

2016 Education Calendar

September

September 13 / Schaumburg, IL
Ergonomics Workshop

October

October 12-13 / Schaumburg, IL
Casting Defect Analysis

October 18-19 / Schaumburg, IL
Gating & Riser Design 101

October 25-27 / Schaumburg, IL
Foundry Process Improvement

October 26 / Cedar Falls, IA
Chemically Bonded Sand Testing

October 27 / Cedar Falls, IA
Green Sand Testing

November

November 15-16 / Schaumburg, IL
Nobake Molding & Coremaking 101

November 17 / Schaumburg, IL
Coldbox Process 101

December

December 6-7 / Schaumburg, IL
Gating & Riser Design 201

December 13-14 / Schaumburg, IL
Casting Design

Register at www.afsinc.org/institute

Unless noted, most single day classes begin at 8 a.m. and end by 4 p.m., two-day classes begin at 8:30 a.m. on the first day and end by 3:30 p.m. the second day. Detailed travel information, including hotel room blocks, will be provided in a confirmation email after registration.

Education Solutions

Courses Coming in the Winter

Permanent Mold Thermal Management
Nobake Molding & Coremaking 201

Intro to Metalcasting

Casting Defect Analysis

Copper Melting 201

Green Sand Molding 101

Copper 101

Iron Melting 201

Aluminum 101

Aluminum Crucible Furnace Practices

Follow up on dates and detailed course syllabi for these tentative courses at www.afsinc.org/institute.

Just in Time Education Courses/ E-Learning

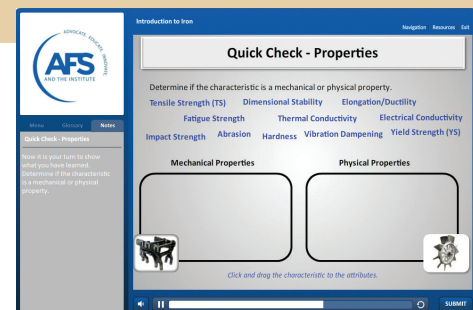
The AFS Institute developed 20 e-learning modules ranging from 15 minutes to 1 hour+ in length. These modules are viewable on any device or browser in our new Learning Management System (LMS).

Our e-learning modules focus on practical application you can use in your job immediately. Each module is based on adult education best practices and strives to engage you throughout the learning.

The e-learning modules consist of the following topics:

- 6 green sand molding modules
- 7 cast iron modules
- 6 casting defect analysis modules
- 1 Introduction to Metalcasting course

Stay tuned for more e-learning modules coming in 2016-2017! Detailed module descriptions can be found at www.afsinc.org/elearning



Classroom Courses

Ergonomics: Optimizing Efficiency, Quality & Safety in Foundries #09-17

September 13 / Schaumburg, IL / Member \$725 / Non-member \$925

Skills You Will Learn

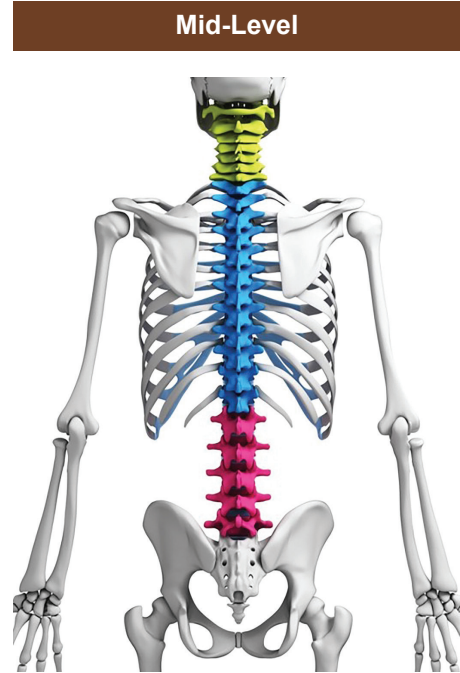
This course covers the use of ergonomic principles to recognize, evaluate and control workplace conditions that cause or contribute to employee safety and productivity issues. Participants who attend this course will leave with the knowledge necessary to either initiate a new or improve an existing ergonomics program for controlling health and performance problems, educate and convince management of the cost benefits of an ergonomically sound workplace, proactively identify potential risks and determine cost effective and sustainable jobsite modifications, and increase the effectiveness of existing lean and Six Sigma programs by integrating ergonomics to improve work processes which result in increased employee engagement, greater efficiency and better margins.

