"/>
Identified and followed safety signs and symbols.	<input type="checkbox"/>	<input type="checkbox"/>
Identified tools and equipment required for task.	<input type="checkbox"/>	<input type="checkbox"/>
Identified required IT tools.	<input type="checkbox"/>	<input type="checkbox"/>
Operated computer (including turning on and off).	<input type="checkbox"/>	<input type="checkbox"/>
Carried out data entry using Word.	<input type="checkbox"/>	<input type="checkbox"/>
Applied simple troubleshooting techniques (if required).	<input type="checkbox"/>	<input type="checkbox"/>
Identified SMV.	<input type="checkbox"/>	<input type="checkbox"/>

Identified production capacity and target.	<input type="checkbox"/>	<input type="checkbox"/>
Identified inventory requirements.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated daily production capacity.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated daily production target.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated production efficiency.	<input type="checkbox"/>	<input type="checkbox"/>
Developed production schedule.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated line balancing loss (if applicable).	<input type="checkbox"/>	<input type="checkbox"/>
Checked calculations and corrected if necessary.	<input type="checkbox"/>	<input type="checkbox"/>
Reviewed production schedule.	<input type="checkbox"/>	<input type="checkbox"/>
Finalised production schedule and calculations using Word.	<input type="checkbox"/>	<input type="checkbox"/>
Saved document and calculations as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed internet and appropriate browser.	<input type="checkbox"/>	<input type="checkbox"/>
Emailed documents.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned, maintained and stored tools and equipment.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned workplace and disposed of waste material.	<input type="checkbox"/>	<input type="checkbox"/>
Followed quality control and quality assurance system procedures for each job.	<input type="checkbox"/>	<input type="checkbox"/>
Checked and verified quality of product.	<input type="checkbox"/>	<input type="checkbox"/>
Ensured conformance to specification in every case at all situations.	<input type="checkbox"/>	<input type="checkbox"/>
Applied and monitored quality system improvement.	<input type="checkbox"/>	<input type="checkbox"/>
Maintained appropriate lines of communication with supervisors and colleagues.	<input type="checkbox"/>	<input type="checkbox"/>
Conducted workplace interactions in courteous manner to gather and convey information.	<input type="checkbox"/>	<input type="checkbox"/>
Used appropriate medium to transfer information and ideas.	<input type="checkbox"/>	<input type="checkbox"/>
Recorded, translated and obeyed instructions.	<input type="checkbox"/>	<input type="checkbox"/>
Used workplace terminology correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Performed responsibilities as a team member.	<input type="checkbox"/>	<input type="checkbox"/>
Performed tasks in accordance with workplace procedures.	<input type="checkbox"/>	<input type="checkbox"/>
Followed agreed reporting lines as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Solved problems effectively and evaluated outcome of the implemented solution.	<input type="checkbox"/>	<input type="checkbox"/>
Identified other teammates' tasks and provided support.	<input type="checkbox"/>	<input type="checkbox"/>
Encouraged the team through sharing information or expertise, working together to solve problems, and putting team success first.	<input type="checkbox"/>	<input type="checkbox"/>
Respected and valued diversity in team functioning.	<input type="checkbox"/>	<input type="checkbox"/>
Understood and valued views and opinions of other team members.	<input type="checkbox"/>	<input type="checkbox"/>

Feedback to candidate:

Assessment decision for this assessment activity:

Competent

Not Yet Competent


Candidate Signature:


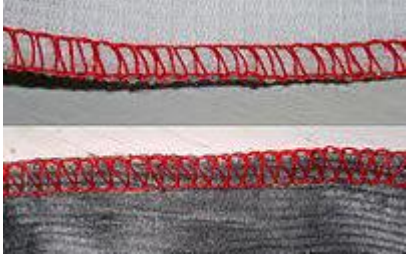
Date:


Assessor Signature:

Date:

Set C: Practical Demonstration 1

PRACTICAL DEMONSTRATION 1			
Candidate Name:			
Assessor Name:			
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing		
Task:	Identify types of stitch and their use		
Assessment Centre:			
Date of Assessment:			
Time of Assessment:			
Instructions:			
Read and understand the directions carefully:			
<ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Industrial Engineering and Lean Manufacturing ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have one (1) hour to complete this demonstration 			
Procedure:			
<ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times 			
Job Specification Information:			
<p>For this task, you will be assessed individually, in pairs or in small groups.</p> <p>In the training workshop, there will be a number of stitch samples. You will be required to:</p> <ol style="list-style-type: none"> 1. Identify the type of stitch. 2. State the specific use of each stitch. <p>Complete your answers in the form provided.</p>			
Drawing, Plan, Diagram or Sketch:			
No.	Stitch	Name	Use/function of Stitch
1.			

2.			
3.			
4.			
5.			
6.			
7.			

