



Skills for Employment Investment Program (SEIP)

COMPETENCY STANDARD

FOR

CAD FOR TEXTILES

(TEXTILE SECTOR)

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

Table of Contents

| | |
|--|-----------|
| Copyright | 3 |
| List of Abbreviations | 4 |
| Introduction | 5 |
| Overview | 6 |
| Approval Sheet | 7 |
| Course Structure | 10 |
| Competency Chart | 11 |
| Units and Elements Table | 14 |
| The Generic Units | 17 |
| Use basic mathematical concepts | 17 |
| Apply occupational health and safety (OHS) practice in the workplace | 20 |
| Carry out workplace interaction | 23 |
| Operate in a team environment | 26 |
| Apply basic IT skills | 29 |
| The Sector-specific Units | 32 |
| Explore the history of textile sector | 32 |
| Read and interpret sketches and drawings | 35 |
| The Occupation-specific Units | 38 |
| Apply basic knowledge of woven structure | 38 |
| Understand fundamentals of CAD operation | 41 |
| Perform CAD installation and operation | 44 |
| Operate software for dobby | 47 |
| Operate software for drape | 50 |
| Operate software for painting of jacquard design | 53 |

Copyright

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

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List of Abbreviations

| General | |
|----------------------------|--|
| BMET | Bureau of Manpower Employment and Training |
| B-SEP | Bangladesh Skills for Employment and Productivity |
| BTEB | Bangladesh Technical Education Board |
| DTE | Directorate of Technical Education |
| ILO | International Labor Organization |
| ISC | Industry Skills Council |
| NPVC | National Pre-Vocation Certificate |
| NTVQF | National Technical and Vocational Qualifications Framework |
| PPP | Public Private Partnership |
| SCDC | Standards and Curriculum Development Committee |
| SEIP | Skills for Employment Investment Program |
| TVET | Technical Vocational Education and Training |
| UoC | Unit of Competency |
| Occupation Specific | |
| CAD | Computer aided design |
| CAM | Computer aided manufacturing |
| CPU | Central processing unit |
| EPI | Ends per inch |
| OHS | Occupational health and safety |
| PPE | Personal protective equipment |
| PPI | Picks per inch |
| SOP | Standard operating procedure |
| TPI | Twist per inch |

Introduction

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

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

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

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

Overview

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

The purpose of a competency standards is to:

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

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

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

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

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

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

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

Together, all the parts of a unit of competency:

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

Approval Sheet

Identification and validation of units of competency and elements for this occupation were made by experts within this sector. A series of meetings were held to accurately capture industry and employer needs and expectations, and develop the competency framework that would help to enhance the employability of the youth trained. This process started on 25 July 2018 and concluded with a validation workshop with working group on 3 October 2018.

Experts Involved

Industry and subject-matter experts who provided their valuable inputs to develop this competency standard (July - October 2018).

| Name | Organisation | Designation |
|--------------------------------|------------------------------|--|
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| David King | British Council - SD03 | Team Leader |
| Shilpi Akter | British Council - SD03 | National Subject Matter Consultant - Textile |

Validation Workshop

Competency standard validation workshop participants [held on 3 October 2018]:

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| Mr. Abu Rayhan Albeeroone | BTMA-SEIP | Chief Coordinator |

| Name | Organisation | Designation |
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| David King | British Council - SD03 | Team Leader |
| Shilpi Akter | British Council - SD03 | National Subject Matter Consultant - Textile |

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

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

Course Structure

| SL | Unit Code and Title | | Level | Nominal Duration (Hours) |
|---|---------------------|---|-------|--------------------------|
| Generic Competencies | | | | |
| 1 | SEIP-TEX-CAD-01-G | Use basic mathematical concepts | | 8 |
| 2 | SEIP-TEX-CAD-02-G | Apply occupational health and safety (OHS) practice in the work place | | 8 |
| 3 | SEIP-TEX-CAD-03-G | Carry out workplace interaction | | 8 |
| 4 | SEIP-TEX-CAD-04-G | Operate in a team environment | | 8 |
| 5 | SEIP-TEX-CAD-05-G | Apply basic IT skills | | 8 |
| Sub-Total | | | | 40 |
| Sector-specific Competencies | | | | |
| 1 | SEIP-TEX-CAD-01-S | Explore the history of Textile Sector | | 8 |
| 2 | SEIP-TEX-CAD-02-S | Read and interpret sketches and drawings | | 8 |
| Sub-Total | | | | 16 |
| Occupation-specific Competencies | | | | |
| 1 | SEIP-TEX-CAD-01-O | Apply basic knowledge of woven structure | | 24 |
| 2 | SEIP-TEX-CAD-02-O | Understand fundamentals of CAD operation | | 24 |
| 3 | SEIP-TEX-CAD-03-O | Perform CAD installation and operation | | 8 |
| 4 | SEIP-TEX-CAD-04-O | Operate software for doobby | | 96 |
| 5 | SEIP-TEX-CAD-05-O | Operate software for drape | | 56 |
| 6 | SEIP-TEX-CAD-06-O | Operate software for painting of jacquard design | | 96 |
| Sub-Total | | | | 304 |
| Total Nominal Learning Hours | | | | 360 |

Competency Chart

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

Generic Specific (Basic) Competencies

| | | | |
|---|--|--|---|
| Use basic mathematical concepts SEIP-TEX-CAD-01-G | Identify calculation requirements in the workplace | Select appropriate mathematical methods/concepts for the calculation | Use tools and instruments to perform calculations |
| Apply occupational health and safety (OHS) practice in the workplace SEIP-TEX-CAD-02-G | Identify OHS policies and procedures | Apply personal health and safety practices | Report hazards and risks |
| Carry out workplace interaction SEIP-TEX-CAD-03-G | Interpret workplace communication and etiquette | Read and understand workplace documents | Participate in workplace meetings and discussions |
| Operate in a team environment SEIP-TEX-CAD-04-G | Identify team goals and work processes | Identify own role and responsibilities within team | Communicate and co-operate with team members |
| Apply basic IT skills SEIP-TEX-CAD-05-G | Identify and use most commonly used IT tools | Understand use of computer | Work with word processing application |
| | Access email and search the internet | | |

Sector-specific (Common) Competencies

| | | | |
|---|--|--|--|
| <p>Explore the history of Textile Sector SEIP-TEX-CAD-01-S</p> | <p>Identify the background of textile sector</p> | <p>Identify main industries with in textile sector</p> | <p>Identify materials and machines used in weaving</p> |
| | <p>Identify prime local and export markets</p> | | |
| <p>Read and interpret sketches and drawings SEIP-TEX-CAD-02-S</p> | <p>Identify information and specifications</p> | <p>Interpret sketches and drawings</p> | |