Who Should Attend

Safety, human resources and operations personnel.

Instructor

Jill Kelby-Kelby Ergo Design



Mid-Level



Recommended Follow Up Courses:

Foundry Process Improvement
"Molding & Melting" 201
level courses

Casting Defect Analysis #10-17

October 12-13 / Schaumburg, IL / Member \$925 / Non-member \$1125

Skills You Will Learn

To determine the true root cause of a casting defect and select the proper corrective action, a systematic evaluation method must be applied. Implementing the wrong solution can cost the metalcasting facility in terms of runtime, cost, waste, safety, reduced return on investment or profit, sales and expertise. Participants will become proficient in applying a 10-step procedure to analyze and reduce metalcasting defects by correctly identifying them and their root causes and determining appropriate corrective actions. This course is applicable to sand molding processes (green, no-bake, coldbox, shell).

Who Should Attend

Production staff management, purchasing, sales, marketing, auditing/inspecting/quality control, engineering or design personnel.

Instructors

Kevin Fleischmann-AFS Institute
Scott Lammers-AFS and the Institute

Two complimentary books with course registration



\$135
Value

Education Solutions

Beginner-Level



Recommended Follow Up Courses:

"Alloy" Metallurgy 201
Casting Design

Recommended Publications:

Basic Principles of Gating & Riser Design, 2nd Edition
Microstructure Development During Metalcasting

Gating & Riser Design 101 #11-17

NEW COURSE!

October 18–19 / Schaumburg, IL / Member \$925 / Non-member \$1125

Skills You Will Learn

Casting quality and yield are directly impacted by gating design. This course guides participants through the basic functions of gating and risers to provide clean, sound and functional castings. An introduction to fluid flow and solidification will serve to guide participants through key design concepts of various elements of a good gating and riser design. Emphasis will be placed on hands-on activities, animations, and simulations to enhance the understanding of the filling and solidification processes in a metalcasting facility. Focus will be on practical examples in iron, steel, aluminum and copper castings. The goal will be to introduce the participants to the basics of gating and riser design, common industry norms and troubleshooting.

Who Should Attend

Developers of tooling for castings produced with gravity pouring processes, improving casting quality issues related to the tooling, improving yield and production costs related to tooling design.

Instructors

Dr. Sudesh Kannan–*Consultant*
Shelly Dutler–*AFS Institute*

Foundry Process Improvement #12-17

October 25–27 / Schaumburg, IL / Member \$1100 / Non-member \$1300

Skills You Will Learn

Foundries today often struggle with problem solving and have a need for training with a focus on metalcasting issues. This 2.5-day course provides participants with basic root cause analysis training. At its core, this course provides foundry personnel with disciplined problem solving techniques and emphasizes tools to better understand process data and performance using unique examples and case studies drawn from foundry settings. Some of the topics taught include problem solving approaches, process thinking, problem characterization and a look at types of data, collecting and analyzing data, tools for analyzing process variation, process capability, testing the root cause, developing solutions and countermeasures, and methods for sustaining improvement.

Who Should Attend

Technical problem solvers, process improvement specialists, control personnel, industrial engineers and process control staff.

Instructor

Ted Schorn–*Enkei America*
Walter Evans–*Consultant*

Mid-Level



Recommended Follow Up Courses:

Casting Defect Analysis

Classroom Courses

Beginner-Level



Chemically Bonded Sand Testing #13-17

October 26 / Cedar Falls, IA
Member \$925 / Non-member \$1125

Skills You Will Learn

This course, held at the University of Northern Iowa, provides detailed instruction on the need for and how to correctly perform widely used chemically bonded sand tests, including proper sand sampling methods from the Mold & Core Test Handbook. The student will be able to identify typical operating ranges for test values.

Who Should Attend

Individuals performing sand lab tests, managing sand labs, and troubleshooting chemically bonded mold and core defects.

