

-SQA-SCOTTISH QUALIFICATIONS AUTHORITY

**Hanover House
24 Douglas Street
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NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number- 0065116 -Session-1986-87

-Superclass- RG

-Title- SURVEYING 1

-DESCRIPTION-

Type
and
Purpose

A general module to introduce the student to the theory and practice of site measurement; the interpretation of maps and plans and the setting out of minor construction works.

Preferred
Entry Level

Mathematics (General) at Standard Grade 3

Learning
Outcomes

The student should:

1. carry out a linear survey;
2. interpret the information shown on site plans and on Ordnance Survey plans;
3. prepare longitudinal and cross sections;
4. prepare a contour plan;
5. set out small construction works.

Content/
Context

Corresponding to the Learning Outcomes:

1. principles of trilateration and offsetting; planning of surveys; ancillary equipment; recording field measurements; plotting error; standards of accuracy; use and care of instruments.
2. ordnance survey large scale plans of Great Britain and plans of construction sites.

Identification and interpretation of plans, scales, reference systems and legends of site and ordnance survey plans.

3. principles of levelling; use and care of instruments; standards of accuracy; methods of booking; field exercise; construction of longitudinal and cross sections.
4. principles of contouring; use of contour plans; errors; standards of accuracy; field exercise in construction of contour plans.
5. principles and applications should be appropriate to small rectangular buildings and short drainage runs.

Introduction to the principles of setting out using ... tapes, 3:4:5 triangle, theodolites, levels and lasers.

Importance of accurate communication of setting out information to site operatives.

Field exercises horizontal control ... offset datums, sketch for site personnel.

Field exercises: vertical control ... profiles and travellers, sketch for site personnel.

Suggested Learning and Teaching Approaches

The individual's contribution to group/Teamwork should be stressed throughout.

Safety, safe practices and care in use of equipment should be an integral part of all module activities.

Extensive use should be made of activity based assignments. Students should work in small groups for field work and individually for associated indoor work using shared field data. The leadership and composition of the groups should be varied to develop responsibility and confidence.

A log book of field data, associated calculations and scaled drawings should be kept by each student.

Students should be provided with ample opportunity to acquire the knowledge/content of the course through suitable textbooks and individualised learning packages. Knowledge of survey planning, errors and their elimination, desirable and obtainable accuracies should be gained in group discussions. Reinforcement should be provided through tutorials.

Assessment
Procedures

All learning outcomes must be validly assessed.

The student must be informed of the tasks which contribute to summative assessment. Any unsatisfactory aspects of performance should, if possible, be discussed with the student as and when they arise.

Acceptable performance in the module will be satisfactory achievement of 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

IA Practical exercise - the student is required to carry out a practical survey of an area of 0.25 to 0.50 hectare, to enter the results in a field book, to calculate standardised plan lengths of field lines, to plot the results to scale and to write a brief report.

PC The PC should be based on:

- (a) achieving an accuracy of not less than 1/500;
- (b) completing the exercise in a reasonable time;
- (c) using correct procedures;
- (d) correct checking of tape length against standard;
- (e) correct use of clinometer;
- (f) accurate recording of data;
- (g) correct calculation of standardised plan lengths of survey lines;
- (h) correct plotting of results;
- (i) clarity of report.

LO2

IA Written test - 10 short answer questions in which the student is required to interpret the information shown on a given site plan and on a given Ordnance Survey 1/2500 scale plan.

PC The cutting score should be at least 70%.

LO3

- IA Practical and graphical exercise - the student is required to measure and record ground levels in a given area and to draw a longitudinal section and cross sections of it to scale.
- PC The PC should be based on the accuracy of the measurement and of the drawings.

LO4

- IA Practical and graphical exercise - the student is required to measure and record ground levels in a given area and to draw the contour lines for it on a prepared worksheet.
- PC The PC should be based on the accuracy of the measurement and of the drawing.

LO5

- IA Practical and graphical exercise - the student is required to set out on site a small rectangular building, to erect profiles and to set out sight rails indicating the gradient of a section of drain approximately 40m long.
- PC The PC should be based on the student:
- (a) using correct procedures;
 - (b) setting out corners properly and accurately;
 - (c) positioning profile boards correctly;
 - (d) setting the reduced level of a sight rail correctly
 - (e) using sight rails and travellers correctly;
 - (f) communicating setting out information effectively.