



Skills for Employment Investment Program (SEIP)

COMPETENCY STANDARD

FOR

AUTO MECHANICS

(LIGHT ENGINEERING)

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

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Copyright

The Competency Standard for Auto Mechanics 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	
CVJ	Constant-velocity joints
OHS	Occupational health and safety
PPE	Personal protective equipment
SOP	Standard operating procedure

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 operationalizing 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 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 18 January 2018 and concluded with a validation workshop with working group on 9 July 2018.

Experts Involved

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

Name	Organisation	Designation
Shekh Frdid Hossain	UCEP Mirpur Technical School	Assistant Programmer officer
Md. Abdur Razzaque	Sunrise Engineering (Dhaka)	Chairman - ISC
Md. Kamrul Hasan	2S Centre - Navana Toyota	Senior Executive
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Md. Heal Uddin Khan	DUET	Senior Auto-Mechanic
Martin Ronald Pramanik	MAWTS	Manager - Production
Dr. N. R. Dhar	British Council - SD03	National Subject Matter Consultant - Light Engineering Sector

Development Workshop

Working group formation and competency standard development workshop participants [held on 4 April 2018]:

Name	Organisation	Designation
Enamul Haque Khan	BEIOA	Co-coordinator (M & E)
Rupak Kanti Biswas	BTEB	Quality Assurance Officer
Md. Sumon Mia	UCEP Mirpur Technical School	Instructor - Automobile Unit
Md. Nurul Haque	UCEP Mirpur Technical School	Instructor - Automobile Unit
Md. Abdur Razzaque	Sunrise Engineering (Dhaka)	Chairman - ISC
Md. Mosaddeque Hossain	Chairman	Advanced Automobile Technology
Ali Nihad	Consultant	Automobile Consultant

Name	Organisation	Designation
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Md. Ahsan Habib	SEIP	TVET Specialist
Mr. Mohiuzzaman	SEIP	Course Specialist
David King	British Council - SD03	Team Leader
Dr. N. R. Dhar	British Council - SD03	National Subject Matter Consultant - Light Engineering Sector

Validation Workshop

Competency standard validation workshop participants [held on 9 July 2018]:

Name	Organisation	Designation
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Rupak Kanti Biswas	BTEB	Quality Assurance Officer
Md. Sumon Mia	UCEP Mirpur Technical School	Instructor - Automobile Unit
Md. Nurul Haque	UCEP Mirpur Technical School	Instructor - Automobile Unit
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Md. Mosaddeque Hossain	Chairman	Advanced Automobile Technology
Ali Nihad	Consultant	Automobile Consultant
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Md. Abdur Razzaque	SEIP	Specialist-1 (Competence 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
Dr. N. R. Dhar	British Council - SD03	National Subject Matter Consultant - Light Engineering Sector

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

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

Course Structure

SL	Unit Code and Title		Level	Nominal Duration (Hours)
Generic Competencies (4 units of competency required)				
1	SEIP-LE-AME-01-G	Use basic mathematical concepts		24
2	SEIP-LE-AME-02-G	Carry out workplace interaction in English		8
3	SEIP-LE-AME-03-G	Operate in a team environment		16
4	SEIP-LE-AME-04-G	Apply basic IT skills		12
Sub-Total				60
Sector-specific Competencies (4 units of competency required)				
1	SEIP-LE-AME-01-S	Apply occupational health and safety (OHS) practice in the workplace		8
2	SEIP-LE-AME-02-S	Read and interpret sketches and drawings		16
3	SEIP-LE-AME-03-S	Use hand and power tools		16
4	SEIP-LE-AME-04-S	Apply quality system		16
Sub-Total				60
Occupation-specific Competencies (6 units of competency required)				
1	SEIP-LE-AME-01-O	Identify major components of engine		40
2	SEIP-LE-AME-02-O	Service auxiliary systems		40
3	SEIP-LE-AME-03-O	Service power transmission system		60
4	SEIP-LE-AME-04-O	Service control system		40
5	SEIP-LE-AME-05-O	Service suspension system		60
Sub-Total				240
Total Nominal Learning Hours				360

Competency Chart

Units of Competency	Elements		
<p>Use basic mathematical concepts SEIP-LE-AME-01-G</p>	<p>Identify calculation requirements in the workplace</p>	<p>Select appropriate mathematical methods/concepts for the calculation</p>	<p>Use tools and instruments to perform calculations</p>
<p>Carryout workplace interaction SEIP-LE-AME-02-G</p>	<p>Interpret workplace communication and etiquette</p>	<p>Read and understand workplace documents</p>	<p>Participate in workplace meetings and discussions</p>
	<p>Practice professional ethics at work</p>		
<p>Operate in a team environment SEIP-LE-AME-03-G</p>	<p>Identify team goals and work processes</p>	<p>Identify own role and responsibilities within team</p>	<p>Communicate and co-operate with team members</p>
	<p>Practice problem solving within the team</p>		
<p>Apply basic IT skills SEIP-LE-AME-04-G</p>	<p>Identify and use most commonly used IT tools</p>	<p>Understand use of computer</p>	<p>Work with word processing application</p>
	<p>Work with spreadsheets</p>	<p>Access email and search the internet</p>	

