



# **Skills for Employment Investment Program (SEIP)**

**COMPETENCY STANDARD**

**FOR**

**PRODUCTIVITY IMPROVEMENT TECHNIQUES**

***(LEATHER AND FOOTWEAR SECTOR)***

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

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## Copyright

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

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## List of Abbreviations

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

## Introduction

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

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

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

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

## Overview

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

The purpose of a competency standards is to:

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

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

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

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

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

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

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

Together, all the parts of a unit of competency:

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

## Approval Sheet

Identification and validation of units of competency and elements for this occupation were made by experts within this sector. A series of meetings were held to accurately capture industry and employer needs and expectations, and develop the competency framework that would help to enhance the employability of the youth trained. This process started on 8 July 2018 and concluded with a validation workshop with working group on 29 August 2018.

### Experts Involved

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

| Name                        | Organisation                                    | Designation                                               |
|-----------------------------|-------------------------------------------------|-----------------------------------------------------------|
| Md. Mominul Ahsan           | Industry Skills Council (ISC)                   | Chief Executive Officer                                   |
| Md. Golam Shahnewaz         | US Bangla Leather Limited                       | General Manager                                           |
| Md. Hedayetullah Ron        | Footbed and FB Footwear Limited                 | Managing Director                                         |
| Md. Mahofuzer Rahamn Touhid | Kering Global Sourcing (KGS) Bangladesh Limited | Senior Quality Auditor (Footwear)                         |
| Md. Mostafizur Rahman Rana  | FB Footwear Limited                             | Human Resources Manager                                   |
| Md. Mehedi Hasan            | FB Footwear Limited                             | Manager - Quality Assurance                               |
| Md. Syfur Rahman            | LFMEAB                                          | Deputy Manager - Compliance                               |
| Mr. Shuva Chowdhury         | COEL                                            | Assistant Manager - Compliance and Maintenance            |
| David King                  | British Council - SD03                          | Team Leader                                               |
| Sobur Ahmed                 | British Council - SD03                          | National Subject Matter Consultant - Leather and Footwear |

### Validation Workshop

Working group formation and competency standard development workshop participants [held on 29 August 2018]:

| Name                        | Organisation                                    | Designation                                        |
|-----------------------------|-------------------------------------------------|----------------------------------------------------|
| Md. Mominul Ahsan           | Industry Skills Council (ISC)                   | CEO                                                |
| Md. Mehedi Hasan            | FB Footwear Limited                             | Manager - Quality Assurance                        |
| Md. Mahofuzer Rahamn Touhid | Kering Global Sourcing (KGS) Bangladesh Limited | Senior Quality Auditor (Footwear)                  |
| Md. Monirul Islam           | ALERON Limited                                  | Production Executive                               |
| Md. Arifur Rahman Bhuiyan   | LFMEAB-SEIP                                     | Coordinator - Training, Job Placement and Database |

| <b>Name</b>            | <b>Organisation</b>    | <b>Designation</b>                                                  |
|------------------------|------------------------|---------------------------------------------------------------------|
| Mr. Md. Mashiur Rahman | LFMEAB-SEIP            | Chief Coordinator                                                   |
| Eng. Md. Mostafa       | BTEB                   | Industry Liaison Officer                                            |
| Eng. Abdur Razzaque    | SEIP-BTEB              | Specialist-1 (Competency Standards)                                 |
| Syed Nasir Ershad      | SEIP                   | AEPD (Public-1)                                                     |
| Md. Ahsan Habib        | SEIP                   | TVET Specialist                                                     |
| Mr. Mohiuzzaman        | SEIP                   | Course Specialist                                                   |
| David King             | British Council - SD03 | Team Leader                                                         |
| Sobur Ahmed            | British Council - SD03 | National Subject Matter Consultant -<br>Leather and Footwear Sector |

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

- a chart with an overview of all Units of Competency for the relevant occupation, trade or job including the Unit Codes and the Unit of Competency titles and corresponding Elements
- the Competency Standard that includes the Unit of Competency, Unit Descriptor, Elements and Performance Criteria, Range of Variables, Curricular Content Guide and Assessment Evidence Guide



## Committee Workshop

The National competency Standards for National Skills Certificate in Productivity Improvement Techniques, NTVQF Level [INSERT LEVEL] qualification is a document developed by the Skill for Employment Investment Programme (SEIP), Finance Division, Ministry of Finance. This standard has been developed by an industry expert group under guidance of SEIP. The standard was approved by the SCDC [BTEB to insert date] at NTVQF Cell, BTEB.

