



Metals Service Center Institute
100 YEARS STRONG™

Professional Development: Fundamentals of Metallurgy

Metals and alloys are used in a great variety of applications. Understanding how metals behave and how their properties can be altered by common processing is valuable to employees in the metals supply chain. This course provides important, practical knowledge to the non-metallurgist.

The course is an interactive, six-hour session consisting of lecture, discussion and question and answer exercises designed to assess understanding. Concepts covered include:

- Relationship between metal properties and alloy composition, microstructure, and processing
- Microscopic structures present in metals and how they influence metal mechanical properties
- How alloying, cold working, and heat treating are used to modify metal strength
- Microstructure and property changes that occur in cold worked metals during annealing
- Effects of heat treatment time and temperature on precipitation strengthened alloys
- Steel metallurgy and effects of heat treatment time and temperature on steel strength
- How tensile tests are performed and how the test data is analyzed to determine yield strength, tensile strength, and elongation
- The common hardness tests, their differences, and how samples are prepared for testing

Who Should Attend

The course is appropriate for design, manufacturing, and quality engineers, operations professionals, sales people and purchasing agents.