8.			
----	---	--	--

Resources Required:	
----------------------------	--

Tools:	N/A
Equipment:	Stitch samples (as per above)
Machinery:	N/A
Materials:	Pen Answer Form
PPE:	Apron


Set C: Practical Demonstration 1 – Observation Checklist

PRACTICAL DEMONSTRATION 1 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing	
Task:	Identify types of stitch and their use	
Assessment Centre:		
Date of Assessment:		
Instructions:	<p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate 	
OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	No
Workplace documents are interpreted correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed specific and relevant information from appropriate sources.	<input type="checkbox"/>	<input type="checkbox"/>
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	<input type="checkbox"/>	<input type="checkbox"/>
Common safety issues are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks assessment and controls are interpreted.	<input type="checkbox"/>	<input type="checkbox"/>
Identified and followed safety signs and symbols.	<input type="checkbox"/>	<input type="checkbox"/>
Identified stitches and stated their use/function.	<input type="checkbox"/>	<input type="checkbox"/>
Maintained appropriate lines of communication with supervisors and colleagues.	<input type="checkbox"/>	<input type="checkbox"/>
Conducted workplace interactions in courteous manner to gather and convey information.	<input type="checkbox"/>	<input type="checkbox"/>
Used appropriate medium to transfer information and ideas.	<input type="checkbox"/>	<input type="checkbox"/>
Recorded, translated and obeyed instructions.	<input type="checkbox"/>	<input type="checkbox"/>

Used workplace terminology correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Performed responsibilities as a team member.	<input type="checkbox"/>	<input type="checkbox"/>
Performed tasks in accordance with workplace procedures.	<input type="checkbox"/>	<input type="checkbox"/>
Followed agreed reporting lines as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Solved problems effectively and evaluated outcome of the implemented solution.	<input type="checkbox"/>	<input type="checkbox"/>
Identified other teammates' tasks and provided support.	<input type="checkbox"/>	<input type="checkbox"/>
Encouraged the team through sharing information or expertise, working together to solve problems, and putting team success first.	<input type="checkbox"/>	<input type="checkbox"/>
Respected and valued diversity in team functioning.	<input type="checkbox"/>	<input type="checkbox"/>
Understood and valued views and opinions of other team members.	<input type="checkbox"/>	<input type="checkbox"/>
Feedback to candidate:		
Assessment decision for this assessment activity:		
<input type="checkbox"/> Competent <input type="checkbox"/> Not Yet Competent		
Candidate Signature:		Date:
Assessor Signature:		Date:

Set C: Practical Demonstration 2

PRACTICAL DEMONSTRATION 2			
Candidate Name:			
Assessor Name:			
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing		
Task:	Prepare layout sheet (partial) for knitted full sleeve polo shirt		
Assessment Centre:			
Date of Assessment:			
Time of Assessment:			
Instructions:			
Read and understand the directions carefully:			
<ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Industrial Engineering and Lean Manufacturing ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have one (1) hour to complete this demonstration 			
Procedure:			
<ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times 			
Job Specification Information:			
<ol style="list-style-type: none"> 1. Identify, read and interpret job specifications, drawings and other workplace documents. 2. Identify and collect required tools, equipment and material for task. 3. Inspect worksite for hazards and implement appropriate controls (if necessary). 4. Identify and collect appropriate PPE. 5. Identify any IT tools required. 6. Complete the below template of operation breakdown using Word. 7. Carry out calculations of estimated time and production per hour. 8. Save template to appropriate folder and email to assessor. 9. Clean, maintain and store tools and equipment. 10. Clean workplace and dispose of waste materials. 			
Drawing, Plan, Diagram or Sketch:			
Layout sheet of a knitted full sleeve polo shirt			
Buyer	ABC	Sample	
		Front view	Back view

Style	705023		 <ul style="list-style-type: none"> • RIBBED COLLAR • RIBBED CUFF • BUTTON PLACKET • VENTED HEM • STITCHES ON ARM SEAMS 		
No.	Operation breakdown	Machine type	Estimated time	Hourly target (60% efficiency)	Remarks
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
Resources Required:					
Tools:	N/A				
Equipment:	N/A				
Machinery:	N/A				
Materials:	Paper Pen Pencil Calculator				
PPE:	Apron				

Set C: Practical Demonstration 2 – Observation Checklist

PRACTICAL DEMONSTRATION 2 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing	
Task:	Prepare layout sheet (partial) for knitted full sleeve polo shirt	
Assessment Centre:		
Date of Assessment:		
Instructions:	<p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate 	
OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	No
Workplace documents are interpreted correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed specific and relevant information from appropriate sources.	<input type="checkbox"/>	<input type="checkbox"/>
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	<input type="checkbox"/>	<input type="checkbox"/>
Common safety issues are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks assessment and controls are interpreted.	<input type="checkbox"/>	<input type="checkbox"/>
Identified and followed safety signs and symbols.	<input type="checkbox"/>	<input type="checkbox"/>
Identified tools and equipment required for task.	<input type="checkbox"/>	<input type="checkbox"/>
Identified required IT tools.	<input type="checkbox"/>	<input type="checkbox"/>
Operated computer (including turning on and off).	<input type="checkbox"/>	<input type="checkbox"/>
Carried out word processing using basic typing technique.	<input type="checkbox"/>	<input type="checkbox"/>
Carried out data entry using spreadsheet.	<input type="checkbox"/>	<input type="checkbox"/>
Applied simple troubleshooting techniques (if required).	<input type="checkbox"/>	<input type="checkbox"/>