Occupation-specific (Core) Competencies

| | | | |
|---|--|---|-----------------------------------|
| Apply basic knowledge of woven design SEIP-TEX-CAD-01-O | Identify basic elements of woven structure | Identify systems of drafting | Identify types of shedding |
| | Interpret technical terms | | |
| Understand fundamentals of CAD operation SEIP-TEX-CAD-02-O | Identify requirements of CAD | Identify job responsibilities of CAD operator | Interpret technical terms |
| Perform CAD installation and operation SEIP-TEX-CAD-03-O | Identify hardware and software for CAD | Install CAD software | |
| Operate software for dobby SEIP-TEX-CAD-04-O | Develop weave structure | Identify warp and weft parameters | Perform weave design simulation |
| Operate software for drape SEIP-TEX-CAD-05-O | Create models for weave design | Perform model texturing | Save model |
| Operate software for painting of jacquard design SEIP-TEX-CAD-06-O | Prepare image | Convert image into weave | Identify warp and weft parameters |
| | Perform weave design simulation | | |

Units and Elements Table

Generic – Compulsory

| Code | Unit of Competency | Elements of Competency | Duration (hours) |
|--------------------|--|--|------------------|
| SEIP-TEX-CAD-01-G | Use basic mathematical concepts | <ol style="list-style-type: none"> 1. Identify calculation requirements in the workplace. 2. Select appropriate mathematical methods/concepts for the calculation. 3. Use tools and instruments to perform calculation. | 8 |
| SEIP-TEX-CAD-02-G | Apply occupational health and safety (OHS) practice in the workplace | <ol style="list-style-type: none"> 1. Identify OHS policies and procedures. 2. Apply personal health and safety practices. 3. Report hazards and risks. 4. Respond to emergencies. | 8 |
| SEIP-TEX-CAD-03-G | Carry out workplace interaction | <ol style="list-style-type: none"> 1. Interpret workplace communication and etiquette. 2. Read and understand workplace documents. 3. Participate in workplace meetings and discussions. 4. Practice professional ethics at work. | 8 |
| SEIP-TEX-CAD-04-G | Operate in a team environment | <ol style="list-style-type: none"> 1. Identify team goals and work processes. 2. Identify own role and responsibilities within team. 3. Communicate and co-operate with team members. 4. Practice problem solving within the team. | 8 |
| SEIP-TEX-CAD-05-G | Apply basic IT skills | <ol style="list-style-type: none"> 1. Identify and use most commonly used IT tools. 2. Understand use of computer. 3. Work with word processing application. 4. Access email and search the internet. | 8 |
| Total Hours | | | 40 |

Sector-specific – Compulsory

| Code | Unit of Competency | Elements of Competency | Duration (hours) |
|--------------------|--|---|------------------|
| SEIP-TEX-CAD-01-S | Describe the basic concept of Textile Sector | <ol style="list-style-type: none"> 1. Identify the background of textile sector. 2. Identify main industries within textile sector. 3. Identify materials and machines used in weaving. 4. Identify prime local and export markets. | 8 |
| SEIP-TEX-CAD-02-S | Read and interpret sketches and drawings | <ol style="list-style-type: none"> 1. Interpret information and specifications. 2. Read and interpret sketches and drawings. | 8 |
| Total Hours | | | 16 |

Occupation-specific – Compulsory

| Code | Unit of Competency | Elements of Competency | Duration (hours) |
|--------------------|--|---|------------------|
| SEIP-TEX-CAD-01-O | Apply basic knowledge of woven design | <ol style="list-style-type: none"> 1. Identify basic elements of woven structure. 2. Identify systems of drafting. 3. Identify types of shedding. 4. Interpret technical terms. | 24 |
| SEIP-TEX-CAD-02-O | Understand fundamentals of CAD operation | <ol style="list-style-type: none"> 1. Identify requirements of CAD. 2. Identify job responsibilities of CAD operator. 3. Interpret technical terms. | 24 |
| SEIP-TEX-CAD-03-O | Perform CAD installation and operation | <ol style="list-style-type: none"> 1. Identify hardware and software for CAD. 2. Install CAD software. | 8 |
| SEIP-TEX-CAD-04-O | Operate software for dobby | <ol style="list-style-type: none"> 1. Develop weave structure. 2. Identify warp and weft parameters. 3. Perform weave design simulation. | 96 |
| SEIP-TEX-CAD-05-O | Operate software for drape | <ol style="list-style-type: none"> 1. Create models for weave design. 2. Perform model texturing. 3. Save model. | 56 |
| SEIP-TEX-CAD-06-O | Operate software for painting of jacquard design | <ol style="list-style-type: none"> 1. Prepare image. 2. Convert image into weave. 3. Identify warp and weft parameters. 4. Perform weave design simulation. | 96 |
| Total Hours | | | 304 |

Generic Competencies

| | |
|--|---|
| Unit Title: | Use basic mathematical concepts |
| Unit Code: | SEIP-TEX-CAD-01-G |
| Nominal Hours: | 8 hours |
| Unit Descriptor: | This unit covers the skills, knowledge and attitudes required to perform computations using basic mathematical concepts at workplace. It specifically includes identifying general calculation requirements, selecting appropriate mathematical method/concept, and forming and solving mathematical problems in the workplace using appropriate tools and instruments. |
| Elements of Competency | Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables) |
| 1. Identify calculation requirements in the workplace | 1.1. <u>Calculation requirements</u> are identified from <u>workplace information</u> . 1.2. Mathematical problems are constructed from workplace information. |
| 2. Select appropriate mathematical methods/concepts for the calculation. | 2.1. <u>Appropriate method</u> is selected to carry-out calculation requirements. 2.2. Constructed mathematical problems are solved with appropriate method. |
| 3. Use tools and instruments to perform calculations | 2.1. Tools and instruments required for computation are identified. 2.2. Calculation is performed using appropriate tools and instruments accurately. |

| Range of Variables | |
|------------------------------|---|
| Variable | Range (<i>may include but not limited to</i>) |
| 1. Calculations requirements | 1.1. Unit 1.2. Area 1.3. Height/ length/ breadth/ thickness 1.4. Diameter 1.5. Weight/density 1.6. Capacity 1.7. Time 1.8. Temperature 1.9. Material/data usage 1.10. Speed 1.11. Costing |

| Range of Variables | |
|--------------------------|--|
| Variable | Range (may include but not limited to) |
| 2. Workplace information | 2.1. Floor environment 2.2. Design sheet 2.3. Specification sheet 2.4. Working chart/drawing 2.5. Standard operating procedure (SOP) 2.6. Job order |
| 3. Appropriate method | 3.1. Addition 3.2. Subtraction 3.3. Division 3.4. Multiplication 3.5. Conversion 3.6. Percentage and ratio calculation 3.7. Simple equation |
| 4. Tools/instruments | 4.1. Calculator 4.2. Cell phone 4.3. Computer 4.4. Ruler |

| Evidence Guide | |
|--|---|
| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | Assessment must evidence that the candidate: <ol style="list-style-type: none"> 1.1. Identified calculation requirements from workplace information 1.2. Selected appropriate method to carry out the calculation requirements 1.3. Completed calculations using appropriate tools/instruments |
| 2. Underpinning knowledge | <ol style="list-style-type: none"> 2.1. Numerical concepts 2.2. Basic mathematical methods such as addition, subtraction, multiplication and division and percentage 2.3. Mathematical language, symbols and terminology 2.4. Measuring units |
| 3. Underpinning skills | <ol style="list-style-type: none"> 3.1. Construct simple problems with workplace information 3.2. Solve problems using appropriate method and instruments 3.3. Use appropriate tools and instruments |