### Respectable members of the SCDC:

| Productivity Improvement Techniques - Level [INSERT LEVEL] |  |  |
|------------------------------------------------------------|--|--|
|                                                            |  |  |
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|                                                            |  |  |
|                                                            |  |  |

## Course Structure

| SL                                                                       | Unit Code and Title |                                                                      | Level | Nominal Duration (Hours) |
|--------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------|-------|--------------------------|
| <b>Generic Competencies (1 unit of competency required)</b>              |                     |                                                                      |       |                          |
| 1                                                                        | SEIP-LEA-PIT-01-G   | Operate in a team environment                                        |       | 4                        |
| <b>Sub-Total</b>                                                         |                     |                                                                      |       | <b>4</b>                 |
| <b>Sector-specific Competencies (1 unit of competency required)</b>      |                     |                                                                      |       |                          |
| 1                                                                        | SEIP-LEA-PIT-01-S   | Apply occupational health and safety (OHS) practice in the workplace |       | 4                        |
| <b>Sub-Total</b>                                                         |                     |                                                                      |       | <b>4</b>                 |
| <b>Occupation-specific Competencies (5 units of competency required)</b> |                     |                                                                      |       |                          |
| 1                                                                        | SEIP-LEA-PIT-01-O   | Apply knowledge of production and productivity                       |       | 8                        |
| 2                                                                        | SEIP-LEA-PIT-02-O   | Identify productivity improvement techniques                         |       | 12                       |
| 3                                                                        | SEIP-LEA-PIT-03-O   | Use productivity improvement tools                                   |       | 20                       |
| 4                                                                        | SEIP-LEA-PIT-04-O   | Perform work study                                                   |       | 20                       |
| 5                                                                        | SEIP-LEA-PIT-05-O   | Perform optimisation                                                 |       | 12                       |
| <b>Sub-Total</b>                                                         |                     |                                                                      |       | <b>72</b>                |
| <b>Total Nominal Learning Hours</b>                                      |                     |                                                                      |       | <b>80</b>                |

**Competency Chart**

| Units of Competency | Elements |
|---------------------|----------|
|---------------------|----------|

**Generic-Specific (Basic) Competencies**

|                                                    |                                          |                                                        |                                              |
|----------------------------------------------------|------------------------------------------|--------------------------------------------------------|----------------------------------------------|
| Operate in a team environment<br>SEIP-LEA-PIT-01-G | Identify team goals and work processes   | Identify own role and responsibilities within the team | Communicate and co-operate with team members |
|                                                    | Practice problem solving within the team |                                                        |                                              |

**Sector-Specific (Common) Competencies**

|                                                                                            |                                      |                                            |                         |
|--------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------------|-------------------------|
| Apply occupational health and safety (OHS) practices in the workplace<br>SEIP-LEA-PIT-01-S | Identify OHS policies and procedures | Apply personal health and safety practices | Report hazards and risk |
|                                                                                            | Respond to emergencies               |                                            |                         |

## Occupation-Specific (Core) Competencies

|                                                                             |                                                     |                                                  |                                                     |
|-----------------------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|
| <p>Apply knowledge of production and productivity<br/>SEIP-LEA-PIT-01-O</p> | <p>Explain production and productivity</p>          | <p>Identify types of productivity</p>            |                                                     |
| <p>Identify productivity improvement techniques<br/>SEIP-LEA-PIT-02-O</p>   | <p>Identify concept of productivity improvement</p> | <p>Explain work content and ineffective time</p> | <p>Identify productivity improvement techniques</p> |
| <p>Use productivity improvement tools<br/>SEIP-LEA-PIT-03-O</p>             | <p>Identify tools</p>                               | <p>Use tools</p>                                 |                                                     |
| <p>Perform work study<br/>SEIP-LEA-PIT-04-O</p>                             | <p>Define work study</p>                            | <p>Define method study</p>                       | <p>Carry out work measurement</p>                   |
|                                                                             | <p>Carry out line balancing</p>                     |                                                  |                                                     |
| <p>Perform optimisation<br/>SEIP-LEA-PIT-05-O</p>                           | <p>Identify industrial set-up and layout</p>        | <p>Carry out line balancing and optimisation</p> |                                                     |

## Units and Elements Table

### Generic – Compulsory (1 unit of competency required)

| Code               | Unit of Competency            | Elements of Competency                                                                                                                                                                                                                                                      | Duration (hours) |
|--------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| SEIP-LEA-PIT-01-G  | Operate in a team environment | <ol style="list-style-type: none"> <li>1. Identify team goals and work processes.</li> <li>2. Identify own role and responsibilities within team.</li> <li>3. Communicate and co-operate with team members.</li> <li>4. Perform problem solving within the team.</li> </ol> | 4                |
| <b>Total Hours</b> |                               |                                                                                                                                                                                                                                                                             | <b>4</b>         |

**Sector-specific – Compulsory (1 unit of competency required)**

| <b>Code</b>        | <b>Unit of Competency</b>                                            | <b>Elements of Competency</b>                                                                                                                                                                                         | <b>Duration (hours)</b> |
|--------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| SEIP-LEA-PIT-01-S  | Apply occupational health and safety (OHS) practice in the workplace | <ol style="list-style-type: none"><li>1. Identify OHS policies and procedures.</li><li>2. Apply personal health and safety practice.</li><li>3. Report hazards and risks.</li><li>4. Respond to emergencies</li></ol> | 4                       |
| <b>Total Hours</b> |                                                                      |                                                                                                                                                                                                                       | <b>4</b>                |

