



# Measuring with Strain Gauges - Planning, Performing and Evaluating

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

## Program

## 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) <ul style="list-style-type: none"><li>- Function, characteristic values and installation of SG</li><li>- Basic principles of a Wheatstone bridge circuit</li></ul>
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 <ul style="list-style-type: none"><li>- Stress resulting from load, residual stress and thermal stress</li><li>- uniaxial and multi-axial stress state</li><li>- Material failure and reference stress</li><li>- Procedure for determination of residual stress</li></ul>
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 <ul style="list-style-type: none"><li>- Amplifier principles (TF, DC)</li><li>- Selection criteria</li><li>- Eliminating undesirable influences</li><li>- Additional functions</li></ul>
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