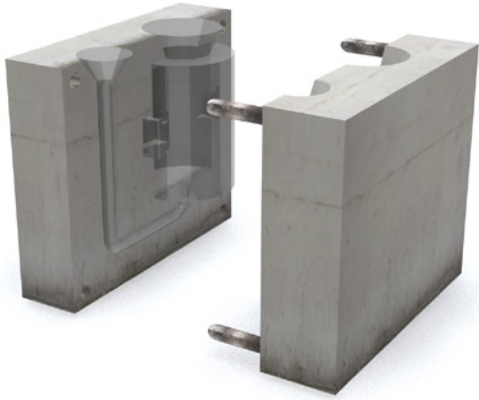


# ALUMINUM CASTING FUNDAMENTALS [2ND ED.]

*eLearning courses designed to increase productivity and profits*



## Learning made Simple, Visual, and Interactive

Aluminum Casting Fundamentals introduces the learner to the properties, chemistry, and processes associated with casting aluminum components. The common aluminum casting defects are also included to familiarize the learners with real world problems that may arise in the production of aluminum casted parts. Presented in the THORS visual and interactive format, this course is relevant for learners who are new to the industry, as well as experienced learners that require a deeper knowledge of aluminum casting microstructure, casting grades, and microstructure control.

Credit Hours **2**

## Learning Objectives

- Recognize the aluminum casting mechanical properties and chemistry.
- Understand how to interpret the aluminum-silicon (Al-Si) phase diagram.
- Identify the various aluminum casting grades utilized for application-specific purposes.
- Recall the common aluminum casting terminology.
- Differentiate between the different types of casting processes.
- Identify the types of possible casting defects that occur during aluminum casting production.

## Table of Contents

### I. Aluminum Casting Properties

- Aluminum Casting Mechanical Properties
- Aluminum Alloy Chemistry
- Al-Si Phase Diagram
- Cast Alloy Designations
- Aluminum Casting Grades

### II. Aluminum Casting Processes

- Casting Terminology
- Bonded Sand Molding
- Permanent Mold Casting

- High Pressure Die Casting
- Squeeze Casting
- Investment Casting
- Semisolid Casting

### III. Casting Defect Analysis

- Aluminum Casting Microstructure
- Microstructure Control
- Porosity
- Inclusions
- Hot Tearing
- Lap Defects