Evidence Guide

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

| | |
|----------------------------------|---|
| 4. Underpinning attitudes | 4.1. Prompt in carrying out activities 4.2. Tidy and punctual 4.3. Respectful of peers, subordinates and seniors in the workplace 4.4. Safely use tools and equipment 4.5. Sincere and honest concerning duties |
| 5. Resource implications | The following resources must be provided: 5.1. Work place (simulated or actual) 5.2. Calculator 5.3. Cell phone 5.4. Computer/laptop/notebook 5.5. Measuring tape 5.6. Ruler 5.7. Projector 5.8. Stationary 5.9. Learning manual |
| 6. Methods of assessment | Methods of assessment may include but is not limited to: 6.1. Written test 6.2. Oral test 6.3. Observation 6.4. Demonstration 6.5. Portfolio |
| 7. Context of assessment | 7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency. 7.2. Assessment must be done by a suitably qualified/certified assessor. |

Accreditation Requirements

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

| | |
|---|--|
| Unit Title: | Apply occupational health and safety (OHS) practice in the workplace |
| Unit Code: | SEIP-TEX-CAD-02-G |
| Nominal Hours: | 8 hours |
| Unit Descriptor: | This unit covers the skills, knowledge and attitudes required to apply occupational health and safety (OHS) practices in the workplace. It specifically includes identifying OHS policies and procedures, applying personal health and safety practices, reporting hazards and risks, and responding to emergencies. |
| Elements of Competency | Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables) |
| 1. Identify OHS policies and procedures | <p>1.1. <u>OHS policies</u> and safe operating procedures are interpreted.</p> <p>1.2. Safety signs and symbols are identified and followed.</p> <p>1.3. Response, evacuation procedures and other contingency measures are interpreted correctly.</p> |
| 2. Apply personal health and safety practices | <p>2.1. OHS policies and procedures are applied in the workplace including <u>personal protective equipment (PPE)</u>.</p> <p>2.2. Common health issues are recognised.</p> <p>2.3. Common safety issues are identified.</p> |
| 3. Report hazards and risks | <p>3.1. Hazards and risks are identified.</p> <p>3.2. Hazards and risks assessment and controls are interpreted.</p> |
| 4. Respond to emergencies | <p>4.1. Respond to alarms and warning devices.</p> <p>4.2. <u>Emergency response plans and procedures</u> are responded to.</p> <p>4.3. <u>First aid procedures</u> during emergency situations are identified.</p> |

| Range of Variables | |
|--|--|
| Variable | Range (<i>may include but not limited to</i>) |
| 1. OHS policies | <p>1.1. Organisational OHS 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> |
| 3. First aid procedure | <p>3.1. Washing of open wound</p> <p>3.2. Washing chemically infected area</p> <p>3.3. Applying bandage</p> <p>3.4. Taking appropriate medicine</p> |

| Range of Variables | |
|----------------------------------|---|
| Variable | Range (may include but not limited to) |
| 4. Personal protective equipment | 4.1. Safety glasses 4.2. Ear plugs 4.3. Gloves 4.4. Apron 4.5. Helmet 4.6. Mask 4.7. Safety shoes |

| Evidence Guide | |
|--|--|
| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | Assessment must evidence that the candidate: <ol style="list-style-type: none"> 1.1. Identified OHS policies and procedures 1.2. Applied personal health and safety practices (including PPE) 1.3. Reported hazards and risks 1.4. Responded to emergencies |
| 2. Underpinning knowledge | <ol style="list-style-type: none"> 2.1. Workplace OHS policies and procedures 2.2. Work safety procedures 2.3. Emergency response procedures: <ol style="list-style-type: none"> 2.3.1. Firefighting 2.3.2. Earthquake response 2.3.3. Accident response 2.4. Types of hazards (biological, chemical and physical) and their effects 2.5. OHS awareness 2.6. Personal protective equipment (PPE) |
| 3. Underpinning skills | <ol style="list-style-type: none"> 3.1. Identifying OHS policies and procedures 3.2. Applying personal health and safety practices 3.3. Reporting hazards and risks 3.4. Responding to emergencies |
| 4. Underpinning attitudes | <ol style="list-style-type: none"> 4.1. Committed to occupational health and safety practices 4.2. Communicates well with peers, subordinates and seniors in workplace 4.3. Prompt in carrying out activities 4.4. Tidy and punctual 4.5. Sincere and honest concerning duties 4.6. Responsible during emergencies |

Evidence Guide

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

5. Resource implications

The following resources must be provided:

- 5.1. Workplace (simulated or actual)
- 5.2. Personal protective equipment (PPE)
- 5.3. Firefighting equipment
- 5.4. Emergency response manual
- 5.5. First aid kits
- 5.6. Projector
- 5.7. Stationary
- 5.8. Learning manual

6. Methods of assessment

Methods of assessment may include but is not limited to:

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

7. Context of assessment

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

Accreditation Requirements

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

| | |
|--|---|
| Unit Title: | Carry out workplace interaction |
| Unit Code: | SEIP-TEX-CAD-03-G |
| Nominal Hours: | 8 hours |
| Unit Descriptor: | This unit covers the skills, knowledge, and attitudes required to carry out workplace interaction. It specifically includes workplace communication, etiquette, understanding workplace documents, workplace meetings and discussions, and professional ethics at work. |
| Elements of Competency | Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables) |
| 1. Interpret workplace communication and etiquette | <p>1.1. Workplace codes of conduct are interpreted as per organisational guidelines.</p> <p>1.2. Appropriate lines of communication are maintained with supervisors and colleagues.</p> <p>1.3. Workplace interactions are conducted in a <u>courteous manner</u> to gather and convey information.</p> <p>1.4. <u>Workplace procedures and matters</u> are comprehended.</p> |
| 2. Read and understand workplace documents | <p>2.1. Workplace documents are interpreted correctly.</p> <p>2.2. Visual information/symbols/signage are understood correctly and followed.</p> <p>2.3. Specific and relevant information are accessed from <u>appropriate sources</u>.</p> <p>2.4. Appropriate medium is used to transfer information and ideas.</p> |
| 3. Participate in workplace meetings and discussions | <p>3.1. Team meetings are attended on time.</p> <p>3.2. Meeting procedures and etiquette are followed.</p> <p>3.3. Active participation is ensured, opinions are expressed and heard.</p> <p>3.4. Inputs are provided and interpreted in line with the meeting purpose.</p> |
| 4. Practice professional ethics at work | <p>4.1. Responsibilities as a team member are performed.</p> <p>4.2. Tasks are performed in accordance with workplace procedures.</p> <p>4.3. Confidentiality is maintained.</p> <p>4.4. Inappropriate and conflicting situations are avoided.</p> |

