

PRODUCE COMPONENTS ON THE LATHE

UNIT CODE: ENG/OS/MLF/CR/02/4/B

UNIT DESCRIPTION

This unit specifies the competencies required to identify lathe machine parts accessories and their functions, prepare operation procedure sheet, mount work pieces, perform lathe machine operations, assess quality of finished work, organize work area and maintain machine tool and accessories and observe safety rules and regulations.

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. <i>Bold and italicized terms are elaborated in the Range</i>
1. Observe safety rules and regulations	1.1 Prescribed personal safety gear is worn as per work place procedure. 1.2 Prescribed safety measures for the operation of hand tools and drilling machines adhered to as per rules and regulations 1.3 Prescribed safe work environment is observed as per rules and regulations 1.4 Prescribed workplace procedures are adhered to
2. Identify machine parts, tools, accessories and their functions	2.1 A lathe is defined as per the manufacturers manual 2.2 Types of lathe are identified as per the manufacturers manual 2.3 Parts of a lathe are identified according to manufactures manual 2.4 Functions of the parts of a lathe are defined as per manufacturers operation manual 2.5 Lathe <i>cutting tools</i> and accessories are identified as per manufacturers manual and work specifications

3. Prepare operation plan	<p>3.1 Working drawing is read and <i>interpreted as per the technical drawing Standards</i></p> <p>3.2 <i>Operation plan</i> is prepared as per the standard operations procedure</p>
4. Mount work piece	<p>4.1 Work piece is mounted on the chuck or other accessories according to machining operation procedures</p> <p>4.2 Work piece is supported by tail stock as per the SOPs</p> <p>4.3 True running of the work piece is observed as per the work place procedures</p>
5. Perform machining to specifications	<p>5.1 Work piece machined to specified dimensions</p> <p>5.2 Work piece machined to specified surface roughness</p>
6. Assess quality of finished work	<p>6.1 Inspection tools and methods selected as per operation plan</p> <p>6.2 Finished work is inspected as per specifications</p> <p>6.3 Adjustments are made according to inspection Results</p>
7. Maintain machine tool and accessories	<p>7.1 Machine and accessories are inspected as per the work places procedures</p> <p>7.2 Faults on machines and accessories are identified according to standard operation procedures</p> <p>7.3 Machine parts oiled and lubricated as per the manufacturer's manual</p>
8. Perform house keeping	<p>8.1 Tools, equipment and accessories are cleaned and stored as per the work organization policy.</p> <p>8.2 Housekeeping is carried out as per the work place requirements</p> <p>8.3 Waste is segregated and disposed as per the disposal guidelines</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
1. Technical drawing Standards includes but not limited to;	<p>1.1 ISO</p> <p>1.2 BS</p> <p>1.3 ANSI</p>

2. Cutting tools and accessories includes but not limited to;	2.1 Knurling tools 2.2 Threading 2.3 Turning 2.4 Boring 2.5 Parting
Variable	Range
	2.6 Drilling bits 2.7 Lathe dog 2.8 Face plate 2.9 Lathe steadies and centers
3. Specifications includes but not limited to;	3.1 Dimensions 3.2 Geometry 3.3 Surface finishing 3.4 Functionality
4. Operation plan includes but not limited to;	4.1 Sequence of operations 4.2 Measuring tool 4.3 Cutting tool including cutting data 4.4 Production time 4.5 Speed and feed rate 4.6 Cutting angles

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:

- Work piece material preparation
- Measuring and marking
- Technical drawing
- Work mounting
- Tool setting and tool grinding
- Use of lathe accessories and attachments
- Performing various lathe operations
- Inspecting finished work
- Maintaining machine tool
- Organizing work area

Required knowledge

The individual needs to demonstrate knowledge 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
- Technical drawing complying to ISO, ANSI & BS standards
- Geometrical tolerance
- Metal cutting processes using HM & HSS cutting tools
- Measuring tools
- Preventive maintenance
- Inspection and quality control
- Lathe operations
- Taper turning
- WIBA act
- 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	<p>Assessment requires evidence that the learner:</p> <ul style="list-style-type: none"> 1.1 observed safety as per work place procedures 1.2 Developed operation plan as per the specifications 1.3 Calculated speed and feed rate as per the specifications 1.4 Selected cutting tools, speed & feed rates as per the working drawing 1.5 Performed machining operations as per the work place procedures 1.6 Inspected finished product as per the specifications 1.7 Set up machine tools as per the work place procedures 1.8 Mounted work piece as per the work place procedures 1.9 Performed machine, tool and equipment maintenance as per the work place procedures
2. Resource Implications	<ul style="list-style-type: none"> 2.1 Lathe 2.2 Cutting tools 2.3 Measuring tools 2.4 Material 2.5 Resource materials, manuals for cutting tools & lathe 2.6 Work place procedures

3. Methods of Assessment	<p>Competency may be assessed through:</p> <p>3.1 Observing the behavior of the learner</p> <p>3.2 Inspection of produced operation procedures</p> <p>3.3 The quality control of the finished product with regards to drawing specification and tolerances.</p> <p>3.4 Observing housekeeping rules and regulation</p> <p>3.5 Observing maintenance of the lathe</p>
4. Context of Assessment	Competency may be assessed individually in the actual workplace or through accredited institution
5. Guidance information for assessment	Holistic assessment of other units relevant to the industry sector, workplace and job role is recommended.

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