Sector-specific (Common) Competencies

Apply occupational health and safety (OHS) practice in the workplace SEIP-LE-AME-01-S	Identify OHS policies and procedures	Apply personal health and safety practices	Report hazards and risks
	Respond to emergencies		
Read and interpret sketches and drawings SEIP-LE-AME-02-S	Interpret information and specifications	Read and interpret sketches and drawings	
Use hand and power tools SEIP-LE-AME-03-S	Identify and inspect hand and power tools	Use hand tools properly and safely	Operate power tools properly and safely
	Clean and maintain hand and power tools		
Apply quality system SEIP-LE-AME-04-S	Work within quality system	Apply and monitor quality improvement system	Apply standard procedures for each job

Occupation-specific (Core) Competencies

<p>Identify major components of engine SEIP-LE-AME-01-O</p>	<p>Identify types of engine</p>	<p>Identify major components of engine</p>	
<p>Service auxiliary systems SEIP-LE-AME-02-O</p>	<p>Prepare for work</p>	<p>Service fuel system</p>	<p>Service cooling system</p>
	<p>Service lubricating system</p>	<p>Service ignition system</p>	<p>Service starting system</p>
<p>Service power transmission system SEIP-LE-AME-03-O</p>	<p>Prepare for work</p>	<p>Service clutch system</p>	<p>Service gear box</p>
	<p>Service differential system</p>	<p>Service propeller shaft and universal joint</p>	<p>Service axel and CV joints</p>
<p>Service control system SEIP-LE-AME-04-O</p>	<p>Prepare for work</p>	<p>Service brake system</p>	<p>Service steering system</p>
<p>Service suspension system SEIP-LE-AME-05-O</p>	<p>Prepare for work</p>	<p>Test and change shock absorber</p>	<p>Test and change leaf and coil spring</p>
	<p>Test and change bush and mountings</p>		

Units and Elements Table

Generic – Compulsory (4 units of competency required)

Code	Unit of Competency	Elements of Competency	Duration (hours)
SEIP-LE-AME-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 calculations. 	24
SEIP-LE-AME-02-G	Carry out workplace interaction	<ol style="list-style-type: none"> 1. Interpret workplace communication and etiquette. 2. Read and understand workplace documents. 3. Participate in workplace meetings and discussions. 4. Practice professional ethics at work. 	8
SEIP-LE-AME-03-G	Operate in a team environment	<ol style="list-style-type: none"> 1. Identify team goals and work processes. 2. Identify own role and responsibilities within team. 3. Communicate and co-operate with team members. 4. Practice problem solving within the team. 	16
SEIP-LE-AME-04-G	Apply basic IT skills	<ol style="list-style-type: none"> 1. Identify and use most commonly used IT tools. 2. Understand use of computer. 3. Work with word processing application. 4. Work with spreadsheets. 5. Access email and search the internet. 	12
Total Hours			60

Sector-specific – Compulsory (4 units of competency required)

Code	Unit of Competency	Elements of Competency	Duration (hours)
SEIP-LE-AME-01-S	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-LE-AME-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. 	20
SEIP-LE-AME-03-S	Use hand and power tools	<ol style="list-style-type: none"> 1. Identify and inspect hand and power tools. 2. Use hand tools properly and safely. 3. Operate power tools properly and safely. 4. Clean and maintain hand and power tools. 	16
SEIP-LE-AME-04-S	Apply quality systems and procedures	<ol style="list-style-type: none"> 1. Work within quality system. 2. Apply and monitor quality improvement system. 3. Apply standard procedures for each job. 	16
Total Hours			60

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

Code	Unit of Competency	Elements of Competency	Duration (hours)
SEIP-LE-AME-01-O	Identify major components of engine	<ol style="list-style-type: none"> 1. Identify types of engine. 2. Identify major components of engine. 	40
SEIP-LE-AME-02-O	Service auxiliary systems	<ol style="list-style-type: none"> 1. Prepare for work. 2. Service fuel system. 3. Service cooling system. 4. Service lubricating system. 5. Service ignition system. 6. Service starting system. 	40
SEIP-LE-AME-03-O	Service power transmission system	<ol style="list-style-type: none"> 1. Prepare for work. 2. Service clutch system. 3. Service gear box. 4. Service differential system. 5. Service propeller shaft and universal joint. 6. Service axel and CV joints. 	60
SEIP-LE-AME-04-O	Service control system	<ol style="list-style-type: none"> 1. Prepare for work. 2. Service brake system. 3. Service steering system. 	40
SEIP-LE-AME-05-O	Service suspension system	<ol style="list-style-type: none"> 1. Prepare for work. 2. Test and change shock absorber. 3. Test and change leaf and coil spring. 4. Test and change torsion and stabiliser bar. 5. Test and change bush and mountings. 	60
Total Hours			240

Generic Competencies

Unit Title:	Use basic mathematical concepts
Unit Code:	SEIP-LE-AME-01-G
Nominal Hours:	24 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to perform computations using basic mathematical concepts in the 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	3.1. Tools and instruments required for computation are identified. 3.2. Calculation is performed using appropriate tools and instruments accurately.