Instructor

Sairam Ravi-*University of Northern Iowa*

Recommended Follow Up Courses:

Nobake Molding & Coremaking 201

Recommended Publications:

Principles of Metalcasting, 3rd Edition

Beginner-Level

Green Sand Testing #14-17

October 27 / Cedar Falls, IA
Member \$925 / Non-member \$1125

Skills You Will Learn

This course, held at the University of Northern Iowa, provides detailed instruction on the need for and how to correctly perform widely used green sand tests, including proper sand sampling methods from the AFS Mold & Core Test Handbook. This one-day, focused course will be held in a lab setting to provide hands-on practice running tests. Participants also will learn typical operating ranges for test values and be able to discuss results. To view a list of which tests will be performed and determine whether this is the right course for you, please review the course syllabus available online.

Who Should Attend

Sand lab technicians, sand lab managers, quality engineers, anyone responsible for green sand system control, anyone with no or limited experience in dealing with or performing sand tests.

Instructor

Sairam Ravi-*University of Northern Iowa*

Recommended Follow Up Courses:

Green Sand Molding 201

Recommended Publications:

Principles of Sand Control



Beginner-Level



Nobake Molding & Coremaking 101 #15-17

November 15–16 / Schaumburg, IL
Member \$925 / Non-member \$1125

Skills You Will Learn

This course provides participants with a basic foundation of the nobake molding and coremaking process used within a foundry. Discussion will include basic terminology, common chemical binders used, the mold and coremaking process, equipment, and evaluating molds for defects. Participants will receive hands-on practice, walk through the decision-making process for evaluating casting deficiencies and leave with a customized troubleshooting list for use back on the job.

Who Should Attend

Personnel making molds and cores using the nobake/air set molding process, supervisors, quality assurance staff, anyone wanting to learn about the nobake molding and coremaking process.

Instructors

Tom Cobett—*T. Cobett & Associates*
John Roth—*Prairie Industrial Products*

Recommended Follow Up Courses:

Casting Defect Analysis
Chemically Bonded Sand Testing

Recommended Publications:

Mold & Core Test Handbook, 4th Edition
Coatings-Related Casting Defects Wall Chart

Beginner-Level

Coldbox Process 101 #16-17

November 17 / Schaumburg, IL
Member \$725 / Non-member \$925

Skills You Will Learn

Coldbox Process 101 is an introduction to the coldbox coremaking process used within a foundry. Discussion will include terminology, common sands and binder systems used to make coldbox cores, the coremaking process, using and maintaining equipment, and considerations for identifying core defects.

Who Should Attend

Coldbox core makers, foundry foreman or lead persons, sand lab technicians, maintenance personnel, general labor/helpers, new process engineers, quality technicians.

Instructor

Doug DeSmit—*ASK Chemicals*



Recommended Follow Up Courses:

Casting Defect Analysis
Coldbox Process 201



Classroom Courses

Gating & Riser Design 201 #17-17

NEW COURSE!

December 6–7 / Schaumburg, IL / Member \$925 / Non-member \$1125

Skills You Will Learn

This course is a continuation of Gating & Riser Design 101 with an emphasis on application of sands, chills, sleeves, and other thermal control properties, fluid flow principles and filtration, and your facility's process parameter ranges to positively change casting quality. Additionally, the course will discuss methods to translate quality requirements to cost implications for castings, primarily through scrap reduction and yield improvement to establish cost and quality objectives in the tooling design phase and track the actual information from this through the life of the tools. This includes tracking process parameter ranges and any additional on-the-fly modifications to the system.

Who Should Attend

Individuals involved with developing tooling for castings produced with gravity pouring processes, improving casting quality issues related to the tooling, improving yield and production costs related to tooling design.

Instructor

Dr. Sudesh Kannan—*Consultant*
Shelly Dutler—*AFS Institute*

Mid-Level



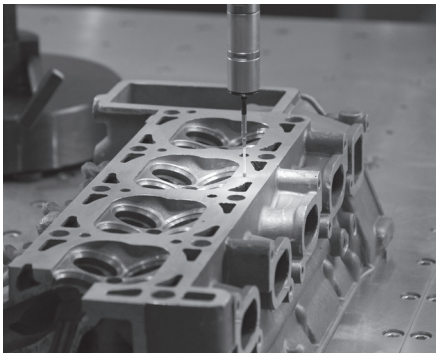
Recommended Follow Up Courses:

"Alloy" Metallurgy 201
Casting Design

Recommended Publications:

Basic Principles of Gating & Riser Design, 2nd Edition
Microstructure Development During Metalcasting

Mid-Level



Recommended Follow Up Courses:

Casting Defect Analysis
Casting Supplier Auditing

Recommended Publications:

Designing & Purchasing Metalcastings
Complete Casting Handbook, 2nd Edition

Casting Design #18-17

December 13–14 / Schaumburg, IL / Member \$925 / Non-member \$1125

Skills You Will Learn

This course addresses principles of effective metalcasting design by delving into the major factors that affect final part design. Participants will explore alloy selection, metalcasting process capabilities and limitations and their effects on casting design, and the impact of secondary operations. Other major topics will include design for manufacturability, fab to casting design conversions, dimensional control, and the importance of casting simulation. Discussion and case studies will be used throughout this two-day course to illustrate effective and practical casting design principles. Participants should have knowledge and experience in designing engineered components prior to attending this course.

Who Should Attend

Casting buyers, designers/engineers of cast components, quality assurance personnel.

Instructors

Vadim Pikhovich—*Magma Foundry Technologies*
Jack Travis—*JET Technologies*



WINTER TENTATIVE SCHEDULE

Aluminum 101

This course covers the characteristics and properties of aluminum, alloying elements and their general applications and considerations for working with aluminum cast parts.

Who Should Attend

Management, production engineers, production personnel new to working with aluminum, technical sales staff, purchasing staff, design engineers.

Iron Melting 201

This course provides a detailed coverage of iron melting. Topics include charge materials selection; cost, value, and risk; electric and cupola melting procedures; molten metal and refractory lining; sampling; key major element adjustments; iron refining technology/treatment practices; and safety procedures.

Who Should Attend

Process control, product quality, melting, shop floor operations, casting sales, foundry suppliers.

Nobake Molding & Coremaking 201

This two-day laboratory course covers specialty sands, sand variables and sand additives, chemical binders, choosing the correct sand and binder, refractory coatings, adhesives, and release agents, how to evaluate problem areas, and how to make adjustments to ensure a quality mold.

Who Should Attend

Individuals responsible for making molds and cores using nobake/air set molding; recognizing complex sand casting defects; monitoring/supervising employees responsible for making nobake molds and cores; modifying molding and core-making processes to correct casting deficiencies; quality assurance.

Green Sand Molding 101

This course is an introduction to the green sand molding process. Discussion will include terminology, types of sands, the mold making process, using and maintaining equipment, and considerations for preventing casting defects during the mold making process.

Who Should Attend

Individuals responsible for green sand molding, foundry foreman or lead persons, sand lab technicians, maintenance personnel, new employees or anyone new to the green sand molding process.

Copper 101

This course provides participants an introduction to the characteristics and properties of copper, alloying elements and their general applications, and considerations for working with copper cast

parts. This course also covers melting and casting technology, and looks at the decision making process behind specific technologies used.

Who Should Attend:

Management, production engineers, production personnel new to working with copper, technical sales staff, purchasing staff, design engineers.

Introduction to Metalcasting

This course provides a broad picture of what happens in a casting production facility, while illustrating the technology, variables and complexity involved in producing a casting. It covers casting design, alloy selection, process selection, design of the gating system, pouring and shakeout methods, cleaning and finishing methods, quality assurance, and key safety and environmental regulations.

Who Should Attend

Production, management, office and administration, casting buyers, casting designers/engineers, suppliers to the industry.

Casting Defect Analysis

To determine the true root cause of a casting defect and select the proper corrective action, a systematic evaluation method must be applied. Implementing the wrong solution can cost the metalcasting facility in terms of runtime, cost, waste, safety, reduced return on investment or profit, sales and expertise. Participants will become proficient in applying a ten-step procedure to analyze and reduce metalcasting defects by correctly identifying them and their root causes and determining appropriate corrective actions. This course is applicable to sand molding processes (green, nobake, cold-box, shell).

Who Should Attend

Production management, purchasing, sales, marketing or office personnel, auditing/inspecting/quality control, production, or engineering/design.