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

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

Evidence Guide

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

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

Accreditation Requirements

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

| | |
|---|---|
| Unit Title: | Operate in a team environment |
| Unit Code: | SEIP-TEX-CAD-04-G |
| Nominal Hours: | 8 hours |
| Unit Descriptor: | This unit covers the skills, knowledge and attitudes required to operate in a team environment. It specifically includes team goals and work processes, roles and responsibilities, team communication and problem solving within the team. |
| Elements of Competency | Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables) |
| 1. Identify team goals and work processes | <p>1.1. Roles and objectives of the team are identified and interpreted.</p> <p>1.2. Roles and responsibilities of team members are identified and interpreted.</p> |
| 2. Identify own role and responsibilities within team | <p>2.1. Personal role and responsibilities are identified within the team environment.</p> <p>2.2. Reporting relationships are interpreted within team and external to team.</p> |
| 3. Communicate and co-operate with team members | <p>3.1. Other teammates' tasks are identified and support provided when requested.</p> <p>3.2. The team is encouraged through <u>sharing information</u> or expertise, working together to solve problems, and putting team success first.</p> <p>3.3. Views and opinions of other team members are interpreted and respected.</p> |
| 4. Practice problem solving within the team | <p>4.1. Problems faced at the individual and team level are identified and showed insight into the root-causes of the problems.</p> <p>4.2. A range of solutions and courses of action are identified together with benefits, costs, and risks associated with each.</p> <p>4.3. The good ideas of others to help develop solutions are recognised and advice sought from those who have solved similar problems.</p> <p>4.4. It is looked beyond the obvious and not stopped at the first answers.</p> |

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

| Evidence Guide | |
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| 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. Underpinning knowledge | 1.1. Team goals and work processes 1.2. Roles and responsibilities 1.3. Finding problems and solving them |
| 2. Underpinning skills | 2.1. Identifying own role and responsibilities within team 2.2. Communicating and co-operating with team members 2.3. Demonstrating problem solving within the team |
| 3. Underpinning attitudes | 3.1. Active on teamwork 3.2. Prompt in carrying out activities 3.3. Tidy and punctual 3.4. Respectful of peers, subordinates and seniors in the workplace 3.5. Sincere and honest concerning duties |
| 4. Underpinning knowledge | 4.1. Team goals and work processes 4.2. Roles and responsibilities 4.3. Finding problems and solving them |
| 5. Resource implications | The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Projector 5.3. Stationary 5.4. Learning manual |

Evidence Guide

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

6. Methods of assessment

Methods of assessment may include but is not limited to:

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

7. Context of assessment

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

Accreditation Requirements

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|---|---|
| Unit Title: | Apply basic IT skills |
| Unit Code: | SEIP-TEX-CAD-05-G |
| Nominal Hours: | 8 hours |
| Unit Descriptor: | This unit covers the skills, knowledge and attitudes required to apply basic IT skills in the workplace. It specifically includes identifying common IT tools, using computer, word processing and spreadsheet applications, email and searching on internet. |
| Elements of Competency | Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables) |
| 1. Identify and use most commonly used IT tools | <p>1.1. History of information technology (IT) is identified and summarised.</p> <p>1.2. Commonly used <u>IT tools</u> are identified and described.</p> |
| 2. Understand use of computer | <p>2.1. Basic parts of a computer are identified.</p> <p>2.2. Turning on and off technique of a computer is performed.</p> <p>2.3. Working environment, functions and features of operating system is interpreted.</p> <p>2.4. Simple trouble-shooting techniques are applied.</p> |
| 3. Work with word processing application | <p>3.1. Word processing application appropriate to perform activity is operated.</p> <p>3.2. Basic typing technique to document is applied.</p> <p>3.3. Word processing techniques to document are employed.</p> <p>3.4. Personal CV writing using suitable word processing techniques is practiced.</p> <p>3.5. Saving and retrieving technique of a document is used.</p> |
| 4. Work with spreadsheets | <p>4.1. Spreadsheet working environment, functions and features are identified and interpreted.</p> <p>4.2. Data entry on spreadsheet appropriate to perform activity is performed.</p> <p>4.3. <u>Data manipulation techniques</u> to spreadsheet document are applied.</p> <p>4.4. Spreadsheet document is created and saved.</p> |
| 5. Access email and search the internet | <p>5.1. Use of email account in online environment is explained.</p> <p>5.2. Writing and sending of workplace emails is completed.</p> <p>5.3. Different <u>browsers</u> to work online are identified and selected.</p> <p>5.4. Browse different web portals and apply proper search techniques.</p> |

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

| Evidence Guide | |
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| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | Assessment must evidence that the candidate: <ol style="list-style-type: none"> 1.1. Identified commonly used IT tools 1.2. Performed simple trouble-shooting with computer 1.3. Performed typing on word processing software, saved and retrieved documents 1.4. Performed data entry with spreadsheet 1.5. Used email account for different online purposes |
| 2. Underpinning knowledge | <ol style="list-style-type: none"> 2.1. IT and IT tools 2.2. Computer trouble-shooting 2.3. Techniques to access internet |

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.

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| 3. Underpinning skills | 3.1. Demonstrating simple trouble-shooting with computer 3.2. Demonstrating typing on word processing software 3.3. Demonstrating data entry with spreadsheet 3.4. Opening email account and using it for different purposes |
| 4. Underpinning attitudes | 4.1. Active on teamwork 4.2. Prompt in carrying out activities 4.3. Tidy and punctual 4.4. Respectful of peers, subordinates and seniors in the workplace 4.5. Sincere and honest concerning duties |
| 5. Resource implications | The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. IT tools 5.3. Computer/laptop/notebook 5.4. Software 5.5. Internet 5.6. Projector 5.7. Stationary 5.8. Learning manual |
| 6. Methods of assessment | Methods of assessment may include but is not limited to: 6.1. Written test 6.2. Demonstration 6.3. Oral test 6.4. Observation 6.5. Portfolio |
| 7. Context of assessment | 7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency. 7.2. Assessment must be done by a suitably qualified/certified assessor. |

Accreditation Requirements

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Sector-specific Competencies

