

Setting Out for Engineering Surveyors Five-Day Course

Course Overview

This course is designed to give engineering graduates and personnel already working in the construction industry experience in the principles, calculations and practical application of site setting-out required for more complex setting-out conditions. The week-long training gives insight into the application of both a level and staff and a total station such that the best methods are used for a variety of problems and compliments the TSA Surveying Course Block 5.

Emphasis is put on making use of the many built-in functions of the Total Station. Supporting survey software and spreadsheets are also used to speed up operation and efficiency on the site. Students are given instruction on how any setting out might be checked and what can be done to guard against errors.

It is assumed that the delegates will have either completed our 2 day levelling and 3 day total station courses or have had at least six month's site setting-out experience and be fully conversant with the use of the level and total station.

The delegate will be expected to have a good grasp of mathematics, and be familiar with their pocket calculator. The course includes calculation of gradients, co-ordinates, bearings and distances to enable the engineer to calculate or check the required setting-out points from the given drawings.

Summary of main topics covered by the course:

- Introduction & Health and safety (using the equipment on site)
- Calculator functions, trigonometry, sine, cosine tangent and the use of Pythagoras's theorem, to calculate bearing and distances.
- Levelling for control Measurement and datum's.
- The Total Station – familiarisation instrument settings, prism constant and atmospheric corrections. Setting up jobs, storing co-ordinates
- Awareness of instrument collimation error and knowing its effect.
- Transfer of data between computer and instrument for setting out in the field
- Using Survey Drawing software and spreadsheets to help input data and check Setting out of as built points.
- The Total Station – using the free-station (resection) and principles of site control.
- Setting out by bearing and distance
- Setting out with the efficient use of the Reference Line.
- Setting out by co-ordinates.
- Calculation of gradients and setting out of drainage profiles.
- Calculation of road cross-sections and setting-out batter-boards.
- Setting out horizontal circular curves –Basic calculations.
- Using the Ref Arc program for setting and checking radial arrays of points.
- Course Review, questions and close.

At the end of the course students, receive a certificate of completion/attendance.