### Occupation-specific – Compulsory (5 units of competency required)

| Code               | Unit of Competency                             | Elements of Competency                                                                                                                                                                                              | Duration (hours) |
|--------------------|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| SEIP-LEA-PIT-01-O  | Apply knowledge of production and productivity | <ol style="list-style-type: none"> <li>1. Explain production and productivity.</li> <li>2. Identify types of productivity.</li> </ol>                                                                               | 8                |
| SEIP-LEA-PIT-02-O  | Identify productivity improvement techniques   | <ol style="list-style-type: none"> <li>1. Identify concept of productivity improvement.</li> <li>2. Explain work content and ineffective time.</li> <li>3. Identify productivity improvement techniques.</li> </ol> | 12               |
| SEIP-LEA-PIT-03-O  | Use productivity improvement tools             | <ol style="list-style-type: none"> <li>1. Identify tools.</li> <li>2. Use tools.</li> </ol>                                                                                                                         | 20               |
| SEIP-LEA-PIT-04-O  | Perform work study                             | <ol style="list-style-type: none"> <li>1. Define work study.</li> <li>2. Define method study.</li> <li>3. Carry out work measurement.</li> <li>4. Carry out line balancing.</li> </ol>                              | 20               |
| SEIP-LEA-PIT-05-O  | Perform optimisation                           | <ol style="list-style-type: none"> <li>1. Identify industrial set-up and layout.</li> <li>2. Carry out line balancing and process optimization.</li> </ol>                                                          | 12               |
| <b>Total Hours</b> |                                                |                                                                                                                                                                                                                     | <b>72</b>        |



## Generic Competencies

|                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit Title:</b>                                    | Operate in a team environment                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Unit Code:</b>                                     | SEIP-LEA-PIT-01-G                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Nominal Hours:</b>                                 | 4 hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Unit Descriptor:</b>                               | This unit covers the skills, knowledge and attitudes required to operate in a team environment. It specifically includes team goals and work processes, roles and responsibilities, team communication, and problem solving within the team.                                                                                                                                                                                                                                                            |
| <b>Elements of Competency</b>                         | <b>Performance Criteria</b><br>( <b><u>bold and underlined</u></b> terms are elaborated in the Range of Variables)                                                                                                                                                                                                                                                                                                                                                                                      |
| 1. Identify team goals and work processes             | <p>1.1. Roles and objectives of the team are identified and interpreted.</p> <p>1.2. Roles and responsibilities of team members are identified and interpreted.</p>                                                                                                                                                                                                                                                                                                                                     |
| 2. Identify own role and responsibilities within team | <p>2.1. Personal role and responsibilities are identified within the team environment.</p> <p>2.2. Reporting relationships are interpreted within team and external to team.</p>                                                                                                                                                                                                                                                                                                                        |
| 3. Communicate and co-operate with team members       | <p>3.1. Other teammates' tasks are identified and support provided when requested.</p> <p>3.2. The team is encouraged through <b><u>sharing information</u></b> or expertise, working together to solve problems, and putting team success first.</p> <p>3.3. Views and opinions of other team members are interpreted and respected.</p>                                                                                                                                                               |
| 4. Practice problem solving within the team           | <p>4.1. Problems faced at the individual and team level are identified and showed insight into the root causes of the problems.</p> <p>4.2. A range of solutions and courses of action are identified together with benefits, costs, and risks associated with each.</p> <p>4.3. The good ideas of others to help develop solutions are recognised and advice sought from those who have solved similar problems.</p> <p>4.4. It is looked beyond the obvious and not stopped at the first answers.</p> |

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

| Evidence Guide                                                                                                                                                 |                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. |                                                                                                                                                                                                                     |
| 1. Critical aspects of competency                                                                                                                              | Assessment must evidence that the candidate:<br>7.1. Identified own role and responsibility within team<br>7.2. Communicated and co-operated with team members<br>7.3. Demonstrated problem solving within the team |
| 2. Underpinning knowledge                                                                                                                                      | 7.1. Team goals and work processes<br>7.2. Roles and responsibilities<br>7.3. Finding problems and solving them                                                                                                     |
| 3. Underpinning skills                                                                                                                                         | 7.1. Identifying own role and responsibilities within team<br>7.2. Communicating and co-operating with team members<br>7.3. Demonstrating problem solving within the team                                           |
| 4. Underpinning attitudes                                                                                                                                      | 7.1. Active on teamwork<br>7.2. Prompt in carrying out activities<br>7.3. Tidy and punctual<br>7.4. Respectful of peers, subordinates and seniors in the workplace<br>7.5. Sincere and honest concerning duties     |
| 5. Resource implications                                                                                                                                       | The following resources must be provided:<br>7.1. Workplace (simulated or actual)<br>7.2. Projector<br>7.3. Stationary<br>7.4. Learning manual                                                                      |

### Evidence Guide

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

#### 6. Methods of assessment

Methods of assessment may include but is not limited to:

- 7.1. Written test
- 7.2. Oral test
- 7.3. Observation
- 7.4. Demonstration
- 7.5. Portfolio

#### 7. Context of assessment

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

### Accreditation Requirements

Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the National Quality Assurance Body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any NTVQF qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.