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
1. Calculation requirements	1.1. Unit 1.2. Area 1.3. Height/ length/ breadth/ thickness 1.4. Diameter 1.5. Weight 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 (<i>may include but not limited to</i>)
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 and 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 and instruments
2. Underpinning knowledge	<ol style="list-style-type: none"> 2.1. Numerical concepts 2.2. Basic mathematical methods such as addition, subtraction, multiplication, 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. Constructing simple problems from workplace information 3.2. Solving problems using appropriate method, tools and instruments 3.3. Using 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. Workplace (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:	Carry out workplace interaction
Unit Code:	SEIP-LE-AME-02-G
Nominal Hours:	8 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to carry out workplace interaction. It specifically includes workplace communication, etiquette, understanding workplace documents, workplace meetings and discussions, and professional ethics at work.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Interpret workplace communication and etiquette	<p>1.1. Workplace codes of conduct are interpreted as per organisational guidelines.</p> <p>1.2. Appropriate lines of communication are maintained with supervisors and colleagues.</p> <p>1.3. Workplace interactions are conducted in a <u>courteous manner</u> to gather and convey information.</p> <p>1.4. <u>Workplace procedures and matters</u> are comprehended.</p>
2. Read and understand workplace documents	<p>2.1. Workplace documents are interpreted correctly.</p> <p>2.2. Visual information/symbols/signage are understood correctly and followed.</p> <p>2.3. Specific and relevant information are accessed from <u>appropriate sources</u>.</p> <p>2.4. Appropriate medium is used to transfer information and ideas.</p>
3. Participate in workplace meetings and discussions	<p>3.1. Team meetings are attended on time.</p> <p>3.2. Meeting procedures and etiquette are followed.</p> <p>3.3. Active participation is ensured, opinions are expressed and heard.</p> <p>3.4. Inputs are provided and interpreted in line with the meeting purpose.</p>
4. Practice professional ethics at work	<p>4.1. Responsibilities as a team member are performed.</p> <p>4.2. Tasks are performed in accordance with workplace procedures.</p> <p>4.3. Confidentiality is maintained.</p> <p>4.4. Inappropriate and conflicting situations are avoided.</p>

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)

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

Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment must evidence that the candidate: 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	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	3.1. Demonstrating workplace communication and etiquette 3.2. Interpreting workplace instructions and symbols 3.3. Demonstrating active participation in workplace meeting 3.4. Applying professional ethics at work

Evidence Guide

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

4. Underpinning attitudes	4.1. Prompt in carrying out activities 4.2. Tidy and punctual 4.3. Respectful of peers, subordinates and seniors in the workplace 4.4. Concerned about the work environment 4.5. Sincere and honest concerning duties
5. Resource implications	The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Workplace procedures 5.3. Standard operating procedure 5.4. Workplace documents, signs and symbols 5.5. Codes of conduct 5.6. Projector 5.7. Stationary 5.8. Learning manual
6. Methods of assessment	Methods of assessment may include but is not limited to: 6.1. Written test 6.2. 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-LE-AME-03-G
Nominal Hours:	16 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 (<i>may include but not limited to</i>)

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

Evidence Guide	
The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency.	
1. 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

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

Unit Title:	Apply basic IT skills
Unit Code:	SEIP-LE-AME-04-G
Nominal Hours:	12 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	1.1. History of information technology (IT) is identified and summarised. 1.2. Commonly used IT tools are identified and described.
2. Understand use of computer	2.1. Basic parts of a computer are identified. 2.2. Turning on and off technique of a computer is performed. 2.3. Working environment, functions and features of operating system is interpreted. 2.4. Simple trouble-shooting techniques are applied.
3. Work with word processing application	3.1. Word processing application appropriate to perform activity is operated. 3.2. Basic typing technique to document is applied. 3.3. Word processing techniques to document are employed. 3.4. Personal CV writing using suitable word processing techniques is practiced. 3.5. Saving and retrieving technique of a document is used.
4. Work with spreadsheets	4.1. Spreadsheet working environment, functions and features are identified and interpreted. 4.2. Data entry on spreadsheet appropriate to perform activity is performed. 4.3. Data manipulation techniques to spreadsheet document are applied. 4.4. Spreadsheet document is created and saved.
5. Access email and search the internet	5.1. Use of email account in online environment is explained. 5.2. Writing and sending of workplace emails is completed. 5.3. Different <u>browsers</u> to work online are identified and selected. 5.4. Browse different web portals and apply proper search techniques.

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
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	
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.

