

**-SQA-SCOTTISH QUALIFICATIONS AUTHORITY**

**Hanover House  
24 Douglas Street  
GLASGOW G2 7NQ**

**NATIONAL CERTIFICATE MODULE DESCRIPTOR**

**-Module Number- 0091049 -Session-1989-90**

**-Superclass- RB**

**-Title- MATHEMATICS: CONSTRUCTION NUMERACY 2 (x<sup>1</sup>/2)**

**-DESCRIPTION-**

Preferred Entry Level 91048 Mathematics: Construction Numeracy 1 (x<sup>1</sup>/2) or equivalent

Learning Outcomes

The student should:

1. carry out mathematical operations;
2. calculate perimeters and areas of triangles, circles and other shapes;
3. apply costing methods.

Content/  
Context

Corresponding to Learning Outcomes 1-3:

1. Calculate ratios and proportions such as concrete or plaster mixes. Calculate percentages such as VAT, allowance for waste, discount, surcharge. Calculations should be expressed in a context relevant to the craft area.
2. Calculate perimeters and areas of triangles, circles and other shapes such as trapezium, octagon, hexagon. Use Pythagoras Theorem to solve elementary problems. Calculations should be expressed in a context relevant to the craft area.
3. The assignment should involve the application of the content of the other Learning Outcomes. It should be expressed in a context relevant to the craft area eg. tiling for a hipped roof, areas of slabbing, brickwork for a gable end. VAT calculations could be included. Relevant information may be obtained from tables, charts, catalogues, etc.

## Suggested Learning and Teaching Approaches

The module could be integrated with relevant craft modules.

Consolidation of skills should not consist entirely of mechanical exercises but should include problem solving in a practical context where possible. Group investigations may be appropriate, however, calculations should be carried out individually.

When using calculators students should be encouraged to use estimation techniques for relevant calculations. Computers may be used where appropriate.

Students should maintain a workfile. This should form a complete record of the student's work throughout the module. The tutor should ascertain periodically that each student is maintaining the workfile adequately. The workfile could contain, as appropriate, the student's notes, class handouts, complete worksheets, exercises, assignments, report(s) of investigation(s), log book of computer activities and a summary of the important details of the module for later revision purposes.

## 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

L01 CARRY OUT MATHEMATICAL OPERATIONS

PC The student:

- (a) calculates and uses ratios and proportions;
- (b) calculates and uses percentages.

IA Calculation Exercise

Topics should be assessed on the number of occasions indicated:

- |                               |   |
|-------------------------------|---|
| (a) ratios                    | 2 |
| proportions                   | 2 |
| (b) percentages of quantities | 3 |

One question may cover more than one topic.

Satisfactory achievement of the Learning Outcome will be demonstrated by the student producing at least 3 correct responses for (a) and at least 2 correct responses for (b).

## LO2 CALCULATE PERIMETERS AND AREAS OF TRIANGLES, CIRCLES AND OTHER SHAPES

PC The student:

- (a) calculates the perimeter and area of triangles;
- (b) calculates the perimeter and area of circles;
- (c) calculates the perimeter and area of other shapes.

IA Calculation Exercise

Topics should be assessed on the number of occasions indicated:

(a) perimeter of triangle	1
area of triangle	1
(b) perimeter of a circle	1
area of a circle	1
(c) perimeter of another shape	1
area of another shape	1

One question may cover more than one topic.

Satisfactory achievement of the Learning Outcome will be demonstrated by the student producing at least 5 correct responses in total.

## L03 APPLY COSTING METHODS

PC The student:

- (a) obtains relevant information;
- (b) carries out appropriate calculations to obtain satisfactory results;
- (c) communicates the results.

IA Assignment

The assignment will involve a costing exercise which integrates mathematical skills developed in the module. It should be expressed in a practical context relevant to the craft area.

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