## Sector-specific Competencies

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

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

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

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

## Evidence Guide

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

|                                  |                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>4. Underpinning attitudes</b> | <b>4.1.</b> Committed to occupational health and safety practices<br><b>4.2.</b> Communicates well with peers, subordinates and seniors in workplace<br><b>4.3.</b> Prompt in carrying out activities<br><b>4.4.</b> Tidy and punctual<br><b>4.5.</b> Sincere and honest concerning duties<br><b>4.6.</b> Responsible during emergencies   |
| <b>5. Resource implications</b>  | The following resources must be provided:<br><b>5.1.</b> Workplace (simulated or actual)<br><b>5.2.</b> Personal protective equipment (PPE)<br><b>5.3.</b> Firefighting equipment<br><b>5.4.</b> Emergency response manual<br><b>5.5.</b> First aid kits<br><b>5.6.</b> Projector<br><b>5.7.</b> Stationary<br><b>5.8.</b> Learning manual |
| <b>6. Methods of assessment</b>  | Methods of assessment may include but is not limited to:<br><b>6.1.</b> Written test<br><b>6.2.</b> Demonstration<br><b>6.3.</b> Oral test<br><b>6.4.</b> Observation<br><b>6.5.</b> Portfolio                                                                                                                                             |
| <b>7. Context of assessment</b>  | <b>7.1.</b> Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency.<br><b>7.2.</b> Assessment must be done by a suitably qualified/certified assessor.                                                                                                 |

### Accreditation Requirements

Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the National Quality Assurance Body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any NTVQF qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.

## Occupation-specific Competencies

|                                        |                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit Title:</b>                     | Apply knowledge of production and productivity                                                                                                                                                                                                                                                                                       |
| <b>Unit Code:</b>                      | SEIP-LEA-PIT-01-O                                                                                                                                                                                                                                                                                                                    |
| <b>Nominal Hours:</b>                  | 8 hours                                                                                                                                                                                                                                                                                                                              |
| <b>Unit Descriptor:</b>                | This unit covers the skills, knowledge and attitudes required to apply knowledge of production and productivity. It specifically includes explaining production and productivity, and identifying types of productivity.                                                                                                             |
| <b>Elements of Competency</b>          | <b>Performance Criteria</b><br>( <b><u>bold and underlined</u></b> terms are elaborated in the Range of Variables)                                                                                                                                                                                                                   |
| 1. Explain production and productivity | <p>1.1. Principle concept of production and productivity is explained.</p> <p>1.2. Difference between production and productivity is identified.</p> <p>1.3. Importance of productivity improvement is identified and described.</p> <p>1.4. <b><u>Key steps</u></b> toward improving productivity are identified and described.</p> |
| 2. Identify types of productivity      | <p>2.1. <b><u>Types of productivity</u></b> are identified.</p> <p>2.2. Total productivity is described.</p> <p>2.3. Partial productivity (or factor productivity) is described.</p>                                                                                                                                                 |

| Range of Variables       |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Variable                 | Range<br>( <i>may include but not limited to</i> )                                                                                                                                                                                                                                                                                                                                                                                                         |
| 1. Key steps             | <p>1.1. Develop productivity improvement measures for all operations</p> <p>1.2. Look at system as whole as to which operations most critical</p> <p>1.3. Develop methods for achieving improved productivity</p> <p>1.4. Establish reasonable goals for improvement.</p> <p>1.5. Consider incentives to reward workers for contributions.</p> <p>1.6. Measure improvements and publicise them</p> <p>1.7. Do not confuse productivity with efficiency</p> |
| 2. Types of productivity | <p>2.1. Total productivity</p> <p>2.2. Partial productivity (or factor productivity):</p> <p>    2.2.1. Labour</p> <p>    2.2.2. Material</p> <p>    2.2.3. Machine</p> <p>    2.2.4. Capital</p>                                                                                                                                                                                                                                                          |

## Evidence Guide

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

|                                          |                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. Critical aspects of competency</b> | Assessment must evidence that the candidate:<br><b>1.1.</b> Explained principle concept of production and productivity<br><b>1.2.</b> Identified key steps in improving productivity<br><b>1.3.</b> Identified types of productivity<br><b>1.4.</b> Described the types of productivity                                                             |
| <b>2. Underpinning knowledge</b>         | <b>2.1.</b> Principle concept of production and productivity<br><b>2.2.</b> Importance of productivity improvement<br><b>2.3.</b> Key steps toward improving productivity<br><b>3.1.</b> Types of productivity                                                                                                                                      |
| <b>3. Underpinning skills</b>            | <b>3.2.</b> Explaining principle concept of production and productivity<br><b>3.3.</b> Differentiating production and productivity<br><b>3.4.</b> Identifying key steps towards improving productivity<br><b>3.5.</b> Identifying and describing types of productivity                                                                              |
| <b>4. Underpinning attitudes</b>         | <b>4.1.</b> Tidy and punctual<br><b>4.2.</b> Prompt in carrying out activities<br><b>4.3.</b> Sincere and honest concerning duties<br><b>4.4.</b> Active on teamwork<br><b>4.5.</b> Eager to learn<br><b>4.6.</b> Respectful of peers, subordinates and seniors in the workplace<br><b>4.7.</b> Communicate with peers and seniors in the workplace |
| <b>5. Resource implications</b>          | The following resources must be provided:<br><b>5.1.</b> Workplace (simulated or actual)<br><b>5.2.</b> Computer/laptop/notebook<br><b>5.3.</b> Internet<br><b>5.4.</b> Projector<br><b>5.5.</b> Stationary<br><b>5.6.</b> Learning manual                                                                                                          |
| <b>6. Methods of assessment</b>          | Methods of assessment may include but is not limited to:<br><b>6.1.</b> Written test<br><b>6.2.</b> Oral test<br><b>6.3.</b> Observation<br><b>6.4.</b> Demonstration<br><b>6.5.</b> Portfolio                                                                                                                                                      |