Identified manufacturing process to be applied.	<input type="checkbox"/>	<input type="checkbox"/>
Identified industrial sewing machines.	<input type="checkbox"/>	<input type="checkbox"/>
Interpreted garment operation breakdown.	<input type="checkbox"/>	<input type="checkbox"/>
Analysed garment and requirements.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated standard minute value (SMV).	<input type="checkbox"/>	<input type="checkbox"/>
Calculated production capacity and target.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated efficiency using appropriate method.	<input type="checkbox"/>	<input type="checkbox"/>
Performed simple calculations using appropriate device.	<input type="checkbox"/>	<input type="checkbox"/>
Saved document as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed internet and appropriate browser.	<input type="checkbox"/>	<input type="checkbox"/>
Emailed layout sheet.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned, maintained and stored tools and equipment.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned workplace and disposed of waste material.	<input type="checkbox"/>	<input type="checkbox"/>
Followed quality control and quality assurance system procedures for each job.	<input type="checkbox"/>	<input type="checkbox"/>
Checked and verified quality of product.	<input type="checkbox"/>	<input type="checkbox"/>
Ensured conformance to specification in every case at all situations.	<input type="checkbox"/>	<input type="checkbox"/>
Applied and monitored quality system improvement.	<input type="checkbox"/>	<input type="checkbox"/>
Maintained appropriate lines of communication with supervisors and colleagues.	<input type="checkbox"/>	<input type="checkbox"/>
Conducted workplace interactions in courteous manner to gather and convey information.	<input type="checkbox"/>	<input type="checkbox"/>
Used appropriate medium to transfer information and ideas.	<input type="checkbox"/>	<input type="checkbox"/>
Recorded, translated and obeyed instructions.	<input type="checkbox"/>	<input type="checkbox"/>
Used workplace terminology correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Performed responsibilities as a team member.	<input type="checkbox"/>	<input type="checkbox"/>
Performed tasks in accordance with workplace procedures.	<input type="checkbox"/>	<input type="checkbox"/>
Followed agreed reporting lines as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Solved problems effectively and evaluated outcome of the implemented solution.	<input type="checkbox"/>	<input type="checkbox"/>
Identified other teammates' tasks and provided support.	<input type="checkbox"/>	<input type="checkbox"/>
Encouraged the team through sharing information or expertise, working together to solve problems, and putting team success first.	<input type="checkbox"/>	<input type="checkbox"/>
Respected and valued diversity in team functioning.	<input type="checkbox"/>	<input type="checkbox"/>
Understood and valued views and opinions of other team members.	<input type="checkbox"/>	<input type="checkbox"/>
Feedback to candidate:		

Assessment decision for this assessment activity:			
<input type="checkbox"/> Competent		<input type="checkbox"/> Not Yet Competent	
Candidate Signature:		Date:	
Assessor Signature:		Date:	

Set C: Practical Demonstration 3

PRACTICAL DEMONSTRATION 3	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing
Task:	Calculate SMV for garment
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	
Instructions:	
<p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Industrial Engineering and Lean Manufacturing ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have one (1) hour to complete this demonstration 	
Procedure:	
<ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times 	
Job Specification Information:	
<ol style="list-style-type: none"> 1. Identify, read and interpret job specifications, drawings and other workplace documents. 2. Identify and collect required tools, equipment and material for task. 3. Inspect worksite for hazards and implement appropriate controls (if necessary). 4. Identify and collect appropriate PPE. 5. Identify any IT tools required. 6. Review production data and operation breakdown. 7. Prepared BOM. 8. Calculate SMV and enter data on spreadsheet. 9. Calculate plant capacity and factory efficiency. 10. Produce production plan and schedule. 11. Save spreadsheet, calculations and plans to appropriate folder and email to assessor. 12. Clean, maintain and store tools and equipment. 13. Clean workplace and dispose of waste materials. 	
Drawing, Plan, Diagram or Sketch:	
<p>Following formula to calculate standard minute value (SMV) for a garment:</p> <ul style="list-style-type: none"> ▪ Basic time = (Observed Rating * Observed Time)/Standard Rating ▪ Standard Rating considered as 100% 	

- **SMV = Basic time + All Allowances (Relaxation allowance = 15%; Machine attention allowance = 10%)**

No.	Element	Observed Rating	Observed Time (Min)	Occurrence
1.	Pick up and sort bundle	95	0.18	1/10
2.	Align first sleeve to opening	100	0.08	1/1
3.	Over lock and attach first sleeve head	90	1.12	1/1
4.	Re-position	95	0.03	1/1
5.	Align second sleeve	90	0.09	1/1
6.	Over lock attached sleeves	100	1.1	1/1
7.	Aside garment	110	0.06	1/1
8.	Close bundle and complete ticket	90	0.60	1/10

Resources Required:

Tools:	Stopwatch Cycle check data Calculator Computer
Equipment:	N/A
Machinery:	N/A
Materials:	Paper Pen Pencil
PPE:	Apron

Set C: Practical Demonstration 3 – Observation Checklist

PRACTICAL DEMONSTRATION 3 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing	
Task:	Calculate SMV for garment	
Assessment Centre:		
Date of Assessment:		
Instructions:	<p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate 	
OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	No
Workplace documents are interpreted correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed specific and relevant information from appropriate sources.	<input type="checkbox"/>	<input type="checkbox"/>
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	<input type="checkbox"/>	<input type="checkbox"/>
Common safety issues are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks assessment and controls are interpreted.	<input type="checkbox"/>	<input type="checkbox"/>
Identified and followed safety signs and symbols.	<input type="checkbox"/>	<input type="checkbox"/>
Identified tools and equipment required for task.	<input type="checkbox"/>	<input type="checkbox"/>
Identified required IT tools.	<input type="checkbox"/>	<input type="checkbox"/>
Operated computer (including turning on and off).	<input type="checkbox"/>	<input type="checkbox"/>
Carried out data entry using spreadsheet.	<input type="checkbox"/>	<input type="checkbox"/>
Applied simple troubleshooting techniques (if required).	<input type="checkbox"/>	<input type="checkbox"/>
Calculated garment using SAM method.	<input type="checkbox"/>	<input type="checkbox"/>