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| Unit Title: | Explore the history of Textile Sector |
| Unit Code: | SEIP-TEX-CAD-01-S |
| Nominal Hours: | 8 hours |
| Unit Descriptor: | This unit covers the skills, knowledge and attitudes required to describe the basic concept of textile sector. It specifically includes identifying the background of textile sector, identifying main industries within the textile sector, identifying materials and machines used in weaving, and identifying prime local and export markets. |
| Elements of Competency | Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables) |
| 1. Identify the background of textile sector | 1.1. Historical background of textile sector is examined and described. 1.2. <u>Steps of fabric manufacturing process</u> are identified. 1.3. Backward and forward linkages are identified. |
| 2. Identify main industries within textile sector | 2.1. <u>Main industries</u> of the textile sector are identified. 2.2. Importance of textile sector and main industries is explored and analysed. |
| 3. Identify materials and machines used in weaving | 3.1. Different types of <u>yarn</u> are identified. 3.2. Different types of <u>fabric</u> are identified. 3.3. Different types of <u>machines</u> are identified. |
| 4. Identify prime local and export markets | 4.1. Prime <u>local markets</u> and <u>export markets</u> are identified. 4.2. Local and export markets are listed. |

| Range of Variables | |
|--|--|
| Variable | Range (<i>may include but not limited to</i>) |
| 1. Steps of fabric manufacturing process | 1.1. Winding 1.2. Warping 1.3. Sizing 1.4. Drafting 1.5. Denting 1.6. Looming 1.7. Weaving |

| Range of Variables | |
|--------------------|---|
| Variable | Range (may include but not limited to) |
| 2. Main industries | 2.1. Spinning 2.2. Weaving 2.3. Knitting 2.4. Dyeing 2.5. Printing |
| 3. Yarn | 3.1. Cotton 3.2. Polyester 3.3. Cotton/polyester blend 3.4. Wool 3.5. Silk |
| 4. Fabric | 4.1. Grey 4.2. Stripe 4.3. Check |
| 5. Machines | 5.1. Cone winding 5.2. Warping: 5.2.1. Sectional 5.2.2. High speed 5.3. Sizing 5.4. Weaving (loom) |
| 6. Local markets | 6.1. Wet processing mills 6.2. Wholesale markets and retailers |
| 7. Export markets | 7.1. Europe 7.2. United States 7.3. Australia |

| Evidence Guide | |
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| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 6.1. Critical aspects of competency | Assessment must evidence that the candidate: <ol style="list-style-type: none"> 1.1. Illustrated background of textile sector 1.2. Identified basic steps of fabric manufacturing process 1.3. identified materials and machines used in weaving 1.4. identified prime local and export markets |
| 6.2. Underpinning knowledge | <ol style="list-style-type: none"> 2.1. Background of textile sector 2.2. Steps of fabric manufacturing processing 2.3. Materials and machines used in weaving 2.4. Prime local and export markets |

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.

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|------------------------------------|---|
| 6.3. Underpinning skills | <ul style="list-style-type: none">3.1. Describing history of textile sector3.2. Identifying steps of fabric manufacturing process3.3. Identifying materials and machines used in weaving3.4. Identifying prime local and export markets |
| 6.4. Underpinning attitudes | <ul style="list-style-type: none">4.1. Eager to learn4.2. Considerate of personal grooming4.3. Patient and attentive4.4. Active on team work4.5. Tidy and punctual4.6. Sincere and honest concerning duties |
| 6.5. Resource implications | <p>The following resources must be provided:</p> <ul style="list-style-type: none">5.1. Workplace (simulated or actual)5.2. Map/globe5.3. Projector5.4. Stationary5.5. Learning manual |
| 6.6. Methods of assessment | <p>Methods of assessment may include but is not limited to:</p> <ul style="list-style-type: none">6.1. Written test6.2. Oral test6.3. Observation6.4. Demonstration6.5. Portfolio |
| 6.7. Context of assessment | <ul style="list-style-type: none">7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency.7.2. Assessment must be done by a suitably qualified/certified assessor. |

Accreditation Requirements

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| | |
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| Unit Title: | Read and interpret sketches and drawings |
| Unit Code: | SEIP-TEX-CAD-02-S |
| Nominal Hours: | 8 hours |
| Unit Descriptor: | This unit covers the skills, knowledge, and attitudes required to read and interpret sketches and drawings. It specifically includes identifying information and specifications and interpreting sketches and drawings as required. |
| Elements of Competency | Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables) |
| 1. Interpret information and specifications | 1.1. Appropriate <u>manuals</u> for work activity are identified and collected. 1.2. Information and specifications in the manuals is interpreted and applied. |
| 2. Read and interpret sketches and drawings | 2.1. Relevant <u>sketches and drawings</u> are identified for job requirement. 2.2. Key <u>terms and abbreviations</u> are identified and interpreted. 2.3. <u>Signs and symbols</u> are identified and interpreted. 2.4. Schedules, dimensions, sketches, drawings and specifications are correctly read and interpreted. |

| Range of Variables | |
|----------------------------|---|
| Variable | Range (<i>may include but not limited to</i>) |
| 1. Manuals | 1.1. Buyers manual 1.2. Manufacturer's specification manual 1.3. Repair manual 1.4. Maintenance procedure manual 1.5. Periodic maintenance manual 1.6. Quality manual 1.7. Manual signs and symbols Instruction |
| 2. Specifications | 2.1. Product 2.2. Performance 2.3. Method |
| 3. Sketches | 3.1. Technical 3.2. Measurement 3.3. Design |
| 4. Terms and abbreviations | 4.1. Refers to all terms and abbreviations associated with the Textile Sector |
| 5. Signs and symbols | 5.1. Includes all signs and symbols associated with the Textile Sector |

Evidence Guide

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

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| 1. Critical aspects of competency | Assessment must evidence that the candidate: 1.1. Identified information and specifications 1.2. Read and interpreted sketches and drawings |
| 2. Underpinning knowledge | 2.1. Manuals 2.2. Units of measurement 2.3. Units of conversion 2.4. Sketch, drawings and specifications |
| 3. Underpinning skills | 3.1. Reading and identifying information and specifications (from manual) 3.2. Reading and interpreting sketches and drawings |
| 4. Underpinning attitudes | 4.1. Prompt in carrying out activities 4.2. Tidy and punctual 4.3. Eager to learn 4.4. Active on teamwork 4.5. Sincere and honest concerning duties 4.6. Eager to learn 4.7. Concerned about proper use of computer and peripherals |
| 5. Resource implications | The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Computer/laptop/notebook 5.3. Software 5.4. Projector 5.5. Stationary 5.6. Learning manual |
| 6. Methods of assessment | Methods of assessment may include but is not limited to: 6.1. Written test 6.2. Oral test 6.3. Observation 6.4. Demonstration 6.5. Portfolio |
| 7. Context of assessment | 7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency. 7.2. Assessment must be done by a suitably qualified/certified assessor. |

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.