### **Evidence Guide**

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

#### **7. Context of assessment**

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

### **Accreditation Requirements**

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|                                                 |                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit Title:</b>                              | Identify productivity improvement techniques                                                                                                                                                                                                                                                |
| <b>Unit Code:</b>                               | SEIP-LEA-PIT-02-O                                                                                                                                                                                                                                                                           |
| <b>Nominal Hours:</b>                           | 12 hours                                                                                                                                                                                                                                                                                    |
| <b>Unit Descriptor:</b>                         | This unit covers the skills, knowledge and attitudes required to Identify productivity improvement techniques. It specifically includes identifying concept of productivity improvement, explaining work content and ineffective time, and identifying productivity improvement techniques. |
| <b>Elements of Competency</b>                   | <b>Performance Criteria</b><br>( <b><u>bold and underlined</u></b> terms are elaborated in the Range of Variables)                                                                                                                                                                          |
| 1. Identify concept of productivity improvement | 1.1. Concept of productivity improvement is identified and explained.<br>1.2. <b><u>Five ways to improve productivity</u></b> are identified.                                                                                                                                               |
| 2. Explain work content and ineffective time    | 2.1. Work content and ineffective time usage is explained.<br>2.2. <b><u>Added work content</u></b> is identified and reduced.<br>2.3. Ineffective time usage is identified to improve productivity.                                                                                        |
| 3. Identify productivity improvement techniques | 3.1. <b><u>Productivity improvement techniques</u></b> are identified.<br>3.2. Productivity improvement techniques are defined.                                                                                                                                                             |

| <b>Range of Variables</b>              |                                                                                                                                                                                                                                          |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Variable</b>                        | <b>Range</b><br>( <i>may include but not limited to</i> )                                                                                                                                                                                |
| 1. Five ways to improve productivity   | 1.1. Increase input but get greater output increase<br>1.2. Maintain input but increase output<br>1.3. Decrease input with smaller output decrease<br>1.4. Decrease input but maintain output<br>1.5. Decrease input but increase output |
| 2. Added work content                  | 2.1. Due to inefficient method<br>2.2. Due to wrong machine used<br>2.3. Due to wrong tools used<br>2.4. Due to poor layout<br>2.5. Due to human fatigue                                                                                 |
| 3. Productivity improvement techniques | 3.1. Technology<br>3.2. Employee<br>3.3. Product<br>3.4. Task<br>3.5. Material                                                                                                                                                           |

## Evidence Guide

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

|                                          |                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. Critical aspects of competency</b> | Assessment must evidence that the candidate:<br><b>1.1.</b> Explained concept of productivity improvement<br><b>1.2.</b> Identified five ways to improve productivity<br><b>1.3.</b> Identified and reduced added work content<br><b>1.4.</b> Identified ineffective time to improve productivity<br><b>1.5.</b> Identified productivity improvement techniques |
| <b>2. Underpinning knowledge</b>         | <b>2.1.</b> Productivity improvement<br><b>2.2.</b> Work content<br><b>2.3.</b> Ineffective time usage<br><b>2.4.</b> Productivity improvement techniques                                                                                                                                                                                                       |
| <b>3. Underpinning skills</b>            | <b>3.1.</b> Explaining productivity improvement<br><b>3.2.</b> Identifying five ways to improve productivity<br><b>3.3.</b> Identifying added work content to improve<br><b>3.4.</b> Identifying ineffective time to improve productivity<br><b>3.5.</b> Interpreting productivity improvement techniques                                                       |
| <b>4. Underpinning attitudes</b>         | <b>4.1.</b> Tidy and punctual<br><b>4.2.</b> Prompt in carrying out activities<br><b>4.3.</b> Sincere and honest concerning duties<br><b>4.4.</b> Active on teamwork<br><b>4.5.</b> Eager to learn<br><b>4.6.</b> Respectful of peers, subordinates and seniors in the workplace<br><b>4.7.</b> Communicate with peers and seniors in the workplace             |
| <b>5. Resource implications</b>          | The following resources must be provided:<br><b>5.1.</b> Workplace (simulated or actual)<br><b>5.2.</b> Computer/laptop/notebook<br><b>5.3.</b> Internet<br><b>5.4.</b> Projector<br><b>5.5.</b> Stationary<br><b>5.6.</b> Learning manual                                                                                                                      |
| <b>6. Methods of assessment</b>          | Methods of assessment may include but is not limited to:<br><b>6.1.</b> Written test<br><b>6.2.</b> Oral test<br><b>6.3.</b> Observation<br><b>6.4.</b> Demonstration<br><b>6.5.</b> Portfolio                                                                                                                                                                  |

