



BRITISH SOCIETY FOR
STRAIN MEASUREMENT

Stress Analysis and Load Measurement using Strain Gauges

The course uses lectures and hands-on experience to develop a deeper understanding of strain gauge techniques, in order to improve the accuracy of measurements used in the determination of stress levels and critical loads in structural components, and to appreciate design features incorporated in instruments used to measure load. Previous experience with strain gauges is essential.

Day 1

- 09:15 Registration
Strain and resistance strain gauges
Quarter-bridge circuits: introduction and practice
Correction of measured output
- 12:15 Lunch
- 13:00 Quarter-bridge calibration: introduction and practice
Correction of measured strains
Strain variation with position and orientation
- 16:45 End of day 1

Day 2

- 09:00 Strain measurement practice and determination of stress and yield load
Full-bridge circuits: introduction
- 12:15 Lunch
- 13:00 Full-bridge circuits: practice
Circuit design for load measurement using a structural component
- 16:45 End of day 2

Day 3

- 09:00 Practical refinement of the full-bridge on a cantilever beam
Bridge balancing
Elimination of temperature-induced zero shift
Bridge sensitivity adjustment
Elimination of temperature-induced sensitivity shift
- 12:15 Lunch
- 13:00 Force measurement systems and load cell bodies
Gauges, resistors, adhesives etc. for load cells
Applications: load cells and gauges structural members
- 16:30 End of course

Location

Oxford Brookes University, School of Technology, Gipsy Lane, Headington, Oxford OX3 0BP

Car Parking

Parking will be reserved at the Gipsy Lane Campus

Course Lecturers

The course will be run by experienced lecturers from Vishay Measurements Group UK and Oxford Brookes University.

Group Size

Hands-on sessions form an important element of the course. It is therefore necessary to restrict the group size to about 10.

Course Fee

Inclusive of 'Resistance Strain Gauge Load Cells', course materials, lunches and coffee/tea £680+ VAT

Certification

The provisions of modern day consumer protection legislation and the requirements of various safety regulations make it necessary for critical measurements on components and structures to be carried out to an approved standard by competent persons who are qualified in the best techniques available.

To demonstrate your competence as a strain gauge user you should hold a BSSM Certificate. The certification scheme operates at three levels and complies with the European Standard EN473:1993. The levels cater for staff with a wide range of competencies and responsibilities, from strain gauge installation to analysis and design.

**All enquiries to:
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