

PERFORM STANDARD LABORATORY PRACTICES

UNIT CODE: 1022 441 08A

TVET CDACC UNIT CODE: SLT/OS/SL/CR/01/5/MA

UNIT DESCRIPTION

This unit specifies the competencies required to perform standard laboratory practices. It involves performing laboratory safety procedures, maintaining laboratory resources and preparing laboratory reagents and chemicals.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function (to be stated in active)	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements (to be stated in passive voice) <i>Bold and italicized terms are elaborated in the Range</i>
1. Perform laboratory safety procedure	1.1 <i>Personal Protective Equipment</i> (PPE) is donned as per work requirement 1.2 <i>laboratory hazard and risk</i> are handled based on laboratory safety procedures 1.3 Laboratory chemical and reagent are stored based on manufacturers specifications 1.4 <i>Laboratory waste</i> is disposed as per work requirement 1.5 Laboratory safety rules are applied as per good laboratory practices 1.6 Risks assessment is conducted according to the likelihood and severity. 1.7 Types of <i>injuries</i> are handled according to laboratory first aid procedures 1.8 First aid procedures are reviewed as per laboratory safety guidelines

	<p>1.9 Develop emergency response procedures and preparedness as per OSHA.</p> <p>1.10 Maintain records of hazards, risks assessment and control measures as per legal requirement</p>
2. Maintain laboratory resource	<p>2.1 Laboratory inventory is maintained as per Good Laboratory Practice work requirement</p> <p>2.2 Laboratory equipment and apparatus is maintained as per the manufacturer's specifications.</p> <p>2.3 Laboratory resource is stored as per the manufacturer's guidelines</p> <p>2.4 Obsolete resource is disposed as per Occupational Safety and Health (OSH) guidelines</p>
3. Prepare laboratory reagents and chemicals	<p>3.1 Personal protective equipment is donned as per work requirement</p> <p>3.2 Laboratory reagents and apparatus are assembled as per work requirement</p> <p>3.3 Laboratory reagents and chemicals standardization is carried out as per work requirement</p> <p>3.4 Laboratory reagent and chemical is stored according to work requirement laboratory manual procedures</p>

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

VARIABLE	RANGE
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1. Personal Protective Equipment include but not limited to:	<ul style="list-style-type: none"> • Lab coats • Gloves • Overalls • Goggles • Muffs • Face shields • Helmets • Hair nets • Respirators • Masks
2. Laboratory hazards and risks include but not limited to:	<ul style="list-style-type: none"> • Chemical • Biological • Electrical • Radioactive • Musculoskeletal stresses • Electrical • Physical
3. Laboratory waste include but not limited to:	<ul style="list-style-type: none"> • Sharp objects • Glassware • Biological samples • General lab waste • Wipes • Gloves • Tissues • Chemicals • Radioactive materials • Electrical materials

4. Laboratory equipment include but not limited to:	<ul style="list-style-type: none"> • Bunsen burner • Microscopes • Hot plates • Magnetic stirrer • Water baths • Oven • Freezers • Furnace
Laboratory apparatus include but not limited to:	<ul style="list-style-type: none"> • Balances • Wash bottles • Glass ware • Crucibles • Brushes • Filter papers • Pestle and mortar
Laboratory resource includes but not limited to:	<ul style="list-style-type: none"> • Equipment • Apparatus • Inventories
Laboratory reagent includes but not limited to:	<ul style="list-style-type: none"> • Acids • Bases • Salts • Indicators • Distilled water

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Computer application
- Scientific research reporting
- First aid
- Communication
- Observation
- Critical thinking
- Problem solving
- Environmental conservation

Required Knowledge

The individual needs to demonstrate knowledge of:

- Laboratory ware and equipment
- Science laboratory safety
- Quantitative and qualitative analysis
- Laboratory safety designs
- Laboratory waste disposal
- Laboratory ethical standards
- Record maintenance
- Computer application
- Laboratory hygiene
- Basic mathematics
- Entrepreneurship

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

1.Critical Aspects of Competency	1.1 Assessment requires evidence that the candidate: 1.2 Donned Personal Protective Equipment (PPE) as per work requirement
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	<p>1.3 Handled laboratory hazard and risk based on laboratory safety procedures</p> <p>1.4 Stored laboratory chemical and reagent based on manufacturers specifications</p> <p>1.5 Disposed laboratory waste as per work requirement</p> <p>1.6 Maintained laboratory inventory as per work requirement</p> <p>1.7 Maintained laboratory equipment and apparatus as per manufacturer's specifications.</p> <p>1.8 Carried out laboratory reagents and chemicals standardization as per work requirement</p>
2.Resource Implications	<p>The following resources should be provided:</p> <p>2.1 Appropriately simulated environment where assessment can take place.</p> <p>2.2 Access to relevant work environment.</p> <p>2.3 Resources relevant to the proposed activities or tasks.</p>
3.Methods of Assessment	<p>Competency in this unit may be assessed through:</p> <p>3.1 Practical</p> <p>3.2 Project</p> <p>3.3 Third party report</p> <p>3.4 Portfolio of evidence</p> <p>3.5 Written test</p> <p>3.6 Oral test</p>
4.Context of Assessment	<p>Competency may be assessed in a workplace or simulated workplace</p>
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector and workplace job role is recommended.</p>