Prepared BOM including list of clothing materials.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated SMV using appropriate method.	<input type="checkbox"/>	<input type="checkbox"/>
Developed production plan.	<input type="checkbox"/>	<input type="checkbox"/>
Calculate plant capacity.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated factory efficiency.	<input type="checkbox"/>	<input type="checkbox"/>
Produce production schedule.	<input type="checkbox"/>	<input type="checkbox"/>
Applied work study using appropriate method.	<input type="checkbox"/>	<input type="checkbox"/>
Saved documents as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed internet and appropriate browser.	<input type="checkbox"/>	<input type="checkbox"/>
Emailed documents.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned, maintained and stored tools and equipment.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned workplace and disposed of waste material.	<input type="checkbox"/>	<input type="checkbox"/>
Followed quality control and quality assurance system procedures for each job.	<input type="checkbox"/>	<input type="checkbox"/>
Checked and verified quality of product.	<input type="checkbox"/>	<input type="checkbox"/>
Ensured conformance to specification in every case at all situations.	<input type="checkbox"/>	<input type="checkbox"/>
Applied and monitored quality system improvement.	<input type="checkbox"/>	<input type="checkbox"/>
Maintained appropriate lines of communication with supervisors and colleagues.	<input type="checkbox"/>	<input type="checkbox"/>
Conducted workplace interactions in courteous manner to gather and convey information.	<input type="checkbox"/>	<input type="checkbox"/>
Used appropriate medium to transfer information and ideas.	<input type="checkbox"/>	<input type="checkbox"/>
Recorded, translated and obeyed instructions.	<input type="checkbox"/>	<input type="checkbox"/>
Used workplace terminology correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Performed responsibilities as a team member.	<input type="checkbox"/>	<input type="checkbox"/>
Performed tasks in accordance with workplace procedures.	<input type="checkbox"/>	<input type="checkbox"/>
Followed agreed reporting lines as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Solved problems effectively and evaluated outcome of the implemented solution.	<input type="checkbox"/>	<input type="checkbox"/>
Identified other teammates' tasks and provided support.	<input type="checkbox"/>	<input type="checkbox"/>
Encouraged the team through sharing information or expertise, working together to solve problems, and putting team success first.	<input type="checkbox"/>	<input type="checkbox"/>
Respected and valued diversity in team functioning.	<input type="checkbox"/>	<input type="checkbox"/>
Understood and valued views and opinions of other team members.	<input type="checkbox"/>	<input type="checkbox"/>
Feedback to candidate:		

Assessment decision for this assessment activity:			
<input type="checkbox"/> Competent		<input type="checkbox"/> Not Yet Competent	
Candidate Signature:		Date:	
Assessor Signature:		Date:	

Set C: Practical Demonstration 4

PRACTICAL DEMONSTRATION 4	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing
Task:	Develop sewing production schedule based on forecasting
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	
Instructions:	
<p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ this practical demonstration is based on the performance criteria from all or some of the units of competency in Industrial Engineering and Lean Manufacturing ▪ this assessment activity will be used to measure your underpinning skills ▪ you will have fifteen (15) minutes to familiarise yourself with the resources to be used ▪ you have one (1) hour to complete this demonstration 	
Procedure:	
<ul style="list-style-type: none"> ▪ observe and wear personal protective equipment (PPE) as required for the task to be performed ▪ read the specification information provided ▪ collect all materials needed to complete the task ▪ perform the task within the given time ▪ observe and follow all health and safety (OHS) requirements at all times 	
Job Specification Information:	
<ol style="list-style-type: none"> 1. Identify, read and interpret job specifications, drawings and other workplace documents. 2. Identify and collect required tools, equipment and material for task. 3. Inspect worksite for hazards and implement appropriate controls (if necessary). 4. Identify and collect appropriate PPE. 5. Identify any IT tools required. 6. Review production data. 7. Calculate production capacity (daily). 8. Calculate production efficiency (daily). 9. Identify inventory planning requirements. 10. Develop production schedule (with 5% wastage). 11. Calculate line balancing loss. 12. Check calculations. 13. Review developed production schedule. 14. Complete production schedule and calculations using Word. 15. Save calculations and schedule to appropriate folder and email to assessor. 16. Clean, maintain and store tools and equipment. 17. Clean workplace and dispose of waste materials. 	
Drawing, Plan, Diagram or Sketch:	
Buyer: XYZ Apparels Style no.: 5050	

Order No.: FS221
 Order qty: 16000 pcs
 Product SMV: 11.23 min.
 No. of SMV earners in the line: 46
 Line to be used: 1
 Day wise daily line efficiency: Day 1: 28%, Day 2: 37%, Day 3: 45%, Day 4: 54%,
 Day 5: 62%,
 Sewing starts from: June 08 (Saturday)
 Consider all Fridays closed

Date	Day	Daily production	Cumulative production	Balance to produce	Remarks
June-8	Saturday				
June-9	Sunday				
June-10	Monday				
June-11	Tuesday				
June-12	Wednesday				
June-13	Thursday				
June-14	Friday				
June-15	Saturday				
June-16	Sunday				
June-17	Monday				
June-18	Tuesday				
June-19	Wednesday				
June-20	Thursday				
June-21	Friday				
June-22	Saturday				
June-23	Sunday				
June-24	Monday				
June-25	Tuesday				
June-26	Wednesday				

Prepared by	Checked by	Approved by
--------------------	-------------------	--------------------

Resources Required:

Tools:	N/A
Equipment:	Calculator Computer

Machinery:	N/A
Materials:	Paper Pen Pencil BOM
PPE:	Apron Mask

Set C: Practical Demonstration 4 – Observation Checklist

PRACTICAL DEMONSTRATION 4 – OBSERVATION CHECKLIST		
Candidate Name:		
Assessor Name:		
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing	
Task:	Develop sewing production schedule based on forecasting	
Assessment Centre:		
Date of Assessment:		
Instructions:	<p>The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate.</p> <p>Performance can be observed in an actual workplace or in a simulated working environment.</p> <p>If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject.</p> <p>The assessment activity (practical demonstration) should:</p> <ul style="list-style-type: none"> ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate 	
OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	No
Workplace documents are interpreted correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed specific and relevant information from appropriate sources.	<input type="checkbox"/>	<input type="checkbox"/>
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	<input type="checkbox"/>	<input type="checkbox"/>
Common safety issues are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks are identified.	<input type="checkbox"/>	<input type="checkbox"/>
Hazards and risks assessment and controls are interpreted.	<input type="checkbox"/>	<input type="checkbox"/>
Identified and followed safety signs and symbols.	<input type="checkbox"/>	<input type="checkbox"/>
Identified tools and equipment required for task.	<input type="checkbox"/>	<input type="checkbox"/>
Identified required IT tools.	<input type="checkbox"/>	<input type="checkbox"/>
Operated computer (including turning on and off).	<input type="checkbox"/>	<input type="checkbox"/>
Carried out data entry using Word.	<input type="checkbox"/>	<input type="checkbox"/>
Applied simple troubleshooting techniques (if required).	<input type="checkbox"/>	<input type="checkbox"/>
Identified SMV.	<input type="checkbox"/>	<input type="checkbox"/>

Identified production capacity and target.	<input type="checkbox"/>	<input type="checkbox"/>
Identified inventory requirements.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated daily production capacity.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated daily production target.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated production efficiency.	<input type="checkbox"/>	<input type="checkbox"/>
Developed production schedule.	<input type="checkbox"/>	<input type="checkbox"/>
Calculated line balancing loss (if applicable).	<input type="checkbox"/>	<input type="checkbox"/>
Checked calculations and corrected if necessary.	<input type="checkbox"/>	<input type="checkbox"/>
Reviewed production schedule.	<input type="checkbox"/>	<input type="checkbox"/>
Finalised production schedule and calculations using Word.	<input type="checkbox"/>	<input type="checkbox"/>
Saved document and calculations as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Accessed internet and appropriate browser.	<input type="checkbox"/>	<input type="checkbox"/>
Emailed documents.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned, maintained and stored tools and equipment.	<input type="checkbox"/>	<input type="checkbox"/>
Cleaned workplace and disposed of waste material.	<input type="checkbox"/>	<input type="checkbox"/>
Followed quality control and quality assurance system procedures for each job.	<input type="checkbox"/>	<input type="checkbox"/>
Checked and verified quality of product.	<input type="checkbox"/>	<input type="checkbox"/>
Ensured conformance to specification in every case at all situations.	<input type="checkbox"/>	<input type="checkbox"/>
Applied and monitored quality system improvement.	<input type="checkbox"/>	<input type="checkbox"/>
Maintained appropriate lines of communication with supervisors and colleagues.	<input type="checkbox"/>	<input type="checkbox"/>
Conducted workplace interactions in courteous manner to gather and convey information.	<input type="checkbox"/>	<input type="checkbox"/>
Used appropriate medium to transfer information and ideas.	<input type="checkbox"/>	<input type="checkbox"/>
Recorded, translated and obeyed instructions.	<input type="checkbox"/>	<input type="checkbox"/>
Used workplace terminology correctly.	<input type="checkbox"/>	<input type="checkbox"/>
Performed responsibilities as a team member.	<input type="checkbox"/>	<input type="checkbox"/>
Performed tasks in accordance with workplace procedures.	<input type="checkbox"/>	<input type="checkbox"/>
Followed agreed reporting lines as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
Solved problems effectively and evaluated outcome of the implemented solution.	<input type="checkbox"/>	<input type="checkbox"/>
Identified other teammates' tasks and provided support.	<input type="checkbox"/>	<input type="checkbox"/>
Encouraged the team through sharing information or expertise, working together to solve problems, and putting team success first.	<input type="checkbox"/>	<input type="checkbox"/>
Respected and valued diversity in team functioning.	<input type="checkbox"/>	<input type="checkbox"/>
Understood and valued views and opinions of other team members.	<input type="checkbox"/>	<input type="checkbox"/>

Feedback to candidate:

Assessment decision for this assessment activity:

Competent

Not Yet Competent

Candidate Signature:

Date:

Assessor Signature:

Date:

Oral Questions (Optional)

ORAL QUESTIONS - INSTRUCTIONS	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing
Unit of Competency	
Generic Competencies	
SEIP-RMG-IEL-01-G	Use basic mathematical concepts
SEIP-RMG-IEL-02-G	Carry out workplace interaction
SEIP-RMG-IEL-03-G	Operate in a team environment
SEIP-RMG-IEL-04-G	Acquire basic IT skills
Sector-specific Competencies	
SEIP-RMG-IEL-01-S	Understand the RMG business
SEIP-RMG-IEL-02-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-RMG-IEL-03-S	Perform measurements and calculations
SEIP-RMG-IEL-04-S	Read and interpret sketches and drawings
Occupation-specific Competencies	
SEIP-RMG-IEL-01-O	Identify basic garments construction
SEIP-RMG-IEL-02-O	Illustrate garments operation analysis
SEIP-RMG-IEL-03-O	Interpret work study techniques
SEIP-RMG-IEL-04-O	Interpret basic lean quality concepts
SEIP-RMG-IEL-05-O	Interpret production planning and control
SEIP-RMG-IEL-06-O	Identify basic tools for lean manufacturing
SEIP-RMG-IEL-07-O	Perform optimization techniques in different department
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	
Instructions:	
<p>Read and understand the directions carefully:</p> <ul style="list-style-type: none"> ▪ these oral questions are based on the performance criteria from all the units of competency in Industrial Engineering and Lean Manufacturing ▪ oral questions are designed to enable additional assessment of your underpinning knowledge ▪ you should present your responses as directed by the assessor ▪ answer all the questions asked by the assessor as best as possible 	

