Measuring with Strain Gauges - Planning, Performing and Evaluating

(Incl. Certification in accordance with VDI/VDE/GESA 2636 – course 2)

Agenda

Day 1

09.00 h - 09.15 h **Welcome and introduction to the seminar program**

09.15 h - 09.45 h **Sharing information about strain measurements with strain gauges (SG)**
- Function, characteristic values and installation of SG
- Basic principles of a Wheatstone bridge circuit

09.45 h - 10.45 h **Wheatstone bridge circuit and compensation in depth**

approx. 10.45 h - 11.00 h ***Coffee break***

11.00 h - 11.30 h **SG connection: 2 / 3 / 4 wires, etc.**

11.30 h - 12.00 h **Calibrating and adjusting measurement chains**

approx. 12.00 h - 13.00 h ***Common lunch break***

13.00 h - 13.45 h **Correlations between strain, stress and Hooke's Law**
- Stress resulting from load, residual stress and thermal stress
- uniaxial and multi-axial stress state
- Material failure and reference stress
- Procedure for determination of residual stress

13.45 h - 14.00 h **Welcome and introduction to the instrument lab**

14.00 h - 14.45 h **Instrument lab (conducting independent tests on topics related to strain measurements, compensation, amplifier technology and stress analysis)**

approx. 14.45 h - 15.00 h ***Coffee break***

15.00 h - 17.00 h **Continuation of instrument lab**

17.00 h **End of seminar day 1**

Day 2

09.00 h - 10.00 h **SG equipment technology and cable connections**
- Amplifier principles (TF, DC)
- Selection criteria
- Eliminating undesirable influences
- Additional functions

10.00 h - 10.30 h **Observations on measurement uncertainty when measuring with SG**

approx. 10.30 h - 10.45 h ***Coffee break***

10.45 h - 11.15 h **Planning, documentation and logging of SG measuring point and measurement parameters**

11.15 h - 12.00 h **Opportunity for a certification exam according to standard of Association of German Engineers (VDI/VDE/GESA 2636, course 2)**

approx. 12.00 h - 13.00 h ***Common lunch break***

12.45 h - 14.45 h **Instrument lab**

approx. 14.45 h - 15.00 h ***Coffee break***

15.00 h - 16.45 h **Continuation of instrument lab**

16.45 h - 17.00 h **Summary, overview and end of seminar**