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

Unit Title:	Apply occupational health and safety (OHS) practice in the workplace
Unit Code:	SEIP-LE-AME-01-S
Nominal Hours:	8 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to apply occupational health and safety (OHS) practices in the workplace. It specifically includes identifying OHS policies and procedures, applying personal health and safety practices, reporting hazards and risks, and responding to emergencies.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Identify OHS policies and procedures	<p>1.1. <u>OHS policies</u> and safe operating procedures are interpreted.</p> <p>1.2. Safety signs and symbols are identified and followed.</p> <p>1.3. Response, evacuation procedures and other contingency measures are interpreted correctly.</p>
2. Apply personal health and safety practices	<p>2.1. OHS policies and procedures are 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>

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

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

Evidence Guide

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

4. Underpinning attitudes	<ul style="list-style-type: none">4.1. Committed to occupational health and safety practices4.2. Communicates well with peers, subordinates and seniors in workplace4.3. Prompt in carrying out activities4.4. Tidy and punctual4.5. Sincere and honest concerning duties4.6. Responsible during emergencies
5. Resource implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none">5.1. Workplace (simulated or actual)5.2. Personal protective equipment (PPE)5.3. Firefighting equipment5.4. Emergency response manual5.5. First aid kits5.6. Projector5.7. Stationary5.8. Learning manual
6. Methods of assessment	<p>Methods of assessment may include but is not limited to:</p> <ul style="list-style-type: none">6.1. Written test6.2. Demonstration6.3. Oral test6.4. Observation6.5. 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:	Read and interpret sketches and drawings
Unit Code:	SEIP-LE-AME-02-S
Nominal Hours:	20 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to read and interpret sketches and drawings. It specifically includes interpreting information and specifications, and reading and interpreting sketches and drawings.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Interpret information and specifications	1.1. Appropriate <u>manuals</u> for work activity are identified and collected. 1.2. Information and <u>specifications</u> 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 specification 1.2. Compliance 1.3. Maintenance procedure 1.4. Periodic maintenance 1.5. Quality assurance 1.6. Standard operating procedure (SOP)
2. Sketches and drawings	2.1. Technical 2.2. Measurement 2.3. Design
3. Specifications	3.1. Product 3.2. Performance 3.3. Method
4. Terms and abbreviations	4.1. Refers to all terms and abbreviations associated with the Light Engineering Sector
5. Signs and symbols	5.1. Includes all signs and symbols associated with the Light Engineering Sector

Evidence Guide

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

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

Accreditation Requirements

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Unit Title:	Use hand and power tools
Unit Code:	SEIP-LE-AME-03-S
Nominal Hours:	16 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to use hand and power tools in the workplace. It specifically includes identifying and inspecting hand and power tools for usability, using and operating tools properly and safely, and cleaning and maintaining hand and power tools after use.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Identify and inspect hand and power tools	<p>1.1. Appropriate hand and power tools are identified.</p> <p>1.2. Application of hand and power tools is recognised.</p> <p>1.3. Usability of hand and power tools is checked and verified.</p>
2. Use hand tools properly and safely	<p>2.1. Appropriate <u>hand tools</u> are selected.</p> <p>2.2. Safety precautions are ensured before using hand tools.</p> <p>2.3. Unsafe or faulty hand tools are identified and marked for repair.</p> <p>2.4. <u>Measuring tools</u> are checked and calibrated before use.</p> <p>2.5. Use hand and measuring tools properly and safely to perform work activity.</p>
3. Operate power tools properly and safely	<p>3.1. Appropriate <u>power tools</u> are selected.</p> <p>3.2. Power supply outlet and electrical cord are inspected and confirmed safe for use in accordance with established workplace safety requirements.</p> <p>3.3. Safety precautions are ensured before using power tools in accordance with manufacturer's operating specification.</p> <p>3.4. Proper sequence of operation applied for using power tools.</p> <p>3.5. Unsafe or faulty power tools are identified and marked for repair.</p> <p>3.6. Operate power tools properly and safely to perform work activity.</p>
4. Clean and maintain hand and power tools	<p>4.1. Dust and foreign matter is removed from hand and power tools in accordance to workplace standards.</p> <p>4.2. Condition of hand and power tools is checked after use and reported.</p> <p>4.3. Appropriate lubricant is applied after use and prior to storage.</p> <p>4.4. <u>Measuring tools</u> are checked and calibrated after use.</p> <p>4.5. Defective hand and power tools are inspected and repaired or replaced.</p> <p>4.6. Hand and power tools are stored and secured in accordance with workplace requirements.</p>

Range of Variables

Variable	Range <i>(may include but not limited to)</i>
1. Hand tools	<ul style="list-style-type: none"> 1.1. Hacksaw 1.2. Hammer 1.3. Files 1.4. Pliers 1.5. Punches 1.6. Screwdrivers 1.7. Wrench box 1.8. Hand tap 1.9. Wire cutters 1.10. Hand hacksaw 1.11. Drill 1.12. Grinder 1.13. Dial gauge 1.14. Spanner comb 1.15. Spanner ring 1.16. Socket ratchet set 1.17. Easy opener 1.18. Top roller adjust gauge 1.19. Allen key 1.20. Top roller adjust gauge
2. Power tools	<ul style="list-style-type: none"> 2.1. Portable drilling machine 2.2. Threading machine 2.3. Saws 2.4. Glue gun 2.5. Soldering iron 2.6. Grinders
3. Measuring tools	<ul style="list-style-type: none"> 3.1. Gauges 3.2. Hose level 3.3. Water level 3.4. Micrometre 3.5. Multimeter 3.6. Tachometer 3.7. Thermometers 3.8. Dial indicators 3.9. Slide callipers 3.10. Tape measure 3.11. Testing lead

