

# Unit 61: Topographic Surveying in Construction and Civil Engineering

Unit code: K/600/0426

QCF Level: 3

Credit value: 10

Guided learning hours: 60

## Unit aim

This unit gives learners the opportunity to develop the skills needed to carry out surveys to establish the levels of points, determine coordinates of stations, and survey land and buildings. Learners will also develop knowledge of emerging technologies in control and topographic surveys.

## Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

Learning outcomes	Assessment criteria
1 Be able to carry out control surveys to establish the levels of points	1.1 carry out levelling surveys to establish vertical control
2 Be able to carry out control surveys to determine coordinates of stations	2.1 carry out control surveys to determine coordinates
	2.2 calculate coordinates of stations from data collected
3 Be able to carry out surveying of land and buildings	3.1 carry out surveys of land and buildings
	3.2 produce plans of land and buildings using standard software
4 Know about emerging technologies in control and topographic surveys.	4.1 describe the uses and advantages of emerging technologies in control and topographic surveying

## Unit content

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### **1 Be able to carry out control surveys to establish the levels of points**

*Control surveys:* procedures to establish vertical control; calculations

*Procedures:* fly levelling to establish levels of points

*Calculations:* adjustment of simple levelling networks

### **2 Be able to carry out control surveys to determine coordinates of stations**

*Control surveys:* procedures; calculations

*Procedures:* to determine coordinates and stations; traversing; free station

*Calculations:* polar and rectangular coordinates; adjustment of simple traverses

### **3 Be able to carry out surveying of land and buildings**

*Surveying of land:* topographic surveys (hard detail, soft detail and contours); use of total stations and standard software; production of plans

*Surveying of buildings:* measured building surveys (internal and external); use of standard software; production of plans

### **4 Know about emerging technologies in control and topographic surveys**

*Emerging technologies:* Global Positioning Systems (GPS); automated total stations; laser scanning

*Advantages:* in terms of accuracy; reliability; ease of use; site conditions; cost