

-SQA-SCOTTISH QUALIFICATIONS AUTHORITY

**Hanover House
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NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number- 0095602 -Session-1989-90
-Superclass- TD

**-Title- CONSTRUCTION DRAWING 2: ORTHOGRAPHIC,
ISOMETRIC AND OBLIQUE PROJECTION (x¹/₂)**

-DESCRIPTION-

Purpose This module is designed to further the knowledge and skills required to graphically illustrate craft details on drawings. The drawings will involve orthographic, isometric, and oblique projection. It may be of interest to those following a career in construction which uses drawing as a graphical means of communication.

Preferred Entry Level 95601: Construction Drawing 1: An Introduction (x¹/₂)

Learning Outcomes The student should:

1. interpret a range of symbols and abbreviations used in construction drawing as recommended by appropriate British Standards;
2. set out and draw to scale prisms, pyramids, true shapes and surface developments;
3. produce a scaled drawing using orthographic projection from a given specification;
4. produce a scaled drawing of a pictorial view from a given specification.

Content/ Context Corresponding to the Learning Outcomes 1-4:

1. BS 1192 and BS 308 symbols: lines; hidden, detail, centre, section, dimensions; arrowheads; annotation; thickness and density.

2. Equipment: Set square 30, 45 and 60 degree, tee square, eraser, compasses, protractor, scale rule, 2H and 3H pencil, soft pencil, drawing board, cartridge paper, masking tape, drawing clips, pencil sharpener, dividers, cleaning equipment, graph paper A4 and A3.

Triangular, square, hexagonal and octagonal prisms and pyramids; true shapes; surface developments; front and end elevations and plan.

- 3&4. Craft details reproduced in orthographic projection and pictorial views.

Suggested Learning and Teaching Approaches

The teaching approach should be activity based and the student should be encouraged to improve drawing techniques by regular constructive appraisal of work.

The ability to interpret working drawings and set out work in a logical manner should be stressed.

Problem solving should be a feature of every drawing exercise.

Scales should be used in every formal drawing and proportional sketching should be emphasised as a communication medium.

The design (on the drawing board) and the manufacture (in workshops) should be attempted where practicable.

Craft details relevant to the student's discipline should be used in the teaching and assessment of Learning Outcomes 1, 3 and 4.

Assessment Procedures

Acceptable performance in the module will be satisfactory achievement of all the performance criteria specified for each Learning Outcome.

The following abbreviations are used below:

LO Learning Outcome
IA Instrument of Assessment
PC Performance Criteria

LO1

INTERPRET A RANGE OF SYMBOLS AND ABBREVIATIONS USED IN CONSTRUCTION DRAWING AS RECOMMENDED BY APPROPRIATE BRITISH STANDARDS

PC The student:

- (a) identifies symbols used in construction drawing as recommended by appropriate British Standards;
- (b) identifies abbreviations used in construction drawing.

IA Objective Items

The student will be presented with an exercise consisting of objective items to test the recall of knowledge required to interpret a range of symbols and abbreviations used in construction drawing as recommended by the British Standard (BS) appropriate to the student's craft discipline.

The exercise will consist of 14 questions allocated as follows:

- (i) symbols -8
- (ii) abbreviations -6

The student will be required to either interpret the given symbols and abbreviations or give the appropriate symbol or abbreviation.

Objectives items could be made up from a range of short answer, completion, matching or multiple choice questions.

Satisfactory achievement of the Learning Outcome will be based on all performance criteria being met. This will be demonstrated by the student producing 6 correct responses for (i) and 4 correct responses for (ii).

LO2

SET OUT AND DRAW TO SCALE PRISMS, PYRAMIDS, TRUE SHAPES AND SURFACE DEVELOPMENTS

PC The student:

- (a) selects equipment appropriate to the task;
- (b) lays out drawing sheet with title panel set out to correct position and size in accordance with appropriate BS;
- (c) sets out and draws accurately to scale prisms and pyramids using orthographic projection;
- (d) draws accurately to scale true shapes and surface developments of prisms and pyramids;
- (e) produces neat and clean drawing(s);
- (f) maintains drawing equipment in good condition.

IA Practical Exercise

The student will be set a practical exercise consisting of 2 graphical tasks to test the application of knowledge and skills required to set out and draw to scale prisms, pyramids, true shapes and surface developments.

The student will be required to produce 2 drawings as follows:

- (A) hexagonal prism
- (B) square pyramid

Each drawing should detail the following:

- (i) plan
- (ii) front elevation
- (iii) end elevation
- (iv) true shape of cut surfaces
- (v) surface development

Satisfactory achievement of the Learning Outcome will be demonstrated by the student meeting all the performance criteria for each drawing.

LO3

PRODUCE A SCALED DRAWING USING ORTHOGRAPHIC PROJECTION FROM A GIVEN SPECIFICATION

PC The student:

- (a) selects equipment appropriate to the task;
- (b) lays out drawing sheet for given task with title panel set out to correct position and size in accordance with appropriate BS;
- (c) sets out and draws accurately to scale given craft details using orthographic projection;
- (d) identifies components and uses appropriate BS symbols and abbreviations;
- (e) produces neat and clean drawing(s);
- (f) maintains drawing equipment in good condition.

IA Assignment

The student will be set an assignment to test the application of knowledge and skills required to produce a scaled drawing using orthographic projection.

The student should be given a written and/or graphical specification outlining a plan and an elevation(s) of a craft detail relevant to the student's discipline.

The student will be required to produce a scaled annotated drawing showing a section(s) through the given craft detail.

Satisfactory achievement of the Learning Outcome will be demonstrated by the student meeting all the performance criteria.

LO4

PRODUCE A SCALED DRAWING OF A PICTORIAL VIEW FROM A GIVEN SPECIFICATION

PC The student:

- (a) selects equipment appropriate to the task;
- (b) lays out drawing sheet for given task with title panel set out to correct position and size in accordance with appropriate BS;
- (c) sets out and draws accurately to scale given craft details using:
 - (i) isometric projection;
 - (ii) oblique projection.
- (d) produces neat and clean drawing(s);
- (e) maintains drawing equipment in good condition.

IA Assignment.

The student will be set an assignment to test the application of knowledge and skills required to produce a scaled drawing of a pictorial view.

The student should be given a written and/or graphical specification of a section(s) through a craft detail.

Using a larger scale than that given, the student will be required to produce 2 drawings of the given craft detail in:

- (i) isometric projection
- (ii) oblique projection.

Satisfactory achievement of the Learning Outcome will be demonstrated by the student meeting all the performance criteria for each drawing.