

INTERPRET BASIC TECHNICAL DRAWINGS

UNIT CODE: ENG/OS/MLF/CC/01/4/B

UNIT DESCRIPTION

This unit covers the competencies required by a mechanical production artisan to interpret basic technical drawings. It involves competencies to: select and use drawing instruments and materials, interpret plain geometry drawings, solid geometry drawings, pictorial and orthographic drawings and mechanical drawings to help in fabrication and machining of components on the lathe.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
<p>These describe the key outcomes which make up workplace function.</p>	<p>These are assessable statements which specify the required level of performance for each of the elements. <i>(Bold and italicised terms are elaborated in the Range)</i></p>
<p>1. Use drawing instruments and materials</p>	<p>1.1 <i>Personal Protective Equipment</i> is used according to occupational safety and health regulations 1.2 <i>Drawing instruments</i> are identified and gathered according to task requirements 1.3 <i>Drawing materials</i> are identified and gathered according to task requirements 1.4 Drawing instruments are used as per the task specification 1.5 Drawing instruments are maintained as per manufacturer's instructions 1.6 Drawing materials are used as per workplace procedures 1.7 Waste materials are disposed in accordance with workplace procedures and <i>environmental legislations</i></p>
<p>2. Interpret plane geometry drawings</p>	<p>2.1 Different lines used in drawing are identified according to standard drawing conventions 2.2 Different <i>geometric forms</i> are constructed according to standard conventions 2.3 Different angles are measured using appropriate measuring tools 2.4 Angles are bisected according to standard conventions 2.5 Freehand sketching of different geometric forms, tools, equipment, diagrams is conducted</p>

3. Interpret solid geometry drawings	3.1 Drawings of patterns are interpreted according to standard conventions 3.2 Patterns are developed in accordance with drawing specification
4. Interpret orthographic and pictorial drawings	4.1 Drawing symbols, abbreviations are interpreted according to standard drawing conventions 4.2 First and third angle orthographic drawings produced in accordance with the standard conventions 4.3 Orthographic elevations are dimensioned in accordance with standard conventions 4.4 Isometric drawings are produced in accordance with standard conventions
5. Interpret mechanical drawings	5.1 Mechanical symbols and abbreviations are interpreted according to BS 3939 5.2 Mechanical drawings are interpreted in accordance with BS 3939

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
Personal Protective Equipment includes but not limited to:	Dust coats, closed leather shoes
Drawing instrument includes but not limited to:	Drawing boards, T and set squares, drawing sets, curves, protractor, ruler, computers with CAD packages
Drawing materials includes but not limited to:	Drawing papers, pencils, erasers, masking tapes, paper clips
Environmental legislations include but not limited to:	EMCA 1999
Geometric forms include but not limited to:	Circles, triangles, rectangles, parallelogram, polygons, pyramids, conic sections, prisms, loci
Standard conventions include but not limited to:	<ul style="list-style-type: none"> ● Anatomy of engineering drawing (title block, coordinate grid system, revision block, notes and legends) ● Drawing scale (paper size and drawing symbols) ● International drawing standards
Mechanical drawings includes but not limited to:	Block, schematic and line diagrams

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:

- Critical thinking
- Basic numeracy
- Drawing skills
- Interpretation
- Drawing equipment handling
- Analysis and synthesis
- Communication skills
- Inter personal skills

Required knowledge

The individual needs to demonstrate knowledge of:

- Drawing equipment and materials
- Freehand sketching
- Lettering
- Geometrical constructions
- Types of drawings
- Types of lines
- Isometric drawing conventions, features, characteristics, components
- Orthographic drawing conventions, features, characteristics, components
- Sketches and drawings of simple patterns

EVIDENCE GUIDE

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

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Used Personal Protective Equipment according to occupational safety and health regulations 1.2 Used drawing instruments as per the task specification 1.3 Used drawing materials as per workplace procedures 1.4 Identified different lines used in drawing according to standard drawing conventions 1.5 Conducted freehand sketching of different geometric forms, tools, equipment and diagrams
-----------------------------------	---

	<p>1.6 Developed patterns in accordance with drawing specification</p> <p>1.7 Produced first and third angle orthographic drawings in accordance with the standard conventions</p> <p>1.8 Produced isometric drawings in accordance with standard conventions</p> <p>1.9 Produced mechanical drawings in accordance with BS 3939</p>
2. Resource Implications	<p>Resources the same as that of workplace are advised to be applied.</p> <p>2.1 Drawing room</p> <p>2.2 Drawing instruments and materials</p> <p>2.3 Teaching models</p>
3. Methods of Assessment	<p>Competency may be assessed through:</p> <p>3.1 Practical assessment</p> <p>3.2 Observation</p> <p>3.3 Oral assessment</p>
4. Context of Assessment	<p>Competency may be assessed individually in the actual workplace or a simulated work place setting</p>
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

USE COMMON METALLIC AND NON-METTALIC MATERIALS

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

UNIT DESCRIPTION:

This unit covers the unit of competency required by a mechanical production artisan to use common metallic and non-metallic materials. It involves competencies required to: identify properties of engineering materials, identify ore extraction processes, identify