

Course Syllabus

Green Sand Molding 101



| | |
|-----------------------------|-------------------------|
| Course Code 2-110 | CEUs 0.6 CEUs |
|-----------------------------|-------------------------|

Course Introduction

This course is an introduction to the green sand molding process used within a metalcasting facility. Discussion will include basic terminology, types of sands used to make green sand and green sand molds, the mold making process, using and maintaining equipment, and considerations for identifying casting defects.

Learning Outcomes

After attending this course, participants should be able to:

1. Use the various types of green sand molding raw materials and equipment appropriately and safely.
2. Identify raw material and equipment problems and their effect on process variables.
3. Prepare simple green sand molds and discuss how they meet quality specifications.
4. Examine molds and castings for defects and determine the corrective action needed.
5. Describe the important safety measures and operating practices to use while making green sand molds.

Lesson Outline

Introduction and Statement of Course Objectives

Making Quality Green Sand

Raw Materials Used in Making Green Sand (water, sand, clay, additives)

Sand Equipment Considerations and Maintenance

Safety Overview

The Green Sand Molding Process

Making a Green Sand Mold

Proper Sand Compaction

Molding Equipment Considerations

Equipment Safety Issues During the Mold Making Process

Quality Assurance in Green Sand Mold Making

Major Defects Related to the Molding Process

Major Defects Related to Green Sand Properties

Instructional Methods:

- Games
- Group activities
- Video and class discussion
- Lecture with images and instructor led discussion
- Materials comparison
- Individual problem solving

Assessment Methods:

No formal assessment will take place in this course; however, attendees will participate in informal activities such as knowledge check and Q&A sessions with the facilitator to verify that learning outcomes are being met. Assessment of successful achievement of learning outcomes must be included throughout the course in order to meet the ANSI/IACET 1-2013 standard for continuing education programs and for CEUs to be awarded.

Recommended Course Prerequisites:

- “Introduction to Metalcasting” AFS Institute Course

Attendee Requirements to Earn CEUs:

1. Present at least 5 hours of the 5.5 hours of direct instructional time (90%), which does not include meals or breaks, or the introductory and conclusion activities.
2. Active participation (can include asking questions, communicating with other attendees during and taking part in group activities, providing responses during whole class or group discussions).
3. Successful achievement of learning outcomes.

Who Should Attend?

- Green sand molder/mold operator
- Foundry foreman or lead persons
- Sand lab technicians
- Maintenance personnel
- General labor/helpers
- New employees or anyone desiring to learn about green sand molding