Evidence Guide

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

1. Critical aspects of competency	Assessment must evidence that the candidate: 1.1. Identified and selected appropriate hand and power tools for work to be performed 1.2. Identified and used measuring and testing tools appropriate to work activity 1.3. Followed safety precautions when using hand and power tools 1.4. Operated power tools safely and pursuant to manufacturer's operating specification 1.5. Performed cleaning and maintenance of hand and power tools after use and prior to storing
2. Underpinning knowledge	2.1. Information on types of hand and power tools, their functions and use 2.2. Procedures for safely using hand and power tools
3. Underpinning skills	3.1. Identifying hand, power and measuring tools 3.2. Following safety precautions when using hand, power and measuring tools 3.3. Using hand and measuring tools correctly and safely in accordance with manufacturer's operating specification 3.4. Operating power tools correctly and safely in accordance with manufacturer's operating specification 3.5. Cleaning and maintaining hand and power tools after use 3.6. Applying appropriate lubricant on hand and power tools after use and prior to storing
4. Underpinning attitudes	4.1. Commitment to occupational health and safety 4.2. Promptness in carrying out activities 4.3. Sincere and honest to duties 4.4. Environmental concerns 4.5. Tidiness and timeliness 4.6. Concerned for proper use of tools
5. Resource implications	The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Hand tools 5.3. Power tools 5.4. Measuring tools 5.5. Projector 5.6. Stationary 5.7. 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:	Apply quality system
Unit Code:	SEIP-LE-AME-04-S
Nominal Hours:	16 hours
Unit Descriptor:	This unit covers the knowledge, skills and attitudes required to apply quality systems and procedure in the workplace. It specifically includes identifying general quality procedures within a manufacturing environment, applying and monitoring a quality improvement system, and applying standard procedures for each job.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Work within quality system	<p>1.1. Instructions and procedures relating to <u>quality improvement system</u> are identified and followed.</p> <p>1.2. Duties are performed in accordance with quality improvement system ensuring conformance to specifications.</p> <p>1.3. Defects are detected and reported to authority according to standard operating procedure.</p> <p>1.4. Quality service is delivered to customer in providing a product or service.</p>
2. Apply and monitor quality improvement system	<p>2.1. Performance measurement systems are identified.</p> <p>2.2. Specifications and standard operating procedure are identified and established.</p> <p>2.3. Performance is assessed at regular intervals.</p> <p>2.4. Defects are detected and reported to authority according to standard operating procedure.</p> <p>2.5. Process improvement procedures are contributed to and implemented.</p> <p>2.6. Improvement of internal/external customer and supplier relationships is contributed to.</p> <p>2.7. Performance of operation or quality of product or service is monitored to ensure customer satisfaction.</p>
3. Apply standard procedures for each job	<p>3.1. Concept of supplying product or service to meet the customer's requirements is understood and accordingly applied.</p> <p>3.2. Responsibility is taken for quality of own work.</p> <p>3.3. Quality system procedures for each job are followed.</p> <p>3.4. Conformance to specification is ensured in every case at all situations.</p>

Range of Variables	
Variable	Range <i>(may include but not limited to)</i>
1. Quality improvement system	1.1. Quality inspection 1.2. Quality control 1.3. Quality improvement 1.4. Total quality control 1.5. Quality assurance

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 Followed quality system instructions and procedures 1.2 Maintained proper specifications and standards of product 1.3 Checked product for quality assurance 1.4 Detected defects and took corrective action 1.5 Applied and monitored quality improvement system 1.6 Applied standard procedures for each job 1.7 Ensured customer satisfaction
2. Underpinning knowledge	<ol style="list-style-type: none"> 2.1. Quality system procedures 2.2. Product specifications 2.3. Quality assurance process 2.4. Performance measurement systems 2.5. Standard operating procedures 2.6. Record keeping
3. Underpinning skills	<ol style="list-style-type: none"> 3.1. Identifying and explaining quality improvement system 3.2. Identifying product and process specifications and standards 3.3. Applying and monitoring quality improvement system 3.4. Detecting defects and faults in product 3.5. Implementing corrective action 3.6. Keeping records in accordance with standard operating procedure 3.7. Identifying and meeting customer requirements

Evidence Guide

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

4. Underpinning attitudes	<ul style="list-style-type: none">4.1. Promptness in carrying out activities4.2. Sincere and honest to duties4.3. Tidy and punctual4.4. Active on teamwork4.5. Eager to learn4.6. Communicate with peers and seniors in the workplace4.7. Environmental concerns4.8. Concerned for proper use of tools4.9. Commitment to occupational health and safety
5. Resource implications	The following resources must be provided: <ul style="list-style-type: none">5.1. Workplace (simulated or actual)5.2. Specifications5.3. Standard operating procedure5.4. Quality improvement procedure5.5. Quality assurance protocol5.6. Sample products5.7. 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

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Occupation-specific Competencies

Unit Title:	Identify major components of engine
Unit Code:	SEIP-LE-AME-01-O
Nominal Hours:	40 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to identify the major components of an engine. It specifically includes identifying types of engine and major components of engine.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Identify types of engine	1.1. <u>Types of engine</u> are identified 1.2. Working principle of different engines are explained.
2. Identify major components of engine	2.1. <u>Major components of engine</u> are identified. 2.2. Location of major components are identified. 2.3. Relationship between major components is described.

