



Modern Electric Furnace Steelmaking

A Practical Training Seminar

5-9 February 2018

The Holiday Inn Downtown Memphis
Memphis, Tenn., USA

Featured Plant Tour: Big River Steel



About the Program

This course covers safety, the basics of electrical and mechanical features of electric arc furnaces (EAFs), refractories, and the role of raw materials. The program will explore the fundamentals of electric furnace steelmaking technology, the use of energy inputs, the steelmaking process, electrodes and environmental concerns for electric steelmaking. Attendees will also have the opportunity to learn how their operation compares to industry benchmarks, and to hear about the latest developing technologies. The midpoint of the conference includes a plant tour followed by an expert roundtable and reception with an open forum to discuss questions and challenges.

Who Should Attend

Electric steelmaking attendees who wish to gain a fundamental understanding of the electrical, thermomechanical and technical aspects of modern electric furnace steelmaking. EAF furnace operators, maintenance personnel, upstream/downstream personnel, metallurgists and suppliers would benefit from this comprehensive seminar. Specialty steelmaking attendees include meltshop employees, foundry workers, process engineers, new employees and suppliers.

Professional Development Hours

This course may qualify for up to 23 Professional Development Hour (PDH) credits. Each attendee will receive a certificate listing the quantity of PDH credits earned for this course. This course is not approved for PDH credit in New York, Florida, North Carolina and Oklahoma.

Organized By

AIST's Electric Steelmaking Technology Committee.



Featured Plant Tour
Big River Steel

Registration Includes

Registration includes welcome reception Monday, breakfasts Tuesday through Friday, lunches Tuesday through Thursday, reception Wednesday, plant tour with bus transportation, and a course workbook or flash drive including presentations.

Hotel Accommodations

A block of rooms has been reserved at The Holiday Inn Downtown Memphis. Please call the hotel at +1.888.300.5491 by 13 January 2018 to secure the AIST discount rate of US\$149 per night for single/double occupancy.

AIST Members

US\$1,195

by 22 December 2017

US\$1,295

after 22 December 2017

Non-Members

US\$1,410

by 22 December 2017

US\$1,510

after 22 December 2017



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Schedule of Events

Monday, 5 February 2018

4–6 p.m.
Registration

5–6 p.m.
Welcome Reception

Tuesday, 6 February 2018

7 a.m.
Registration and Breakfast

8 a.m.
Keynote Speaker
Denis Hennessey, Big River Steel

8:30 a.m.
The Day We Will Remember
Ricky Rollins, Ricky Rollins Safety Speeches LLC
This is a safety presentation that will reinforce what is important to us. The day of our career that we, our co-workers, our families and friends remember will have nothing to do with the number of tons that we make on any given day.

9:15 a.m.
Break

9:30 a.m.
Chemistry of EAF Steelmaking
Larry Heaslip, Interflow Techserv Inc.
The chemical principles behind steelmaking in the EAF will be explained in a way that will be of interest and benefit to both those who have operating experience in steel production and those who are new to the topic.

10:30 a.m.
Break

10:45 a.m.
Chemistry of EAF Steelmaking (cont'd)
Larry Heaslip, Interflow Techserv Inc.

Noon
Lunch

1 p.m.
Chemistry of EAF Steelmaking (cont'd)
Larry Heaslip, Interflow Techserv Inc.

2:15 p.m.
Break

2:30 p.m.
Chemistry of EAF Steelmaking (cont'd)
Larry Heaslip, Interflow Techserv Inc.

3:30 p.m.
Break

3:45 p.m.
Chemical and Electrical Energy Inputs and EAF Performance
Sam Matson, Commercial Metals Company

Wednesday, 7 February 2018

7 a.m.
Registration and Breakfast

8 a.m.
Part I: EAF Designs and Operations
Jeremy Jones, CIX LLC
A review of EAF technologies and a discussion of methodologies related to EAF optimization.

9 a.m.
Break

9:10 a.m.
Part II: EAF Technologies — The Path to EAF Optimization
Jeremy Jones, CIX LLC

10:20 a.m.
Break

10:30 a.m.
EAF Operations
Mark Trapp, CIX LLC
This presentation will focus on EAF operational strategies.

Noon
Boxed Lunch

12:30 p.m.
Plant Tour of Big River Steel 🧢

4:30 p.m.
Reception and Roundtable Discussion
Moderator: Sam Matson, Commercial Metals Company
Panelists: Eugene Pretorius, Nucor Corp.; Harriet Dutka, Magnesita Refractories; Stephan Ferenczy, Steel Dynamics Inc. – Structural and Rail Division; Jeremy Jones, CIX LLC

Schedule of Events (cont'd)



Thursday, 8 February 2018

7 a.m.

Registration and Breakfast

8 a.m.

Importance of Scrap Residual Controls

Dennis Rodal, ELG Haniel Metals Corp.

Scrap is the key raw material in EAF steelmaking, and controlling residuals is essential to making quality steel.

9 a.m.

Break

9:15 a.m.

Ladle Metallurgy Furnace — LMF

Helmut Oltmann, Nucor Steel-Berkeley

10:15 a.m.

Break

10:30 a.m.

EAF Maintenance Requirements

Stephan Ferenczy, Steel Dynamics Inc. – Structural and Rail Division

Typical electrical, mechanical and water-cooled equipment maintenance requirements will be discussed. Root-cause failure analysis techniques and practical solutions will be presented.

Noon

Lunch

1 p.m.

EAF Industry Perspective — Past and Future

Raymond Monroe, Steel Founders' Society of America

Economic conditions in recent years have had a major impact on the capital investment requirements and demand for steel products. Understanding the impact of macroeconomic policies and their legacy effects on our industry allows us to know how we got here and where we might be going in market demand for our steel products and the development of our own EAF operations.

2:15 p.m.

Break

2:30 p.m.

Environmental Operations for the EAF

Sam Matson, Commercial Metals Company

3:45 p.m.

Break

4 p.m.

The Use of Ore-Based Metallics in the EAF

Zane Voss, Voss Metallurgical Solutions

Ore-based metallics like pig iron, direct reduced iron and hot briquetted iron form a portion of the scrap mix for many EAFs today. These materials have very different characteristics than the scrap iron and steel one may be used to dealing with. With good practices for handling, storing and using these materials, their utility can be optimized in the steelmaking operation.

Friday, 9 February 2018

7 a.m.

Breakfast

8 a.m.

The Basics of Arc Furnace Regulation Systems

Reinzi Santiago, Tenova Core

9:15 a.m.

Break

9:30 a.m.

Gas/Carbon Injection Systems

Mike Grant, Air Liquide Global Management Services GmbH

This presentation will contain a practical scope describing the use of oxygen and gaseous fuels in the EAF. The importance and use of carbon injection will also be presented. The presentation will include the latest technologies of EAF burner, oxygen and carbon injection systems, as well as the general theory and strategy of their use. A strong emphasis on the safe use of oxygen will be made.

11 a.m.

Graphite Electrode Manufacture and Use

Theodore Kurela, GrafTech International Ltd.

Graphite electrodes carry the electricity that creates an electric arc that melts scrap in an EAF, and their use is necessary to facilitate furnace operation. The safe usage of graphite electrodes in the EAF environment will be reviewed, along with a brief description of the electrode manufacturing process, recommended handling and addition practices, and a summary of troubleshooting techniques.

Noon

Conference Adjourn