### **Evidence Guide**

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

#### **7. Context of assessment**

**7.1.** Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency.

**7.2.** Assessment must be done by a suitably qualified/certified assessor.

### **Accreditation Requirements**

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|                               |                                                                                                                                                                                                                         |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit Title:</b>            | Use productivity improvement tools                                                                                                                                                                                      |
| <b>Unit Code:</b>             | SEIP-LEA-PIT-03-O                                                                                                                                                                                                       |
| <b>Nominal Hours:</b>         | 20 hours                                                                                                                                                                                                                |
| <b>Unit Descriptor:</b>       | This unit covers the skills, knowledge and attitudes required to use productivity improvement tools. It specifically includes identifying productivity improvement tools, and using tools for productivity improvement. |
| <b>Elements of Competency</b> | <b>Performance Criteria</b><br>( <b><u>bold and underlined</u></b> terms are elaborated in the Range of Variables)                                                                                                      |
| 1. Identify tools             | 1.1. <b><u>Productivity improvement tools</u></b> are identified.<br>1.2. Role of tools in productivity improvement is described.                                                                                       |
| 2. Use tools                  | 2.1. Appropriate tools are selected for productivity improvement<br>2.2. Selected tools are used to improve productivity.                                                                                               |

| <b>Range of Variables</b>         |                                                                                                                                                                                                                                                                     |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Variable</b>                   | <b>Range</b><br>( <i>may include but not limited to</i> )                                                                                                                                                                                                           |
| 1. Productivity improvement tools | 1.1. Pareto analysis<br>1.2. Ishikawa or Fish Bone diagram (cause and effect diagram)<br>1.3. Histograms<br>1.4. Scatter diagrams<br>1.5. Control charts<br>1.6. KAIZEN & 5S<br>1.7. Flowchart<br>1.8. Check sheets or Tally table<br>1.9. Toyota Production System |

| <b>Evidence Guide</b>                                                                                                                                          |                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. |                                                                                                                                                                                                                                                                   |
| 1. Critical aspects of competency                                                                                                                              | Assessment must evidence that the candidate:<br>1.1. Identified productivity improvement tools<br>1.2. Described productivity improvement tools<br>1.3. Explained role of tools in improving productivity<br>1.4. Selected and used tools to improve productivity |
| 2. Underpinning knowledge                                                                                                                                      | 2.1. Productivity improvement tools<br>2.2. Use of productivity improvement tools                                                                                                                                                                                 |

**Evidence Guide**

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

|                                  |                                                                                                                                                                                                                                                                                                                 |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>3. Underpinning skills</p>    | <p>3.1. Identifying productivity improvement tools<br/>3.2. Describing role of tools in productivity improvement<br/>3.3. Selecting productivity improvement tools<br/>3.4. Using productivity improvement tools</p>                                                                                            |
| <p>4. Underpinning attitudes</p> | <p>4.1. Tidy and punctual<br/>4.2. Prompt in carrying out activities<br/>4.3. Sincere and honest concerning duties<br/>4.4. Active on teamwork<br/>4.5. Eager to learn<br/>4.6. Respectful of peers, subordinates and seniors in the workplace<br/>4.7. Communicate with peers and seniors in the workplace</p> |
| <p>5. Resource implications</p>  | <p>The following resources must be provided:<br/>5.1. Workplace (simulated or actual)<br/>5.2. Computer/laptop/notebook<br/>5.3. Internet<br/>5.4. Projector<br/>5.5. Stationary<br/>5.6. Learning manual</p>                                                                                                   |
| <p>6. Methods of assessment</p>  | <p>Methods of assessment may include but is not limited to:<br/>6.1. Written test<br/>6.2. Oral test<br/>6.3. Observation<br/>6.4. Demonstration<br/>6.5. Portfolio</p>                                                                                                                                         |
| <p>7. Context of assessment</p>  | <p>7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency.<br/>7.2. Assessment must be done by a suitably qualified/certified assessor.</p>                                                                            |

**Accreditation Requirements**

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|                               |                                                                                                                                                                                                                                                                                                   |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit Title:</b>            | Perform work study                                                                                                                                                                                                                                                                                |
| <b>Unit Code:</b>             | SEIP-LEA-PIT-04-O                                                                                                                                                                                                                                                                                 |
| <b>Nominal Hours:</b>         | 20 hours                                                                                                                                                                                                                                                                                          |
| <b>Unit Descriptor:</b>       | This unit covers the skills, knowledge and attitudes required to interpret work study. It specifically includes defining work study, defining method study, carrying out work measurement, and carrying out line balancing.                                                                       |
| <b>Elements of Competency</b> | <b>Performance Criteria</b><br>( <b><u>bold and underlined</u></b> terms are elaborated in the Range of Variables)                                                                                                                                                                                |
| 1. Define work study          | 1.1. Work study is defined.<br>1.2. Importance of work study is explained.<br>1.3. <b><u>Basic procedure</u></b> of work study is identified and described.                                                                                                                                       |
| 2. Define method study        | 2.1. Method study is defined.<br>2.2. <b><u>Method study process</u></b> is identified and explained.<br>2.3. Primary and secondary questioning techniques are identified.                                                                                                                        |
| 3. Carry out work measurement | 3.1. Purpose of work measurement is explained.<br>3.2. <b><u>Work measurement techniques</u></b> are identified.<br>3.3. <b><u>Work measurement procedure</u></b> is identified and implemented to assess effectiveness.<br>3.4. Employee ratings and allowances for work content are identified. |
| 4. Carry out line balancing   | 4.1. Advantage of line balancing is explained.<br>4.2. Line balancing is carried out for productivity improvement.                                                                                                                                                                                |

