eLearning Course Outline

Basic Introduction to Materials Testing Course: Static

The eLearning Basic Introduction to Materials Testing Course: Static is an online based overview of the theory and practice of static testing as relates to Instron style static testing machines. Topics include the history of why static is done and what place it has in today's industries, an overview of general static testing systems. In addition some calculations and test types used in common testing configurations as well as some accessory and measurement information. This course is ideal for operators without a Materials or Mechanical background and Lab Managers who want a brief overview.

Objectives

After completing this course, the participant will become familiar with the terms and applications of static testing, be familiar about the function of their static test equipment and their specific testing.

Course Outline

Section 1: Introduction to Materials/Static Testing *(Time: 20 minutes 7 seconds)*

- What is Static Testing?
- Why do Static Testing?
    - Verifying Designs
    - Developing New Materials
    - Failure Analysis
    - Material Modification

Section 2: The Testing System and Good Testing Practices *(Time: 13 minutes 36 seconds)*

- Tension and Compression Testing
- Electro Mechanical (EM) Load Frame and Accessories
- Good Testing Practices
    - Specimen Alignment
    - Specimen Loading
    - Toe and Slack Correction

Section 3: Units and Measurement *(Time: 25 minutes 18 seconds)*

- Primary Testing Types
    - Tension
    - Compression
- Primary Testing Measurements
    - Load
    - Displacement
    - Stress
    - Strain
- Measuring Devices

Section 4: Material Property and Results *(Time: 24 minutes 7 seconds)*

- Demonstrations
    - Metals Test
    - Plastics Test
    - Rubber Test
- Types of Results
    - Maximum Load
    - Modulus
    - Ductile Failure vs. Brittle Failure
    - Types of Strain
- Modulus
- Offset Yield
- Zero Slope Yield
- Strain Rate
- Temperature

Section 4: Fixturing *(Time: 16 minutes 3 seconds)*

- Types of Grips
    - Pneumatic Grips
    - Hydraulic Grips
    - Wedge Grips
    - Yarn Grip
    - Threaded Rods
    - Fastener Grip
    - Adhesive Grip
- Grip Faces
- Fixturing
    - Compression Platens
    - 3 Point Bend
    - 4 Point Bend
    - Peel Testing
    - O-ring Test
- Course Review

Who Should Attend

- Lab Managers and operators without a Materials background
- Test Method developers who want a brush up on terminology

***Our eLearning courses are intended for "individual" users. The course will be available for a single viewing completion within 90 days of your purchase date. For group rates, please contact Instron Training.*