

Steel Modules

Steel1: Steel Casting Alloys

In this module, we will explore how steel is made and identify the difference between cast iron and steel. We will also identify the different types of steel alloys and explain the different properties of steel. By the end of this module, you will be able to explain the chief properties and types of steel, as well as what distinguishes it from cast iron. Estimated module time is 1 hour. CEU units awarded: 0.1 CEU units.

Steel2: Steel Casting Production

In this module, we will explore the metalcasting process covering the following steps: optimize design, making a pattern, making molds and cores, melting and pouring, and cleaning and inspection. By the end of this module, you will be able to describe the main principles and features of the metalcasting and molding processes. Estimated module time is 45 minutes. CEU units awarded: 0.1 CEU units.

Steel3: Introduction to Steel Heat Treatments

In this module, we will define heat treatment and identify the basic steps to heat treating steel. This module will also introduce the following heat treatment techniques: annealing, normalizing, quenching, tempering, austempering, precipitation hardening, solution treatments, and stress relieving. By the end of this module, you will be able to describe the various heat treatment processes and procedures. Estimated module time is 45 minutes. CEU units awarded: 0.1 CEU units.

Steel4: Steel Casting Quality Requirements and Inspection Methods

In this module, we will identify the two types of inspection methods and identify the different types of chemical composition tests. By the end of this module, you will be able to identify industry requirements and standards for inspections and welding repairs and describe features of chemical and mechanical testing of steel. Estimated module time is 45 minutes. CEU units awarded: 0.1 CEU units.

Steel5: Steel Casting Defects: Shrinkage

In this module, we will explore steel shrinkage defects. We will identify and define the two types of shrinkage defects: macro and micro shrinkage porosity (voids). This module will also identify some control measures to take to reduce or eliminate shrinkage defects. By the end of this module, you will

be able to: define macro and micro shrinkage porosity (voids) defects in steel and identify two control methods to reduce the defects. Estimated module time is 1 hour. CEU units awarded: 0.1 CEU units.