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
1. Types of engines	1.1. Gasoline 1.2. Diesel 1.3. Two stroke 1.4. Four stroke
2. Major components of engine	2.1. Engine head 2.2. Engine block 2.3. Oil pan 2.4. Piston 2.5. Connecting rod 2.6. Crankshaft 2.7. Camshaft 2.8. Engine valves 2.9. Fly wheel 2.10. Bearing

Evidence Guide

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

1. Critical aspects of competency	Assessment must evidence that the candidate: 1.1. Identified different types of engine 1.2. Explained working principle of different engines 1.3. Identified and located major components of engine 1.4. Described relationship between major components
2. Underpinning knowledge	2.1. Major components of engine 2.2. Location of major components 2.3. Functions of major components 2.4. Working principle of engines
3. Underpinning skills	3.1. Identifying different engine types 3.2. Identifying major components of engine 3.3. Locating major components of engine
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. Committed to occupational health and safety practices
5. Resource implications	The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Personal protective equipment (PPE) 5.3. Tools and equipment 5.4. Measuring instruments 5.5. Drawings, specifications and manuals 5.6. Projector 5.7. Stationary 5.8. Learning manual
6. Methods of assessment	Methods of assessment may include but is not limited to: 6.1. Written test 6.2. Oral test 6.3. Observation 6.4. Demonstration 6.5. Portfolio
7. Context of assessment	7.1. Competency assessment must be done in a training institute or an actual or simulated workplace after completion of this unit of competency. 7.2. Assessment must be done by a suitably qualified/certified assessor.

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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Unit Title:	Service auxiliary systems
Unit Code:	SEIP-LE-AM-02-O
Nominal Hours:	40 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to perform service on auxiliary systems. It specifically includes preparing for work and servicing fuel, cooling, lubricating, ignition, and starting systems.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Prepare for work	1.1. Read and interpret specifications and instructions. 1.2. Identify and select appropriate personal protective equipment (PPE). 1.3. Identify and select job specific tools and equipment.
2. Service fuel system	2.1. <u>Major components of fuel system</u> are identified. 2.2. Functions of major components are described. 2.3. Major components are tested and replaced, if necessary.
3. Service cooling system	3.1. <u>Major components of cooling system</u> are identified. 3.2. Functions of major components are described. 3.3. Fan belt tension is adjusted. 3.4. Radiator and engine flushing is performed. 3.5. Major components are tested and replaced, if necessary.
4. Service lubricating system	4.1. <u>Major components of lubrication</u> system are identified. 4.2. Functions of major components are described. 4.3. Major components are tested and replaced, if necessary.
5. Service ignition system	5.1. <u>Major components of ignition</u> system are identified. 5.2. Functions of major components are described. 5.3. Major components are tested and replaced, if necessary.
6. Service starting system	6.1. <u>Major components of starting system</u> are identified. 6.2. Functions of major components are described. 6.3. Major components are tested and replaced, if necessary.

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
1. Major components of fuel system	1.1. Fuel pump 1.2. Fuel filter 1.3. Petrol Injector 1.4. Pressure regulator

Range of Variables	
Variable	Range (may include but not limited to)
2. Major components of cooling system	2.1. Water pump 2.2. Radiator with pressure cap 2.3. Cooling fan with motor and thermostatic switch 2.4. Thermostat valve 2.5. Hose pipes
3. Major components of lubrication	3.1. Lubricating oil pump 3.2. Oil filter 3.3. Pressure relief valve 3.4. Oil pressure switch
4. Major components of ignition system	4.1. Distributor 4.2. Ignition coil 4.3. Spark plug 4.4. Ignitor
5. Major components of starting system	5.1. Starting motor 5.2. Solenoid switch 5.3. Ignition switch 5.4. Starting relay

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. Read and interpreted specifications and instructions 1.2. Identified and located auxiliary systems and components 1.3. Described functions of major auxiliary systems 1.4. Used personal protective equipment 1.5. Used appropriate tools and equipment 1.6. Tested, serviced and replaced components of major auxiliary systems
2. Underpinning knowledge	<ol style="list-style-type: none"> 2.1. Personal protective equipment (PPE) 2.2. Tools and equipment 2.3. Major components and functions of auxiliary systems 2.4. Auxiliary systems and functions 2.5. Servicing procedure

Evidence Guide

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3. Underpinning skills	3.1. Reading and interpreting specifications and instructions 3.2. Identifying major components of different auxiliary systems 3.3. Testing major auxiliary system components 3.4. Servicing of different auxiliary systems 3.5. Replacing major auxiliary system components
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. Committed to occupational health and safety practices 4.7. Concerned for proper use of tools 4.8. Concerned about the work environment 4.9. Communicates well with peers, subordinates and seniors in workplace
5. Resource implications	The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Personal protective equipment (PPE) 5.3. Tools and equipment 5.4. Measuring and testing instruments 5.5. Drawings, specifications, and manuals 5.6. Replacement products 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.

