

# Materials Engineering 1 | Multimedia Courseware

**Material Quality Control - WX11803-DD01UEN-E1**

Objective 4: List and Describe the Four Steps Used to Analyze a Component Failure

**Four Steps of Component Failure Analysis**

The analysis of a component failure can be very complicated.

**Collect Evidence**

**Perform Non-Destructive Testing**

**Perform Destructive Testing**

**Develop Failure Analysis Report**

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## Materials Identification Training: M11803

Amatrol's online Industrial Materials Testing eLearning course discusses the characteristics of materials that are important in design and the role of quality control in working with materials. Topics include material quality control, tensile strength analysis, data acquisition systems, materials design, compression testing and analysis, shear and hardness testing and analysis, and design evaluation.

### Teach Hands-On Skills

#### How are Material Characteristics Maintained in a Process?

During the manufacturing process, a material goes through many changes, from raw to finished material. The finished material must have certain properties or characteristics when complete. Inspections are done during each step of the manufacturing process to ensure that the final material has the needed characteristics. In addition to checking dimensions, inspection tests may include checking properties of the material, such as strength or hardness. Just like dimensional measurements, these tests produce measurement data and can be analyzed using SPC charts.

#### What are Data Acquisition Systems?

The function of a data acquisition system is to collect data from a process in order to store and analyze it using a computer. One advantage of a computer-based data acquisition system is that data can be collected and stored automatically. Another advantage is that data can be analyzed more easily, since computer software can display data in various formats.

### Industrial Materials Testing eLearning Features Engaging, Extensive Multimedia

Amatrol's [extensive, thorough multimedia](#) covers materials engineering. Interactive screens paired with instructive graphics teach an array of materials engineering topics from tensile strength analysis to design evaluation. With the optional hardware, learners can then apply this theoretical knowledge to immediate hands-on skills. For example, learners study the importance and applications of shear strength and then set up and perform their own

shear test. This combination of theory and practice ingrains concepts in a learner's mind and makes more advanced topics easier to comprehend. (References [94-MT1](#))

## **Additional Info**

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- **Additional Requirements**

- Computer: [See requirements](#)

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