ORAL QUESTIONS			
Question		Place a ✓ in the appropriate box to show if evidence has been demonstrated competently	
		Yes	No
1.	What are the duties and responsibilities of industrial engineering executive?	<input type="checkbox"/>	<input type="checkbox"/>
2.	What is the SMV calculation formula?	<input type="checkbox"/>	<input type="checkbox"/>
3.	What does work study mean?	<input type="checkbox"/>	<input type="checkbox"/>
4.	What is the difference between stitch and seam?	<input type="checkbox"/>	<input type="checkbox"/>
5.	What is factory efficiency?	<input type="checkbox"/>	<input type="checkbox"/>
6.	What is KAIZEN?	<input type="checkbox"/>	<input type="checkbox"/>
7.	What is standard work?	<input type="checkbox"/>	<input type="checkbox"/>
8.	What is the elaboration of OHS?	<input type="checkbox"/>	<input type="checkbox"/>
9.	Why do you need internet in industrial engineering?	<input type="checkbox"/>	<input type="checkbox"/>
10.	Why are team meetings important?	<input type="checkbox"/>	<input type="checkbox"/>
11.	Which department is responsible for hiring employees?	<input type="checkbox"/>	<input type="checkbox"/>
12.	How many inches and centimetres are normally found on a measuring tape?	<input type="checkbox"/>	<input type="checkbox"/>
13.	What is the major difference between woven and knitted fabric-based on construction?	<input type="checkbox"/>	<input type="checkbox"/>
14.	How many needles can be found in the feed of the arm machine?	<input type="checkbox"/>	<input type="checkbox"/>
15.	How many stitches are there according to BSI?	<input type="checkbox"/>	<input type="checkbox"/>
16.	Where can we find lap felled seam on a woven shirt?	<input type="checkbox"/>	<input type="checkbox"/>
17.	What is one example of 'trims' and 'accessories'?	<input type="checkbox"/>	<input type="checkbox"/>
18.	What is the formula of line target?	<input type="checkbox"/>	<input type="checkbox"/>
19.	What is a skill matrix?	<input type="checkbox"/>	<input type="checkbox"/>
20.	In which system would you inspect the fabric in the garment industry?	<input type="checkbox"/>	<input type="checkbox"/>
21.	What is the elaboration of TNA?	<input type="checkbox"/>	<input type="checkbox"/>
22.	What are the 7 types of waste?	<input type="checkbox"/>	<input type="checkbox"/>
23.	Name of 5 tools of lean manufacturing.	<input type="checkbox"/>	<input type="checkbox"/>
24.	What is line balancing?	<input type="checkbox"/>	<input type="checkbox"/>
Feedback to candidate:			

Assessment decision for this assessment activity:			
<input type="checkbox"/> Competent		<input type="checkbox"/> Not Yet Competent	
Candidate Signature:		Date:	
Assessor Signature:		Date:	

Oral Questioning Guideline

General Guidelines For Effective Questioning	
▪	Keep questions short and focused on one key concept
▪	Ensure that questions are structured
▪	Test the questions to check that they are not ambiguous
▪	Use `open-ended questions such as `what if...?' and `why...?' questions, rather than closed questions
▪	Keep questions clear and straight forward and ask one at a time
▪	Use words that the candidate is able to understand
▪	Look at the candidate when asking questions
▪	Check to ensure that the candidate fully understands the questions
▪	Ask the candidate to clarify or re-phrase their answer if the assessor does not understand the initial response
▪	Confirm the candidate's response by repeating the answer back in his/her own words
▪	Encourage a conversational approach with the candidate when appropriate, to put him or her at ease
▪	Use questions or statements as prompts for keeping focused on the purpose of the questions and the kind of evidence being collected
▪	Use language at a suitable level for the candidate
▪	Listen carefully to the answers for opportunities to find unexpected evidence
▪	Follow up responses with further questions, if useful, to draw out more evidence or to make links between knowledge areas
▪	Compile a list of acceptable responses to ensure reliability of assessments

Oral Questions (Optional) - Answers

Answers are highlighted in **bold** and *italics*.