Accreditation Requirements

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Occupation-specific Competencies

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|---|---|
| Unit Title: | Apply basic knowledge of woven structure |
| Unit Code: | SEIP-TEX-CAD-01-O |
| Nominal Hours: | 24 hours |
| Unit Descriptor: | This unit covers the skills, knowledge, and attitudes required to apply basic knowledge of woven structure. It specifically includes interpreting the basic elements of woven structure, identifying systems of drafting, identifying types of shedding and interpreting technical terms. |
| Elements of Competency | Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables) |
| 1. Identify basic elements of woven structure | <p>1.1. <u>Basic woven structures</u> are identified and interpreted.</p> <p>1.2. <u>Fancy woven structures</u> are identified and interpreted.</p> <p>1.3. <u>Basic elements</u> of woven structure are identified and described.</p> <p>1.4. Relationship among the basic elements is described.</p> |
| 2. Identify systems of drafting | <p>2.1. <u>Systems of drafting</u> are identified and described.</p> <p>2.2. Appropriate system is selected.</p> |
| 3. Identify types of shedding | <p>3.1. <u>Types of shedding</u> are identified and described.</p> <p>3.2. Appropriate shedding is selected.</p> |
| 4. Interpret technical terms | <p>4.1. <u>Technical terms</u> are identified.</p> <p>4.2. Technical terms are defined.</p> |

| Range of Variables | |
|---------------------------|--|
| Variable | Range (<i>may include but not limited to</i>) |
| 1. Basic woven structures | <p>1.1. Plain</p> <p>1.2. Twill</p> <p>1.3. Satin</p> |
| 2. Fancy woven structures | <p>2.1. Mockleno</p> <p>2.2. Hucka back</p> <p>2.3. Honeycomb</p> <p>2.4. Distorted thread effect</p> <p>2.5. Crepe weave</p> <p>2.6. Pique weave</p> <p>2.7. Bedford cord</p> |

| Range of Variables | |
|------------------------|--|
| Variable | Range (may include but not limited to) |
| 3. Basic elements | 3.1. Weave plan 3.2. Drafting plan 3.3. Lifting plan 3.4. Denting plan |
| 4. Systems of drafting | 4.1. Straight 4.2. Skip 4.3. Pointed 4.4. Broken 4.5. Divided 4.6. Grouped 4.7. Combined 4.8. Curved |
| 5. Types of shedding | 5.1. Tappet 5.2. Dobby 5.3. Jacquard |
| 6. Technical terms | 6.1. Formula number 6.2. Repeat size 6.3. Repeat unit 6.4. Thread density 6.5. Ends per inch (EPI) 6.6. Picks per inch (PPI) 6.7. Twist per inch (TPI) |

| Evidence Guide | |
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| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | Assessment must evidence that the candidate: <ol style="list-style-type: none"> 1.1. Identified basic elements of woven structure 1.2. Identified systems of drafting 1.3. Identified types of shedding 1.4. Interpreted technical terms |
| 2. Underpinning knowledge | <ol style="list-style-type: none"> 2.1. Basic woven structure 2.2. Fancy woven structure 2.3. Basic elements of woven structure 2.4. Systems of drafting 2.5. Types of shedding 2.6. Technical terms |

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">3.1. Identifying basic woven structure3.2. Identifying fancy woven structure3.3. Identifying systems of drafting3.4. Identifying types of shedding |
| 4. Underpinning attitudes | <ul style="list-style-type: none">4.1. Tidy and punctual4.2. Sincere and honest concerning duties4.3. Active on teamwork4.4. Eager to learn4.5. Communicate with peers and seniors in the workplace4.6. Concerned about proper use of computer and peripherals |
| 5. Resource implications | <p>The following resources must be provided:</p> <ul style="list-style-type: none">5.1. Workplace (simulated or actual)5.2. Computer/laptop/notebook5.3. Software5.4. Projector5.5. Stationary5.6. Learning manual |
| 6. Methods of assessment | <p>Methods of assessment may include but is not limited to:</p> <ul style="list-style-type: none">6.1. Written test6.2. Oral test6.3. Observation6.4. Demonstration6.5. Portfolio |
| 7. Context of assessment | <ul style="list-style-type: none">7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency.7.2. Assessment must be done by a suitably qualified/certified assessor. |

Accreditation Requirements

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| Unit Title: | Understand fundamentals of CAD operation |
| Unit Code: | SEIP-TEX-CAD-02-O |
| Nominal Hours: | 24 hours |
| Unit Descriptor: | This unit covers the skills, knowledge and attitudes required to understand fundamentals of CAD. It specifically includes identifying requirements of CAD, identifying job responsibilities of CAD operator, and interpreting technical terms. |
| Elements of Competency | Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables) |
| 1. Identify requirements of CAD | <p>1.1. CAD is defined.</p> <p>1.2. <u>Working sequence of CAD system</u> in weaving is identified.</p> <p>1.3. <u>Basic CAD software</u> is identified.</p> <p>1.4. <u>Application of CAD systems</u> are explained.</p> |
| 2. Identify job responsibilities of CAD operator | <p>2.1. <u>Job description of CAD operator</u> is described.</p> <p>2.2. Job responsibilities of CAD operator are identified and interpreted.</p> |
| 3. Interpret technical terms | <p>3.1. <u>Technical terms</u> are identified.</p> <p>3.2. Technical terms are defined.</p> |

| Range of Variables | |
|-----------------------------------|--|
| Variable | Range (<i>may include but not limited to</i>) |
| 1. Working sequence of CAD system | <p>1.1. Software in dobby:</p> <p>1.1.1. Structure development</p> <p>1.1.2. Colours setting</p> <p>1.1.3. Warp and weft patterning</p> <p>1.1.4. Yarn parameters and density</p> <p>1.1.5. Simulation</p> <p>1.2. Software for drape:</p> <p>1.2.1. Model loading</p> <p>1.2.2. Model size setting</p> <p>1.2.3. Creating regions</p> <p>1.2.4. Loading textures</p> <p>1.2.5. Applying texture to region</p> <p>1.2.6. Project saving</p> <p>1.3. Software in jacquard:</p> <p>1.3.1. Image preparation</p> <p>1.3.2. Conversion of image into weave</p> <p>1.3.3. Colour setting</p> <p>1.3.4. Yarn parameters</p> <p>1.3.5. Simulation</p> |

| Range of Variables | |
|------------------------------------|---|
| Variable | Range (<i>may include but not limited to</i>) |
| 2. Basic CAD software | 2.1. Arah Weave 2.2. Muller MCAD 2.3. EAT Design Scope 2.4. Textronics (Design Dobby, design Jacquard) 2.5. Pixel Art 2.6. Ned Graphics (Texcelle, Ned Graphics Jacquard, Dobby Pro, Easy Weave, Loom Connection) |
| 3. Functions of CAD system | 3.1. Developing the structure 3.2. Setting the colour 3.3. Setting yarn parameters and density 3.4. Simulation |
| 4. Job description of CAD operator | 4.1. Operating weaving CAD 4.2. Developing structure 4.3. Setting colour 4.4. Defining warp and weft pattern 4.5. Setting yarn parameters and density 4.6. Simulation |
| 5. Technical terms | 5.1. Computer aided design (CAD) 5.2. Computer aided manufacturing (CAM) 5.3. Computer aided engineering (CAE) |