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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Unit Title:	Service power transmission system
Unit Code:	SEIP-LE-AME-03-O
Nominal Hours:	60 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to perform service on power transmission system. It specifically includes preparing for work and servicing service clutch, gear box, differential systems, and propeller shaft, universal joint, axel and CV joints.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Prepare for work	1.1. Read and interpret specifications and instructions. 1.2. Identify and select appropriate personal protective equipment (PPE). 1.3. Identify and select job specific tools and equipment.
2. Service clutch system	2.1. <u>Major components of clutch system</u> are identified. 2.2. Functions of major components are described. 2.3. Adjustment and bleeding of clutch system is carried out. 2.4. Major components are tested and replaced, if necessary.
3. Service gear box	3.1. <u>Major components of gear box</u> are identified. 3.2. Functions of major components are described. 3.3. Change of gear oil is carried out. 3.4. Major components are tested and replaced, if necessary.
4. Service differential system	4.1. <u>Major components of differential system</u> are identified. 4.2. Functions of major components are described. 4.3. Adjustment and oil change is carried out. 4.4. Major components are tested and replaced, if necessary.
5. Service propeller shaft and universal joint	5.1. <u>Major components of propeller shaft and universal joint</u> are identified. 5.2. Functions of major components are described. 5.3. Major components are tested and replaced, if necessary.
6. Service axel and CV joints	6.1. <u>Major components of axel and CV joints</u> are identified. 6.2. Functions of major components are described. 6.3. Major components are tested and replaced, if necessary.

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)

Range of Variables	
Variable	Range <i>(may include but not limited to)</i>
1. Major components of clutch system	1.1. Clutch plate 1.2. Pressure plate 1.3. Coil spring /diaphragm spring 1.4. Release bearing
2. Major components of gear box	2.1. Input shaft/clutch shaft 2.2. Lay shaft/counter shaft 2.3. Main shaft/output shaft 2.4. Synchronizing unit 2.5. Different gears
3. Major components of differential system	3.1. Crown wheel 3.2. Sun gear 3.3. Star pinion 3.4. Pinion shaft 3.5. Casing
4. Major components of propeller shaft and universal joint	4.1. Propeller shaft 4.2. Universal joint 4.3. Sliver joint
5. Major components of axel and CV joints	5.1. Axel 5.2. CV joints

Evidence Guide	
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1. Critical aspects of competency	Assessment must evidence that the candidate: <ol style="list-style-type: none"> 1.1. Read and interpreted specifications and instructions 1.2. Identified and located power transmission system and its components 1.3. Described functions of power transmission system 1.4. Used personal protective equipment 1.5. Used appropriate tools and equipment 1.6. Tested, serviced and replaced components of power transmission system

Evidence Guide

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2. Underpinning knowledge	2.1. Personal protective equipment (PPE) 2.2. Tools and equipment 2.3. Major components and functions of power transmission system 2.4. Power transmission system and its functions 2.5. Servicing procedure
3. Underpinning skills	3.1. Reading and interpreting specifications and instructions 3.2. Identifying major components of power transmission system 3.3. Testing power transmission system components 3.4. Servicing of power transmission system 3.5. Replacing power transmission components
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. Committed to occupational health and safety practices 4.7. Concerned for proper use of tools 4.8. Concerned about the work environment 4.9. Communicates well with peers, subordinates and seniors in workplace
5. Resource implications	The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Personal protective equipment (PPE) 5.3. Tools and equipment 5.4. Measuring and testing instruments 5.5. Drawings, specifications, and manuals 5.6. Replacement products 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:	Service control system
Unit Code:	SEIP-LE-AME-04-O
Nominal Hours:	40 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to perform service on control system. It specifically includes preparing for work and servicing brake and steering system.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Prepare for work	<p>1.1. Read and interpret specifications and instructions.</p> <p>1.2. Identify and select appropriate personal protective equipment (PPE).</p> <p>1.3. Identify and select job specific tools and equipment.</p>
3. Service brake system	<p>3.1. <u>Major components of brake system</u> are identified.</p> <p>3.2. Functions of major components are described.</p> <p>3.3. Adjustments and bleeding of brake system is carried out</p> <p>3.4. Major components are tested and replaced, if necessary.</p>
4. Service steering system	<p>4.1. <u>Major components of steering system</u> are identified.</p> <p>4.2. Functions of major components are described.</p> <p>4.3. Adjustment of steering system is carried out.</p> <p>4.4. Major components are tested and replaced, if necessary.</p>

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
1. Major components of brake system	<p>1.1. Master cylinder</p> <p>1.2. Servo-cylinder/brake buster</p> <p>1.3. Wheel cylinder</p> <p>1.4. Brake shoe assemble</p> <p>1.5. Brake pad and calliper</p>
2. Major components of steering system	<p>2.1. Steering wheel with shaft</p> <p>2.2. Steering gear box</p> <p>2.3. Tie rod with tie rod end</p> <p>2.4. Steering pump</p> <p>2.5. Steering motor</p>

