

Warning: An incomplete or missing proforma may have resulted from system verification processing

Title: CIVIL ENGINEERING SURVEYING 1  
Status: Definitive  
Code: **4021BEUG** (102743)  
Version Start Date: 01-08-2016

Owning School/Faculty: Astrophysics Research Institute  
Teaching School/Faculty: Astrophysics Research Institute

Team	Leader
Nick Eden	Y

**Academic Level:** FHEQ4      **Credit Value:** 12      **Total Delivered Hours:** 62  
**Total Learning Hours:** 120      **Private Study:** 58

### Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	24
Practical	24
Tutorial	12

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	unseen	70	2
Report	AS2	practical assignment	30	

### Aims

*To introduce basic techniques for land surveying and setting out: methods of obtaining orientation, the subsequent field measurements for the purpose of producing site drawings and hence the calculation of land areas and earthwork volumes, setting out points using line-of-sight and satellite techniques.*

## Learning Outcomes

After completing the module the student should be able to:

- 1 Identify standard scales used on Ordnance Survey (OS) and other topographical maps and plans, and the coordinate systems used for such plans including the OS National Grid (NG).
- 2 Use a range of theodolites, levels, tapes and electronic distance meters (EDM's) to measure vertical and horizontal angles, and vertical, horizontal and slope distances.
- 3 Work and communicate effectively and in a safe manner in a survey team.
- 4 Use measured values to produce plans and compute and draw contours, longitudinal and cross sections, and to evaluate areas of land and volumes of earthworks.
- 5 Extract positional survey information from a drawing or map and set out and control on site the features indicated by such information.

## Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

EXAM	4	5			
REPORT	1	2	3	4	5

## Outline Syllabus

*Orientation: The use of the Reference Object (RO) and orientation to the National Grid system of the Ordnance Survey and other coordinate systems. Standard maps and plans, scales and symbols.*

*Safety and Risk Assessment in surveying operations.*

*Vertical Control (OBMs): Set up, use and adjustment of the level. Ordnance Bench Marks and leveling techniques. Accuracy checks.*

*Horizontal Control: Set up, use and adjustment of the theodolite and Total Station. Theodolite traverses and their adjustment.*

*Introduction to Global Navigational Satellite Systems.*

*Setting out: Field positioning of points and lines using the Total Station.*

*Applications: Computation and drawing of contours, longitudinal sections and cross sections. Determination of areas of land and volumes of earthworks.*

## Learning Activities

Lectures, computational problems, practical use of surveying instruments in the field, treatment of field data.

## **Notes**

An introduction to basic land surveying techniques. The field measurements required to produce a contoured site plan to a chosen scale, the use of field information to compute land areas and earthworks volumes, and setting out simple features to full scale on site in both line and level.