PERFORM WORKSHOP TECHNOLOGY APPLICATIONS

UNIT CODE: ENG/OS/AUT/CC/4 /4/A

Unit description

This unit describes the competencies required to perform workshop applications. It involves using applied geometry to plan work operations, choosing appropriate tool and materials, measuring and marking out dimensions on workpieces, using hand tools to cut and file parts, assembling metal parts and sub-assemblies, polishing finished work, inspecting finished work for accuracy, maintaining of tools and equipment and performing housekeeping,

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function	**PERFORMANCE CRITERIA** These are assessable statements which specify the required level of performance for each of the elements. ***Bold and italicized terms are elaborated in the Range***
1. Use applied geometry to plan work operations	1.1 Applied geometry drawings and symbols are interpreted as per ***standard drawing conventions.*** 1.2 ***Operation plan*** is produced as per the applied geometry drawing 1.3 Applied geometry drawings are produced as per standard drawing conventions.
2. Choose appropriate tools and materials	2.1 Working tools, equipment and materials are selected as per the task. 2.2 The work areas are tidied up as per organization policy.
3. Measure and mark out dimensions on workpieces	3.1 ***Measuring tools*** suitable for the work are selected as per task. 3.2 Measuring tools are inspected and calibrated as per SOPs. 3.3 Dimensions are marked on the workpiece as per the working drawing.
4. Use hand tools to cut and file parts	4.1 ***Hand tools*** are selected as per task. 4.2 Workpiece is cut as per drawing specifications 4.3 Workpiece is filed as per drawing specification 4.4 Parts are produced as per drawing specifications
5. Assemble metal parts and sub-assemblies	5.1 Parts ***joined***, fitted and assembled as per drawing specifications 5.2 Final assembly inspected as per drawing specifications
6. Polish finished work	6.1 ***Polishing*** material are selected as per SOPs. 6.2 Finished work is cleaned as per workshop procedures

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	6.3 Finished work is polished as per drawing ***specifications***
7. Inspect finished work for accuracy	7.1 Finished work is inspected as per as per drawing specifications 7.2 Adjustments are made based on inspections results
8. Maintenan tools and equipment	8.1 Tools and equipment are lubricated as per manufacturers manual 8.2 Tools are ground as per manufacturers specification 8.3 Faults on tools are identified and reported as per workshop procedures 8.4 tools and equipment are stored as per workshop procedures
9. Perform housekeeping	9.1 Work area is cleaned as per workshop procedures. 9.2 Waste is sorted and disposed as per safety and environmental regulations.

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
1. Measuring tools may include but not limited to:	• Steel rule • Vernier calliper • Micrometre screw gauge • Vernier height gauge • Combination set • Bevels
2. standard drawing conventions may include but not limited to:	• ISO • BS • ANSI
3. Operation Plan may include but not limited to:	• Sequence of operations • Measuring tools • Hand tools • Cutting tools • Inspection tools

VARIABLE	RANGE
4. Hand tools may include but not limited to:	• Scribers • Dividers • Dot punch • Centre punch • Engineers square • Straight edge • Surface plate • Bench vice • V-Block • Angle plate • G-clamp • Jigs and fixtures • Hand vice • Files • Saws • Hammers • Chisels • Taps and dies
5. Polishing may include but not limited to:	• Emery cloth • Filing
6. Joining may include but not limited to:	• Riveting • Fastening • Soldering • Brazing • Welding
7. Specifications may include but not limited to:	• Dimensions • Tolerances • Geometry • Surface finish • Functionality

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:

- Technical drawing
- Using measuring and inspection tools
- Using hand tools
- Soldering and brazing

- Riveting and fastening

Required Knowledge

The individual needs to demonstrate knowledge and understanding of:

- Occupational Health and Safety Act of Kenya laws 2007 with focus on personal safety, machine safety and workplace
- National Environment Management Authority Act, Kenya 2004
- OSH act
- Equipment manuals
- Basic technical drawing complyingto ISO, ANSI & BS standards
- ISO 1101 Geometrical tolerance and where to use the norm
- Work Planning and documentation
- Measuring tools
- Hand tools
- Bench work
- Inspection and quality control
- Preventive maintenance of machine tools
- Metal cutting technology
- WIBA act (2007)
- Report writing

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	Assessment requires evidence that the learner: 1.1 Interpreted drawings and symbols correctly 1.2 Produced applied geometry drawings correctly 1.3 Selected tools and equipment appropriately 1.4 Produced parts correctly 1.5 Assembled parts correctly 1.6 Polished workpieces correctly 1.7 Identified faults on tools and equipments correctly 1.8 Cleaned work area appropriatetly 1.9 Disposed waste appropriately
2. Resource Implications	The following resources should be provided: 2.1 Hand measuring tools 2.2 Hand marking tools 2.3 Hand tools 2.4 Inspection tools and equipment 2.5 Work benches
3. Methods of Assessment	Competency may be assessed through: 2.6 Observation 2.7 Oral 2.8 written

	2.9 Inspection of finished product 2.10 Observing housekeeping of the work area and/or machine tool
4. Context of Assessment	Competency may be assessed individually in the actual workplace or through accredited institution or during Industrial Attachment.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.