

# ALUMINUM MELTING FUNDAMENTALS

*eLearning courses designed to increase productivity and profits*



## Learning made Simple, Visual, and Interactive

This course is designed to provide learners with an understanding of the equipment, processes, and terminology associated with aluminum melting.

Credit Hours **2**

NFFS Members: \$180 \$75

## Learning Objectives

- Recognize some of the basic equipment used in aluminum foundries.
- Recall basic melting terminology and phrases.
- Distinguish between the common furnaces used for melting aluminum.
- Identify some of the prominent tests applied to molten aluminum.
- Differentiate between metallic and non-metallic additions for aluminum.
- Understand the primary steps involved in molten aluminum processing.

## Table of Contents

### I. Foundry Terminology

- Equipment
  - Ladles
  - Crucibles
  - Skimmers
  - Refractory Materials
  - Resistance Elements
  - Molds
- Protective Gear
- Charge vs. Melt
- Charge Materials
- Mechanical Properties
- Melting and Solidification
- Mold Example

- Casting Processes
- Filling vs. Feeding
- Cast Alloy Designations

### II. Furnaces and Molten Metal Testing

- Furnaces
  - Crucible Furnaces
  - Reverberatory Furnaces
- Molten Metal Testing
  - Temperature Checking
  - Spectrometer Analysis
  - Reduced Pressure Testing (RPT)
  - Density Evaluation

### III. Additions and Molten Metal Processing

- Additions
  - Metallic Additions
  - Non-Metallic Additions
- Molten Metal Processing
  - Degassing
  - Fluxing
  - Dross Removal
  - Grain Refinement
  - Silicon Modification