| Evidence Guide | |
|--|---|
| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | Assessment must evidence that the candidate: <ol style="list-style-type: none"> 1.1. Identified requirements of CAD 1.2. Identified basic working procedure of CAD 1.3. Identified basic CAD software and application 1.4. Identified role and responsibilities of CAD operator |
| 2. Underpinning knowledge | <ol style="list-style-type: none"> 2.1. Definition of CAD 2.2. Application of CAD 2.3. Basic CAD software 2.4. Role and responsibilities of CAD operator 2.5. Technical terms |
| 3. Underpinning skills | <ol style="list-style-type: none"> 3.1. Identifying CAD requirements 3.2. Identifying working sequence of CAD |

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.

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| 4. Underpinning attitudes | <ul style="list-style-type: none">4.1. Tidy and punctual4.2. Prompt in carrying out activities4.3. Sincere and honest concerning duties4.4. Active on teamwork4.5. Eager to learn4.6. Concerned for proper use of tools4.7. Committed to occupational health and safety practices4.8. Communicate with peers and seniors in the workplace4.9. Concerned about proper use of computer and peripherals |
| 5. Resource implications | The following resources must be provided: <ul style="list-style-type: none">5.1. Workplace (simulated or actual)5.2. Computer/laptop/notebook5.3. Software5.4. Internet5.5. Tools and equipment5.6. Information and specifications5.7. Projector5.8. Stationary5.9. Learning manual |
| 6. Methods of assessment | Methods of assessment may include but is not limited to: <ul style="list-style-type: none">6.1. Written test6.2. Oral test6.3. Observation6.4. Demonstration6.5. Portfolio |
| 7. Context of assessment | <ul style="list-style-type: none">7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency.7.2. Assessment must be done by a suitably qualified/certified assessor. |

Accreditation Requirements

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

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|---|---|
| Unit Title: | Perform CAD installation and operation |
| Unit Code: | SEIP-TEX-CAD-03-O |
| Nominal Hours: | 8 hours |
| Unit Descriptor: | This unit covers the skills, knowledge and attitudes required to perform CAD installation and operation. It specifically includes identifying hardware and software required for CAD operation and installing CAD software. |
| Elements of Competency | Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables) |
| 1. Identify hardware and software for CAD | 1.1. Fundamentals of computer applications are explained. 1.2. Configuration of computer is carried out. 1.3. <u>CAD hardware</u> is identified. 1.4. CAD software is identified. |
| 2. Install CAD software | 2.1. Installation process of CAD software is identified and explained. 2.2. <u>Steps of installation process</u> are identified in sequence. 2.3. CAD software is installed. |

| Range of Variables | |
|----------------------------------|---|
| Variable | Range (<i>may include but not limited to</i>) |
| 1. CAD hardware | 1.1. System unit 1.2. Central processing unit (CPU) 1.3. Hard disk 1.4. CD-ROM 1.5. External storage device 1.6. Monitor 1.7. Pen drive |
| 2. Steps of installation process | 2.1. Inserting CD 2.2. Running the system 2.3. Using activation code 2.4. Completing installation process 2.5. Launching software |

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.

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| 1. Critical aspects of competency | Assessment must evidence that the candidate: 1.1. Identified appropriate CAD hardware 1.2. Identified appropriate CAD software 1.3. Installed CAD software |
| 2. Underpinning knowledge | 2.1. CAD hardware 2.2. CAD software 2.3. Installation process 2.4. Fundamental computer operation |
| 3. Underpinning skills | 3.1. Identifying CAD hardware 3.2. Identifying CAD software 3.3. Installing CAD software |
| 4. Underpinning attitudes | 4.1. Tidy and punctual 4.2. Prompt in carrying out activities 4.3. Sincere and honest concerning duties 4.4. Active on teamwork 4.5. Eager to learn 4.6. Concerned for proper use of tools 4.7. Committed to occupational health and safety practices 4.8. Communicate with peers and seniors in the workplace 4.9. Concerned about proper use of computer and peripherals |
| 5. Resource implications | The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Computer/laptop/notebook 5.3. Software 5.4. Internet 5.5. Tools and equipment 5.6. Information and specifications 5.7. Projector 5.8. Stationary 5.9. Learning manual |
| 6. Methods of assessment | Methods of assessment may include but is not limited to: 6.1. Written test 6.2. Oral test 6.3. Observation 6.4. Demonstration 6.5. Portfolio |

Evidence Guide

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

7. Context of assessment

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

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

Accreditation Requirements

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.

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|--------------------------------------|--|
| Unit Title: | Operate software for doobby |
| Unit Code: | SEIP-TEX-CAD-04-O |
| Nominal Hours: | 96 hours |
| Unit Descriptor: | This unit covers the skills, knowledge and attitudes required to operate software for doobby. It specifically includes developing weave structure, identifying warp and weft parameters, and performing weave design simulation. |
| Elements of Competency | Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables) |
| 1. Develop weave structure | 1.1. Existing structure is identified and deleted. 1.2. <u>Canvas/weave size</u> is adjusted. 1.3. Weave design is constructed. 1.4. Appropriate drafting system is selected. |
| 2. Identify warp and weft parameters | 2.1. Required warp and weft colour is identified selected. 2.2. <u>Warp and weft pattern</u> are adjusted. 2.3. <u>Warp and weft parameters</u> are selected. |
| 3. Perform weave design simulation | 3.1. Weave design simulation is carried out. 3.2. Adjustment to design is carried out, if needed. |

| Range of Variables | |
|-----------------------------|--|
| Variable | Range (<i>may include but not limited to</i>) |
| 1. Canvas/weave size | 1.1. Repeat size (number of warp and weft) 1.2. Grid size 1.3. Thicken 1.4. System (1 for single and 2 for double layer fabric) |
| 2. Warp and weft pattern | 2.1. Warp pattern (10B, 10R, 20W) 2.2. Weft pattern (6r, 5b, 5g) |
| 3. Warp and weft parameters | 3.1. Yarn count 3.2. Twist per inch (TPI) 3.3. Twist direction 3.4. Thread density (EPI and PPI) |

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.

