

## **Aluminum Modules**

### [AI1: Aluminum Casting Alloys](#)

In this module, we will define the various mechanical and physical properties of aluminum that make it the casting alloy of choice. This module will also identify and explain the Aluminum Association designation system and identify the various alloying elements of aluminum. This module will conclude with an introduction to aluminum heat treatment operations. By the end of this module, you will be able to describe the principle properties of aluminum; explain how to classify an aluminum alloy using the Aluminum Association designation system and identify the different alloying elements of aluminum; and define the various heat treatment operations for aluminum. Estimated module time is 1 hour. CEU units awarded: 0.1 CEU units.

### [AI2: Aluminum Casting Production](#)

In this module, we will explore the aluminum casting process. We will identify the four types of furnaces and the five major types of casting processes aluminum can use. Some safety considerations will also be discussed. By the end of this module, you will be able to identify the common melting methods for aluminum and identify the common molding methods for aluminum. Estimated module time is 1 hour. CEU units awarded: 0.1 CEU units.

### [AI3: Aluminum Casting Applications](#)

In this module, we will identify what properties should be considered when selecting an aluminum alloy for a product and briefly review the aluminum alloy family characteristics that make them suitable for general applications. We will conclude this module with deciding which aluminum alloy would be suitable for the case study. By the end of this module, you will be able to identify aluminum alloys suited to specific applications. Estimated module time is 30 minutes. CEU units awarded: 0.1 CEU units.

### [AI4: Aluminum Casting Defects: Gas Porosity and Shrinkage Porosity](#)

In this module, we will identify the difference between gas porosity and shrinkage porosity. This module will examine the causes of gas porosity and shrinkage porosity and methods to control them. By the end of this module, you will be able to define macro and micro porosity shrinkage aluminum defects and identify two control methods to reduce the defects. Estimated module time is 1 hour. CEU units awarded: 0.1 CEU units.