ORAL QUESTIONS	
Question	Answer
1. What are the duties and responsibilities of industrial engineering executive?	<ul style="list-style-type: none"> ▪ Training ▪ Data collection ▪ Meeting senior management ▪ Working on a group project ▪ Data analysis and visualization ▪ Completing timely deliverables ▪ Results: reporting to manager
2. What is the SMV calculation formula?	<p>Basic time = (Observed Rating * Observed Time) / Standard Rating Standard Rating considered as 100% S.M.V = Basic time + All Allowances</p>
3. What does work study mean?	<p>Work study is a generic term for those techniques, particularly method study and work measurement, which are used in all its context and which lead systematically to the investigation of all the factors which effect the efficiency and economy of the situation being reviewed in order to effect improvement.</p>
4. What is the difference between stitch and seam?	<p>Stitch is a single pass of a needle in sewing while seam is a folded back and stitched piece of fabric.</p>
5. What is factory efficiency?	<p>Is the level of performance within your organisation which can be improved upon.</p>
6. What is KAIZEN?	<p>Kaizen is the Japanese word for "improvement" and refers to activities that continuously improve all functions and involve all employees by improving standardized programmes and processes, and aims to eliminate waste.</p>
7. What is standard work?	<p>Is one of the most powerful but least used lean tools. By documenting the current best practice, standardized work forms the baseline for kaizen or continuous improvement. As the standard is improved, the new standard becomes the baseline for further improvements, and so on.</p>
8. What is the elaboration of OHS?	<p>Occupational health and safety</p>
9. Why do you need internet in industrial engineering?	<p>Yes</p>
10. Why are team meetings important?	<p>To manage work processes, responsibilities, and increase efficiency.</p>

11.	Which department is responsible for hiring employees?	Human resources
12.	How many inches and centimetres are normally found on a measuring tape?	60 inches and 150 centimetres
13.	What is the major difference between woven and knitted fabric-based on construction?	Woven fabric structure is interlacement and knitted fabric structure is interloping.
14.	How many needles can be found in the feed of the arm machine?	Maximum 3
15.	How many stitches are there according to BSI?	6
16.	Where can we find lap felled seam on a woven shirt?	Mainly side seam of woven shirt
17.	What is one example of 'trims' and 'accessories'?	Trim: zipper Accessory: Hangtag
18.	What is the formula of line target?	Capacity * Efficiency %
19.	What is a skill matrix?	The skills and knowledge needed to perform a work task as required.
20.	In which system would you inspect the fabric in the garment industry?	4-point system
21.	What is the elaboration of TNA?	Time and Action plan
22.	What are the 7 types of waste?	<ul style="list-style-type: none"> ▪ Over production ▪ Over processing ▪ Excess Transportation ▪ Excess inventory ▪ Excess motion ▪ Waiting ▪ Re- work ▪ Unused talents ▪ Dysconnectivity
23.	Name of 5 tools of lean manufacturing.	<ul style="list-style-type: none"> ▪ Value steam mapping (VSM) ▪ Workplace Organization ▪ Visual Management ▪ Kanban and super market ▪ Standardization of work process
24.	What is line balancing?	A production line is said to be in balance when every worker's task takes the same amount of time.

Assessment Evidence Summary Sheet

EVIDENCE SUMMARY SHEET			
Candidate Name:			
Assessor Name:			
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing		
Assessment Centre:			
Date(s) of Assessment:			
The performance of the candidate in the following unit or units of competency and the methods engaged to assess performance are as follows:			
Unit of Competency	Assessment Method	Competent	Not Yet Competent
All units of competency comprising of the qualification	Written Test	<input type="checkbox"/>	<input type="checkbox"/>
	Practical Demonstration 1 (Set)	<input type="checkbox"/>	<input type="checkbox"/>
	Practical Demonstration 2 (Set)	<input type="checkbox"/>	<input type="checkbox"/>
	Practical Demonstration 3 (Set)	<input type="checkbox"/>	<input type="checkbox"/>
	Practical Demonstration 4 (Set)	<input type="checkbox"/>	<input type="checkbox"/>
	Oral Questioning (optional)	<input type="checkbox"/>	<input type="checkbox"/>
Note: Issuance of a certificate will only be given to a candidate who has successfully been assessed as competent for ALL units of competency.			
Recommendation			
<input type="checkbox"/> Issuance of Statement of Achievement (<i>indicate title of SOA, if full Certificate is not met</i>)	<input type="checkbox"/> Submission of additional documents Specify:	<input type="checkbox"/> Reassessment Specify:	
Did the candidate overall performance meet the required evidence/standard?			<input type="checkbox"/> Yes <input type="checkbox"/> No
Overall Evaluation:	<input type="checkbox"/> Competent <input type="checkbox"/> Not Yet Competent		
General Comments:			
Candidate Signature:		Date:	
Assessor Signature:		Date:	

Institution Manager Signature:		Date:	
-----------------------------------	--	-------	--

CANDIDATES COPY
(Please presents this form when you claim your Certificate)

ASSESSMENT RESULTS SUMMARY			
Qualification:	Certificate in Industrial Engineering and Lean Manufacturing		
Name of Candidate:		Date:	
Name at Assessment Centre:		Date:	
Assessment Results:	<input type="checkbox"/> Competent <input type="checkbox"/> Not Yet Competent		
Recommendation:	<input type="checkbox"/> Issuance of SOA (<i>indicate title of SOA, if full certificate is not met</i>)		
	<input type="checkbox"/> Submission of additional documents – specify:		
	<input type="checkbox"/> Reassessment - specify:		
Assessed by: (name and signature)		Date:	
Attested by: (name and signature):		Date	

Assessment Validation Map

This identifies how the assessment tools in this resource may assess:

- elements and performance criteria
- critical aspects of assessment
- skills and knowledge
- employability skills

Unit of Competency:	SEIP-RMG-IEL-01-G – Apply occupational health and safety (OHS) practice at workplace		
Element	Assessment Method		
	Written	Practical	Oral
1. Identify OHS policies and procedures.		A1-4 B1-4 C1-4	8
2. Apply personal health and safety practices.	5	A1-4 B1-4 C1-4	
3. Report hazards and risks.		A1-4 B1-4 C1-4	
4. Respond to emergencies.			10
Unit of Competency:	SEIP-RMG-IEL-02-G – Carry out workplace interaction		
Element	Assessment Method		
	Written	Practical	Oral
1. Interpret workplace communication and etiquette.	3	A1-4 B1-4 C1-4	11
2. Read and understand workplace documents.		A1-4 B1-4 C1-4	
3. Participate in workplace meetings and discussions.			10
4. Practice professional ethics at work.		A1-4 B1-4 C1-4	5
Unit of Competency:	SEIP-RMG-IEL-03-G – Operate in a team environment		

