

# Materials Engineering 1 | Multimedia Courseware

The screenshot shows a slide from an eLearning course. The title bar reads 'Material Quality Control - WX11803-DD01UEN-E1'. Below the title bar, the objective is stated: 'Objective 4: List and Describe the Four Steps Used to Analyze a Component Failure'. The main content area is titled 'Four Steps of Component Failure Analysis' and contains the text: 'The analysis of a component failure can be very complicated.' Below this text, four puzzle pieces are arranged in a 2x2 grid, each representing a step in the failure analysis process. The top-left piece is red and labeled 'Collect Evidence'. The top-right piece is purple and labeled 'Perform Non-Destructive Testing'. The bottom-left piece is yellow and labeled 'Perform Destructive Testing'. The bottom-right piece is green and labeled 'Develop Failure Analysis Report'. The slide also features an AMATROL logo in the bottom left corner, a warning icon in the bottom right corner, and navigation controls (back, forward, search, refresh) at the bottom center, with the page number 'Page 11 of 35' displayed.

## 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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### **Address**

**Amatrol  
2400 Centennial Blvd  
Jeffersonville, IN 47130**

### **Contacts**

**email: [contact@amatrol.com](mailto:contact@amatrol.com)  
phone: (800) 264 8285**