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| 1. Critical aspects of competency | Assessment must evidence that the candidate: 1.1. Developed weave structure 1.2. Adjusted canvas/weave size 1.3. Selected warp and weft colour and parameters 1.4. Adjusted warp and weft pattern 1.5. Carried out weave design simulation |
| 2. Underpinning knowledge | 2.1. Weave structure 2.2. Weave design 2.3. Warp and weft colours 2.4. Warp and weft patterns 2.5. Warp and weft parameters 2.6. Drafting systems 2.7. Weave design simulation |
| 3. Underpinning skills | 3.1. Developing weave structure 3.2. Identifying drafting plan 3.3. Selecting warp and weft colour 3.4. Adjusting warp and weft pattern 3.5. Selecting warp and weft parameters 3.6. Carrying out weave design simulation |
| 4. Underpinning attitudes | 4.1. Tidy and punctual 4.2. Prompt in carrying out activities 4.3. Sincere and honest concerning duties 4.4. Active on teamwork 4.5. Eager to learn 4.6. Concerned for proper use of tools 4.7. Committed to occupational health and safety practices 4.8. Communicate with peers and seniors in the workplace 4.9. Concerned about proper use of computer and peripherals |
| 5. Resource implications | The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Computer/laptop/notebook 5.3. Software 5.4. Internet 5.5. Tools and equipment 5.6. Information and specifications 5.7. Projector 5.8. Stationary 5.9. Learning manual |

Evidence Guide

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

6. Methods of assessment

Methods of assessment may include but is not limited to:

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

7. Context of assessment

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

Accreditation Requirements

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|-----------------------------------|---|
| Unit Title: | Operate software for drape |
| Unit Code: | SEIP-TEX-CAD-05-O |
| Nominal Hours: | 56 hours |
| Unit Descriptor: | This unit covers the skills, knowledge and attitudes required to operate software for drape. It specifically includes creating models for weave design, performing model texturing, and saving model. |
| Elements of Competency | Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables) |
| 1. Create models for weave design | 1.1. <u>Image</u> is scanned. 1.2. Scanned image is transferred onto computer. 1.3. Image is loaded as a model. 1.4. Model is opened into drape window. |
| 2. Perform model texturing | 2.1. <u>Model size</u> is adjusted. 2.2. Model region is created. 2.3. Texture is loaded into the drape. 2.4. Texture to the region is applied. |
| 3. Save model | 3.1. Created model is saved. 3.2. File name is securely recorded. |

| Range of Variables | |
|---------------------------|---|
| Variable | Range (<i>may include but not limited to</i>) |
| 1. Image | 1.1. Drawing 1.2. Picture 1.3. Photograph |
| 2. Model size | 2.1. Measurement unit (centimetre, inch) 2.2. Length |

| Evidence Guide | |
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| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | Assessment must evidence that the candidate: 1.1. Scanned image 1.2. Loaded image as model 1.3. Performed model texturing 1.4. Saved model |

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.

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|----------------------------------|---|
| 2. Underpinning knowledge | 2.1. Scanning 2.2. Loading images 2.3. Model size 2.4. Model region 2.5. Model texturing 2.6. Saving model (to computer or hard drive) |
| 3. Underpinning skills | 3.1. Scanning image 3.2. Loading model 3.3. Setting model size 3.4. Creating regions 3.5. Loading textures 3.6. Applying texture to region 3.7. Saving model |
| 4. Underpinning attitudes | 4.1. Tidy and punctual 4.2. Prompt in carrying out activities 4.3. Sincere and honest concerning duties 4.4. Active on teamwork 4.5. Eager to learn 4.6. Concerned for proper use of tools 4.7. Committed to occupational health and safety practices 4.8. Communicate with peers and seniors in the workplace 4.9. Concerned about proper use of computer and peripherals |
| 5. Resource implications | The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Computer/laptop/notebook 5.3. Software 5.4. Internet 5.5. Tools and equipment 5.6. Information and specifications 5.7. Projector 5.8. Stationary 5.9. Learning manual |
| 6. Methods of assessment | Methods of assessment may include but is not limited to: 6.1. Written test 6.2. Oral test 6.3. Observation 6.4. Demonstration 6.5. Portfolio |

Evidence Guide

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

7. Context of assessment

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

Accreditation Requirements

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|--------------------------------------|--|
| Unit Title: | Operate software for painting of jacquard design |
| Unit Code: | SEIP-TEX-CAD-06-O |
| Nominal Hours: | 96 hours |
| Unit Descriptor: | This unit covers the skills, knowledge and attitudes required to operate software for painting of jacquard design. It specifically includes preparing the image, converting the image into weave, identifying warp and weft parameters and performing weave design simulation. |
| Elements of Competency | Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables) |
| 1. Prepare image | 1.1. Image is loaded in paint option of software. 1.2. Image colour is reduced. 1.3. Number of colours are selected for image. 1.4. <u>Image size</u> is adjusted. 1.5. Image is saved. |
| 2. Convert image into weave | 2.1. Image is loaded into weave. 2.2. Weave is selected for each colour of image. |
| 3. Identify warp and weft parameters | 3.1. Warp and weft colour are selected. 3.2. Warp and weft pattern are adjusted. 3.3. Warp and weft parameters are selected. |
| 4. Perform weave design simulation | 4.1. Weave design simulation is carried out. 4.2. Adjustment to design is carried out, if needed. |

| Range of Variables | |
|---------------------------|---|
| Variable | Range (<i>may include but not limited to</i>) |
| 1. Image size | 1.1. Height 1.2. Width |

| Evidence Guide | |
|--|---|
| The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency. | |
| 1. Critical aspects of competency | Assessment must evidence that the candidate: 1.1. Prepared image 1.2. Converted image into weave 1.3. Selected warp and weft colours and parameters 1.4. Adjusted warp and weft pattern 1.5. Carried out weave design simulation |

Evidence Guide

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

| | |
|----------------------------------|---|
| 2. Underpinning knowledge | 2.1. Scanning 2.2. Image conversion 2.3. Warp and weft colours 2.4. Warp and weft patterns 2.5. Warp and weft parameters 2.6. Weave design simulation |
| 3. Underpinning skills | 3.1. Preparing image 3.2. Converting image into weave 3.3. Adjusting warp and weft pattern 3.4. Selecting warp and weft colours and parameters 3.5. Carrying out weave design simulation |
| 4. Underpinning attitudes | 4.1. Tidy and punctual 4.2. Prompt in carrying out activities 4.3. Sincere and honest concerning duties 4.4. Active on teamwork 4.5. Eager to learn 4.6. Concerned for proper use of tools 4.7. Committed to occupational health and safety practices 4.8. Communicate with peers and seniors in the workplace 4.9. Concerned about proper use of computer and peripherals |
| 5. Resource implications | The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Computer/laptop/notebook 5.3. Software 5.4. Internet 5.5. Tools and equipment 5.6. Information and specifications 5.7. Projector 5.8. Stationary 5.9. Learning manual |
| 6. Methods of assessment | Methods of assessment may include but is not limited to: 6.1. Written test 6.2. Oral test 6.3. Observation 6.4. Demonstration 6.5. Portfolio |

Evidence Guide

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

7. Context of assessment

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

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