Aluminum Crucible Furnace Practices

Participants of this course will leave with the knowledge or skills needed to select an appropriate aluminum crucible for their needs, operate and maintain aluminum crucible furnaces, store and handle crucibles to maintain the life of the crucible, avoid premature deterioration of the refractory, monitor and manage heating systems and burners, and optimize crucible furnace operations so that usage at any stage is efficient.

Who Should Attend

Individuals responsible for or involved with aluminum crucible melting opera-

tions and/or aluminum crucible maintenance and handling in the foundry.

Copper Melting 201

This 1.5-day laboratory course introduces the principles and best practices of copper melting and pouring for use in producing premium quality castings. This course will examine the various processes involved in melt protection, oxidation and de-oxidation and degassing.

Who Should Attend

Individuals responsible for melting, metallurgy, quality and/or process control, management/supervision.

Permanent Mold Thermal Management

This course provides essential information on key factors that affect the thermal profile in a permanent mold casting process cycle. The course will look at the most common permanent mold manufacturing practices for mold thermal management that focus on ensuring product quality.

Who Should Attend

Individuals responsible for activities related to permanent mold making and operation, foundry engineer, foreman, quality and inspection personnel, tool engineer/mold designer, personnel involved in mold set up and mold holding fixture.

Save Time & Money With In-plant Training

Every dollar you invest in employee training should provide the largest possible return on investment. AFS and the Institute offer in-plant training as a solution to provide you with just that. Benefits include:

- Cost effective training for your employees.
- Customized course content.
- Personalized advice from the technical experts teaching our courses.
- Less time away from work.



Cast Metals Institute
1695 N. Penny Lane
Schaumburg, IL 60173-4555
www.afsinc.org

Upcoming Conferences

Additive Manufacturing for Metalcasting **October 3–6 / Novi, MI** **Member \$795 / Non-member \$945**

The American Foundry Society's first full technical conference on additive manufacturing (AM) and 3-D printing will focus on how these new emerging technologies are being utilized in the foundry to produce cast components, and will cover all aspects of AM and 3-D printing for the metalcasting industry. The full program is complemented with an afternoon of plant tours of AM facilities. For more information, go to www.afsinc.org/additive.

Marketing & Selling of Castings **December 13–14 / Rosemont, IL**

Held every two years, this event shares advice, case studies and marketing information to help metalcasters find new customers, improve their profits, and expand their markets. Highlights will include manufacturing economic forecasts, networking opportunities, and marketing and sales ideas.

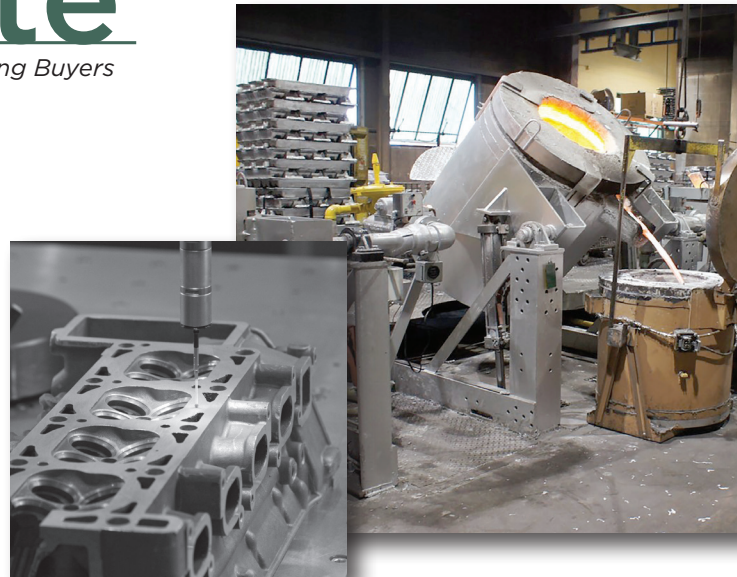
Hands-On Interactive Metalcasting Courses For You!

AFS Institute

Your Education Solution for Metalcasters, Suppliers & Casting Buyers

Highlights Include:

- Casting Defect & Analysis**
- Foundry Process Improvement**
- Nobake Molding & Coremaking 101**
- Casting Design**
- Gating & Riser Design 101 NEW COURSE!**
- Gating & Riser Design 201 NEW COURSE!**



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