Element		Assessment Method		
		Written	Practical	Oral
1. Identify team goals and work processes.				
2. Identify own role and responsibility within team.		1	A1-4 B1-4 C1-4	1
3. Communicate and co-operate with team members.			A1-4 B1-4 C1-4	
4. Practice problem-solving within the team.			A1-4 B1-4 C1-4	
Unit of Competency:	SEIP-RMG-IEL-04-G – Acquire basic IT skills			
Element		Assessment Method		
		Written	Practical	Oral
1. Identify and use most commonly used IT tools.		2	A2-4 B2-4 C2-4	
2. Understand computer operations.		2	A2-4 B2-4 C2-4	
3. Work with word processing application.		3	A2, A4, B2, B4, C2, C4	
4. Work with spreadsheets.			A3, B3, C3	
5. Access email and search the internet.			A2-4 B2-4 C2-4	9
Unit of Competency:	SEIP-RMG-IEL-01-S – Recognize the RMG Business Scenario			
Element		Assessment Method		
		Written	Practical	Oral
1. Identify basic business communication practices in RMG sector.				10
2. Recognize history of RMG industries in Bangladesh.			A1-4 B1-4	

		C1-4	
3. Identify major departments of RMG industry.		A1-4 B1-4 C1-4	
4. List prime export markets.	4		
Unit of Competency:	SEIP-RMG-IEL-02-S – Perform measurement and calculation in the RMG sector		
Element	Assessment Method		
	Written	Practical	Oral
1. Select measuring devices.		A2-4 B2-4 C2-4	12
2. Obtain measurement for apparel.		A2-4 B2-4 C2-4	
3. Perform simple calculations.		A2-4 B2-4 C2-4	
Unit of Competency:	SEIP-RMG-IEL-03-S – Interpret sketch and speciation's in manuals for RMG sector		
Element	Assessment Method		
	Written	Practical	Oral
1. Identify information from manual.		A2-4 B2-4 C2-4	7
2. Identify sketch and specifications.		A2-4 B2-4 C2-4	
Unit of Competency:	SEIP-RMG-IEL-01-O – Identify basic garments construction		
Element	Assessment Evidence Method		
	Written	Practical	Oral
1. Comprehended process from fibres to finished garments.	27	A2-4 B2-4	13

		C2-4	
2. Identify functions of industrial sewing machine and attachment.	28	A2, B2, C2	14, 25
3. Identify stitch and seam on garments style.	6	A2, B2, C2	15,16
4. List clothing materials used for garments.	26	A3, B3, C3	17
Unit of Competency:	SEIP-RMG-IEL-02-O – Illustrate garments operation analysis		
Element	Assessment Method		
	Written	Practical	Oral
1. Interpret garments operation breakdown.		A2-4 B2-4 C2-4	
2. Apply line layout on styling.	13	A2, B2, C2	
Unit of Competency:	SEIP-RMG-IEL-03-O – Identify work study techniques		
Element	Assessment Method		
	Written	Practical	Oral
1. Identify method study and work measurement.	7	A2, A4, B2, B4, C2, C4	3
2. Perform SMV calculation.	24	A3, B3, C3	2
3. Perform production capacity and production target calculation.	25	A3-4 B3-4 C3-4	18
4. Perform efficiency calculation.	8	A3-4 B3-4 C3-4	2, 5
5. Practice skill matrix on workers performance.	11	A2, B2, C2	7, 19
Unit of Competency:	SEIP-RMG-IEL-04-O – Interpret basic lean quality concepts		
Element	Assessment Method		
	Written	Practical	Oral
1. Interpret basics of quality.	14	A2-4 B2-4	20

		C2-4	
2. Interpret quality activities and garments defects.	9, 30	A4, B4, C4	
Unit of Competency:	SEIP-RMG-IEL-05-O – Interpret production planning and control		
Element	Assessment Method		
	Written	Practical	Oral
1. Interpret TNA plan.	17	A4, B4, C4	21
2. Perform plant capacity calculations.	24	A4, B4, C4	
3. Identify inventory planning.	12, 17	A4, B4, C4	
4. Perform production scheduling.	23	A4, B4, C4	
Unit of Competency:	SEIP-RMG-IEL-06-O – Identify basic tools for lean manufacturing		
Element	Assessment Method		
	Written	Practical	Oral
1. Interpret lean manufacturing concepts.	10	A2-4 B2-4 C2-4	
2. Identify manufacturing waste.	18	A2-4 B2-4 C2-4	22
3. Interpret tools and techniques of lean manufacturing.	16, 20, 21	A2-4 B2-4 C2-4	23
4. Perform KAIZEN event.	22	A2-4 B2-4 C2-4	6
Unit of Competency:	SEIP-RMG-IEL-07-O – Perform optimization techniques in different department		
Element	Assessment Method		
	Written	Practical	Oral
1. Interpret industrial setup and layout.	17	A2-4 B2-4	5, 9

		C2-4	
2. Perform utilization of clothing materials.	29	A3-4 B3-4 C3-4	
3. Perform process optimization.	15, 19, 21	A2-4 B2-4 C2-4	24