



Experimental Stress Analysis (ESA) Using Strain Gauges

Program

Day 1

09:00 am - 09:15 am	Welcome and introduction to the seminar program
09:15 am - 10:30 am	Basic principles of stress analysis <ul style="list-style-type: none">- Normal and shear stress- Transverse contraction, Poisson's ratio- Elastic and plastic material behavior- Stress/strain diagrams
approx. 10:30 am - 10:45 am	Coffee break
10:45 am - 12:00 noon	Multi-axial stress state and strength <ul style="list-style-type: none">- Mohr's strain/stress circle- Determining principal strains and stresses- Hooke's Law generalized- Strength hypotheses and determining reference stresses
approx. 12:00 noon - 1:00 pm	L U N C H
1:00 pm - 3:00 pm	Group work I <ul style="list-style-type: none">- Learning content applied to an actual component
approx. 3:00 pm - 3:15 pm	Coffee break
1:00 pm - 2:30 pm	Continuation of group work I
4:00 pm - 4:45 pm	Presentation and discussion of results
4:45 pm - 5:00 pm	Summary and overview
approx. 5:00 pm	End of seminar day 1

Day 2

09:00 am - 10:15 am	Residual stresses, anisotropic materials and types of material failure
09:30 am - 10:30 am	Time-dependent loads - Types of time-dependent loads - Static, vibration and pulsating fatigue strength - Endurance strength graphs (Smith and Heigh)
approx. 10:30 am - 10:45 am	Coffee break
10:45 am - 12:00 noon	Strength evaluation with time-dependent loading - S-N curve, short-term, static and endurance strength - Classifying strain data - Determining the damage sum - Durability / fatigue life prediction
approx. 12:00 noon - 1:00 pm	L U N C H
1:00 pm - 3:00 pm	Group work I - Learning content applied to an actual component
approx. 3:00 pm - 3:15 pm	Coffee break
1:00 pm - 2:30 pm	Continuation of group work I
4:00 pm - 4:45 pm	Presentation and discussion of results
4:45 pm - 5:00 pm	Summary and overview
approx. 5:00 pm	End of the seminar