| <b>Range of Variables</b> |                                                                                                                            |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>Variable</b>           | <b>Range</b><br>( <i>may include but not limited to</i> )                                                                  |
| 1. Basic procedure        | 1.1. Select<br>1.2. Record<br>1.3. Examine<br>1.4. Develop<br>1.5. Measure<br>1.6. Define<br>1.7. Install<br>1.8. Maintain |

| Range of Variables             |                                                                                                             |
|--------------------------------|-------------------------------------------------------------------------------------------------------------|
| Variable                       | Range<br>(may include but not limited to)                                                                   |
| 2. Method study process        | 2.1. Select<br>2.2. Record<br>2.3. Examine<br>2.4. Develop<br>2.5. Define<br>2.6. Install<br>2.7. Maintain  |
| 3. Work measurement techniques | 3.1. Work sampling<br>3.2. Stop-watch time<br>3.3. Predetermined time standards (PTS)<br>3.4. Standard rate |
| 4. Work measurement procedure  | 4.1. Select<br>4.2. Record<br>4.3. Examine<br>4.4. Measure<br>4.5. Compile<br>4.6. Define                   |

| Evidence Guide                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1. Critical aspects of competency                                                                                                                              | Assessment must evidence that the candidate: <ol style="list-style-type: none"> <li>1.1. Defined work study</li> <li>1.2. Identified and describe basic procedure of work study</li> <li>1.3. Defined method study</li> <li>1.4. Identified and explained method study process</li> <li>1.5. Identified work measurement techniques</li> <li>1.6. Identified and implemented work measurement procedure</li> <li>1.7. Carried out line balancing for productivity improvement</li> </ol> |
| 2. Underpinning knowledge                                                                                                                                      | <ol style="list-style-type: none"> <li>2.1. Work study</li> <li>2.2. Work study procedure</li> <li>2.3. Method study</li> <li>2.4. Method study process</li> <li>2.5. Work measurement techniques</li> <li>2.6. Work measurement procedure</li> <li>2.7. Line balancing</li> <li>2.8. Employee ratings and allowances</li> </ol>                                                                                                                                                         |



### Evidence Guide

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

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. Underpinning skills    | <ul style="list-style-type: none"><li>3.1. Defining work study and work study procedure</li><li>3.2. Defining method study and method study process</li><li>3.3. Identifying primary and secondary questioning techniques</li><li>3.4. Identifying work measurement techniques</li><li>3.5. Identifying and implementing work measurement procedure</li><li>3.6. Carrying out line balancing for productivity improvement</li></ul> |
| 4. Underpinning attitudes | <ul style="list-style-type: none"><li>4.1. Tidy and punctual</li><li>4.2. Prompt in carrying out activities</li><li>4.3. Sincere and honest concerning duties</li><li>4.4. Active on teamwork</li><li>4.5. Eager to learn</li><li>4.6. Respectful of peers, subordinates and seniors in the workplace</li><li>4.7. Communicate with peers and seniors in the workplace</li></ul>                                                    |
| 5. Resource implications  | <p>The following resources must be provided:</p> <ul style="list-style-type: none"><li>5.1. Workplace (simulated or actual)</li><li>5.2. Computer/laptop/notebook</li><li>5.3. Internet</li><li>5.4. Projector</li><li>5.5. Stationary</li><li>5.6. Learning manual</li></ul>                                                                                                                                                       |
| 6. Methods of assessment  | <p>Methods of assessment may include but is not limited to:</p> <ul style="list-style-type: none"><li>6.1. Written test</li><li>6.2. Oral test</li><li>6.3. Observation</li><li>6.4. Demonstration</li><li>6.5. Portfolio</li></ul>                                                                                                                                                                                                 |
| 7. Context of assessment  | <ul style="list-style-type: none"><li>7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency.</li><li>7.2. Assessment must be done by a suitably qualified/certified assessor.</li></ul>                                                                                                                                                   |

### Accreditation Requirements

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|                                              |                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit Title:</b>                           | Perform optimisation                                                                                                                                                                                                                                                                                                                                                |
| <b>Unit Code:</b>                            | SEIP-LEA-PIT-05-O                                                                                                                                                                                                                                                                                                                                                   |
| <b>Nominal Hours:</b>                        | 12 hours                                                                                                                                                                                                                                                                                                                                                            |
| <b>Unit Descriptor:</b>                      | This unit covers the skills, knowledge and attitudes required to perform optimisation. It specifically includes identifying industrial set-up and layout, and carrying out line balancing and optimisation.                                                                                                                                                         |
| <b>Elements of Competency</b>                | <b>Performance Criteria</b><br>( <b><u>bold and underlined</u></b> terms are elaborated in the Range of Variables)                                                                                                                                                                                                                                                  |
| 1. Identify industrial set-up and layout     | <p>1.1. Industrial set-up and layout is identified as per plant design.</p> <p>1.2. <b><u>Line layout</u></b> is identified and interpreted as per product style.</p> <p>1.3. Line <b><u>layout types</u></b> are identified and selected as per job requirement.</p> <p>1.4. Required layout is applied to workplace.</p>                                          |
| 2. Carry out line balancing and optimisation | <p>2.1. <b><u>Bottleneck process</u></b> is identified and described.</p> <p>2.2. <b><u>Line balancing techniques</u></b> are identified.</p> <p>2.3. <b><u>Line balancing tools</u></b> are identified as per line layout.</p> <p>2.4. Work content and workstation capacity is measured.</p> <p>2.5. Line balancing is carried out for improved productivity.</p> |