Evidence Guide

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

1. Critical aspects of competency	Assessment must evidence that the candidate: 1.1. Read and interpreted specifications and instructions 1.2. Identified and located control system and its components 1.3. Described functions of control system 1.4. Used personal protective equipment 1.5. Used appropriate tools and equipment 1.6. Tested, serviced and replaced components of control system
2. Underpinning knowledge	2.1. Personal protective equipment (PPE) 2.2. Tools and equipment 2.3. Major components and functions of control system 2.4. Power transmission system and its functions 2.5. Servicing procedure
3. Underpinning skills	3.1. Reading and interpreting specifications and instructions 3.2. Identifying major components of control system 3.3. Testing control system components 3.4. Servicing of control system 3.5. Replacing control components
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. Committed to occupational health and safety practices 4.7. Concerned for proper use of tools 4.8. Concerned about the work environment 4.9. Communicates well with peers, subordinates and seniors in workplace
5. Resource implications	The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Personal protective equipment (PPE) 5.3. Tools and equipment 5.4. Measuring and testing instruments 5.5. Drawings, specifications, and manuals 5.6. Replacement products 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:	Service suspension system
Unit Code:	SEIP-LE-AME-05-O
Nominal Hours:	60 hours
Unit Descriptor:	This unit covers the skills, knowledge and attitudes required to perform service on suspension system. It specifically includes preparing for work and testing and changing shock absorber, leaf and coil spring, torsion and stabiliser bar, and bush and mountings.
Elements of Competency	Performance Criteria (<u>bold and underlined</u> terms are elaborated in the Range of Variables)
1. Prepare for work	1.1. Read and interpret specifications and instructions. 1.2. Identify and select appropriate personal protective equipment (PPE). 1.3. Identify and select job specific tools and equipment.
2. Test and change shock absorber	2.1. <u>Types of shock absorber</u> are identified. 2.2. Function of shock absorber are described. 2.3. Shock absorber is tested and replaced, if necessary.
3. Test and change leaf and coil spring	3.1. <u>Components of leaf spring</u> are identified. 3.2. Types of leaf spring and coil spring are identified 3.3. Function of leaf spring and coil spring are described. 3.4. Service of leaf spring is carried out. 3.5. Leaf and coil spring are tested and replaced, if necessary.
4. Test and change torsion and stabiliser bar	4.1. Function of torsion and stabiliser bar described. 4.2. Service of torsion bar and stabiliser bar is carried out. 4.3. Torsion and stabiliser bar are tested and replaced, if necessary.
5. Test and change bush and mountings	5.1. <u>Type of bush and mountings</u> are identified. 5.2. Functions of bush and mountings are described. 5.3. Bush and mountings are tested and replaced, if necessary.

Range of Variables	
Variable	Range (<i>may include but not limited to</i>)
1. Types of shock absorber	1.1. Telescopic 1.2. Air type 1.3. Oil type
2. Components of leaf spring	2.1. Leafs of leaf spring 2.2. Centre bolt and U-bolt 2.3. Shackle bar and hanger

Range of Variables	
Variable	Range (may include but not limited to)
3. Types of bush and mountings	3.1. Shock absorber bush 3.2. Torsion bar bush 3.3. Stabiliser bar bush 3.4. Engine mounting 3.5. Gear box mounting

Evidence Guide	
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1. Critical aspects of competency	Assessment must evidence that the candidate: <ol style="list-style-type: none"> 1.1. Read and interpreted specifications and instructions 1.2. Identified and located suspension system and its components 1.3. Described functions of suspension system 1.4. Used personal protective equipment 1.5. Used appropriate tools and equipment 1.6. Tested, serviced and changed components of suspension system
2. Underpinning knowledge	<ol style="list-style-type: none"> 2.1. Personal protective equipment (PPE) 2.2. Tools and equipment 2.3. Major components and functions of suspension system 2.4. Suspension system and its functions 2.5. Servicing and changing components procedure
3. Underpinning skills	<ol style="list-style-type: none"> 3.1. Reading and interpreting specifications and instructions 3.2. Identifying major components of suspension system 3.3. Testing suspension system components 3.4. Servicing of suspension system 3.5. Changing suspension components
4. Underpinning attitudes	<ol style="list-style-type: none"> 4.1. Tidy and punctual 4.2. Prompt in carrying out activities 4.3. Sincere and honest concerning duties 4.4. Active on teamwork 4.5. Eager to learn 4.6. Committed to occupational health and safety practices 4.7. Concerned for proper use of tools 4.8. Concerned about the work environment 4.9. Communicates well with peers, subordinates and seniors in workplace

Evidence Guide

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

5. Resource implications	The following resources must be provided: 5.1. Workplace (simulated or actual) 5.2. Personal protective equipment (PPE) 5.3. Tools and equipment 5.4. Measuring and testing instruments 5.5. Drawings, specifications, and manuals 5.6. Replacement products 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.

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