

PERFORM MILLING OPERATIONS

UNIT CODE : 0715 351 04A

TVET CDACC UNIT CODE: ENG/OS/MMO/CR/04/4/MA

UNIT DESCRIPTION

This unit describes the competencies required by a Mechanical Production Technician in order to perform milling operations. It includes interpreting working drawings, setting work piece and tool(s) on milling machine, setting up milling machine, performing milling machine operations and carrying out milling machine maintenance.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace functions	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. Interpret working drawings	1.1 Safety is observed as per OSHA standards 1.2 Housekeeping is observed as per workplace regulations 1.3 Working drawing is interpreted as per drawing standards 1.4 Work plan is prepared as per the working drawing 1.5 Materials are selected as per task requirements 1.6 Tools and accessories are identified as per task requirements
2. Set work piece and tool(s) on milling machine	2.1 Work piece is marked out as per task requirements 2.2 Work piece is mounted and aligned as per task requirements 2.3 Tools and accessories are selected as per task requirements 2.4 Tools and accessories are mounted as per task requirements
3. Set up milling machine	3.1 <i>Mode of milling operation</i> is identified as per requirements

	3.2 Speeds and feeds are selected as per manufacturer's specifications 3.3 Cutting fluid is identified as per task requirements
4. Perform milling machine operations	4.1 <i>Milling machine operations</i> are identified as per task requirements 4.2 Machining is carried out as per task requirements 4.3 Dimensions are checked and adjusted as per working drawing
5. Carry out milling machine maintenance	5.1 Maintenance requirements are identified as per workplace procedures 5.2 <i>Preventive maintenance</i> is carried out as per machine manual 5.3 Corrective maintenance is carried out as per machine manual

RANGE

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

Variable	Range
1. <i>Mode of milling operation</i>	• Semi-Automatic • Manual • Conventional/Up milling • Climb/Down milling
2. <i>Milling machine operations</i>	Milling machine operations may include but not limited to; • Face milling • Progressive milling • Profile milling • End milling • Form milling • Gang milling

	• Slitting • Slab milling • Straddle milling
3. <i>Preventive maintenance</i>	May include but not limited to; • Troubleshooting • Problem diagnosing • Replacement and repair of faulty parts • Routine maintenance

REQUIRED KNOWLEDGE AND SKILLS

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

Required knowledge

The individual needs to demonstrate knowledge of:

- OSHA 2007
- WIBA 2007
- Hand tools
- Marking out tools
- Measuring tools
- Power tools
- Repair and maintenance
- Drawing Interpretation
- Job card interpretation

Required skills

The individual needs to demonstrate the following skills:

- Technical drawing skills
- Communication skills
- Problem solving skills

- Time management
- Numeracy skills
- Creativity
- Organizational skills

EVIDENCE GUIDE

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

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Observed safety as per OSHA standards 1.2 Interpreted working drawing as per drawing standards 1.3 Selected materials, tools and accessories as per task requirements 1.4 Marked out work piece as per task requirements 1.5 Mounted and aligned tools, accessories and work piece as per task requirements 1.6 Selected speeds and feeds as per manufacturer's specifications 1.7 Carried out machining as per task requirements 1.8 Checked and adjusted dimensions as per working drawing 1.9 Cleaned and oiled machine as per manufacturer's specifications 1.10 Cleaned work and segregated waste as per workplace procedures
2. Resource implications	The following resources should be provided: 2.1 Appropriate working environment where assessment can take place 2.2 Resources relevant to the proposed activities or tasks

3.	Methods of assessment	Competency in this unit may be assessed through: 3.1 Project work 3.2 Practical assessment 3.3 Observation 3.4 Oral questioning 3.5 Portfolio of evidence 3.6 Third party report 3.7 Written tests
4.	Context of assessment	Competency may be assessed in workplace or a simulated workplace environment.
5.	Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace job role is recommended.