| <b>Range of Variables</b> |                                                                                                                                                                               |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Variable</b>           | <b>Range</b><br>( <i>may include but not limited to</i> )                                                                                                                     |
| 1. Line layout            | <p>1.1. Operation breakdown</p> <p>1.2. Machinery selection</p> <p>1.3. Operator selection</p> <p>1.4. Standard minute value (SMV)</p> <p>1.5. Line balancing information</p> |
| 2. Layout types           | <p>2.1. Straight</p> <p>2.2. Side-by-side</p> <p>2.3. U-shape</p> <p>2.4. Modular</p> <p>2.5. Progressive bundle system (PBS)</p> <p>2.6. Unit production system (UPS)</p>    |

| Range of Variables           |                                                                                                                                                                                                                                                  |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Variable                     | Range<br>( <i>may include but not limited to</i> )                                                                                                                                                                                               |
| 3. Bottleneck process        | 3.1. Process SMV<br>3.2. Capacity<br>3.3. Capacity utilisation<br>3.4. Idle time<br>3.5. Set-up time<br>3.6. Work-in-progress<br>3.7. Direct labour content<br>3.8. Direct labour utilisation<br>3.9. Hourly production<br>3.10. Material supply |
| 4. Line balancing techniques | 4.1. Task splitting<br>4.2. Task sharing<br>4.3. Parallel workstation<br>4.4. Improving material supply<br>4.5. Motivation                                                                                                                       |
| 5. Line balancing tools      | 5.1. Production sheets<br>5.2. Daily production report<br>5.3. Inventory levels (by operation)<br>5.4. Stopwatch<br>5.5. Calculator                                                                                                              |

| Evidence Guide                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 1. Critical aspects of competency                                                                                                                              | Assessment must evidence that the candidate: <ol style="list-style-type: none"> <li>1.1. Identified industrial set-up and layout</li> <li>1.2. Identified line layout and layout types</li> <li>1.3. Applied layout to workplace</li> <li>1.4. Identified bottleneck process</li> <li>1.5. Identified line balancing techniques and tools</li> <li>1.6. Measured work content and workstation capacity</li> <li>1.7. Carried out line balancing</li> </ol> |
| 2. Underpinning knowledge                                                                                                                                      | <ol style="list-style-type: none"> <li>2.1. Industrial set-up and layout</li> <li>2.2. Layout types</li> <li>2.3. Bottleneck process</li> <li>2.4. Line balancing techniques</li> <li>2.5. Line balancing tools</li> </ol>                                                                                                                                                                                                                                 |

## Evidence Guide

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

|                           |                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. Underpinning skills    | <ul style="list-style-type: none"><li>3.1. Identifying industrial set-up and layout</li><li>3.2. Identifying line layout and layout types</li><li>3.3. Applying layout to workplace</li><li>3.4. Identifying bottleneck process</li><li>3.5. Identifying line balancing techniques and tools</li><li>3.6. Carrying out line balancing to improve productivity</li></ul>          |
| 4. Underpinning attitudes | <ul style="list-style-type: none"><li>4.1. Tidy and punctual</li><li>4.2. Prompt in carrying out activities</li><li>4.3. Sincere and honest concerning duties</li><li>4.4. Active on teamwork</li><li>4.5. Eager to learn</li><li>4.6. Respectful of peers, subordinates and seniors in the workplace</li><li>4.7. Communicate with peers and seniors in the workplace</li></ul> |
| 5. Resource implications  | <p>The following resources must be provided:</p> <ul style="list-style-type: none"><li>5.1. Workplace (simulated or actual)</li><li>5.2. Computer/laptop/notebook</li><li>5.3. Internet</li><li>5.4. Projector</li><li>5.5. Stationary</li><li>5.6. Learning manual</li></ul>                                                                                                    |
| 6. Methods of assessment  | <p>Methods of assessment may include but is not limited to:</p> <ul style="list-style-type: none"><li>6.1. Written test</li><li>6.2. Oral test</li><li>6.3. Observation</li><li>6.4. Demonstration</li><li>6.5. Portfolio</li></ul>                                                                                                                                              |
| 7. Context of assessment  | <ul style="list-style-type: none"><li>7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency.</li><li>7.2. Assessment must be done by a suitably qualified/certified assessor.</li></ul>                                                                                                |

## Accreditation Requirements

Training Providers must be accredited by Bangladesh Technical Education Board (BTEB), the National Quality Assurance Body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of any NTVQF qualification. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by BTEB.