About the Program
This course covers safety, the basics of electrical and mechanical features of electric arc furnaces, 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, including decarbonization. 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
Those who wish to gain a fundamental understanding of the electrical, thermomechanical and technical aspects of modern electric furnace steelmaking. Electric arc furnace operators, maintenance personnel, upstream/downstream personnel, metallurgists and suppliers would benefit from this comprehensive seminar.

Registration Fees
Advance registration by 9 January 2023: Member US$1,195, Non-member US$1,440. Registration after 9 January 2023: Member US$1,295, Non-member US$1,540. Registration includes welcome reception Monday, breakfast Tuesday–Friday, lunch Tuesday–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 Hilton Palacio del Rio. Please call the hotel at +1.210.222.1400 by 30 January 2023 to secure the AIST discount rate of US$199 per night for single/double occupancy.

Professional Development Hours
This course may qualify for up to 21.75 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.

Attention Non-Members
Non-member registration fees include membership in AIST through 31 December 2024. Membership is not automatic. A completed membership application must be returned to AIST.

Organized By
AIST’s Electric Steelmaking Technology Committee.
**Monday, 20 February 2023**

4-6 p.m. Registration
5-6 p.m. Welcome Reception

**Tuesday, 21 February 2023**

7 a.m. Registration and Breakfast
8 a.m. Introductions
8:05 a.m. Safety Presentation: The Day We Will Remember, Ricky Rollins, Ricky Rollins Safety Speeches

Ricky Rollins will tell the story of how he almost lost his life on a steel mill start-up and how it would have affected his family if he had died that day. He will also tell four more stories, each with a different message/lesson for use at home and work.

9:15 a.m. Break

9:30 a.m. Chemistry of EAF Steelmaking — Chemistry Background and Introduction to Steel, Kyle Vanover, Steel Dynamics Inc. – Flat Roll Group Butler Division

The fundamentals of EAF steelmaking chemistry are presented in a way that will be informative to attendees having some background knowledge as well as those who are completely new to the topic.

10:30 a.m. Break

10:45 a.m. Chemistry of EAF Steelmaking — Focus on Oxidation, Carbon and Slag, Kyle Vanover, Steel Dynamics Inc. – Flat Roll Group Butler Division

Noon Lunch

1 p.m. EAF Efficiencies and Slag Fundamentals, Eugene Pretorius, Nucor Corp.

This presentation covers EAF slag fundamentals, transient slags, understanding the C/O/Fe balance and how it impacts energy efficiency (electrical and chemical) and material recoveries in the EAF, heat control in the EAF, slag retention, and bath level control.

2:30 p.m. Break

2:45 p.m. Chemical and Electrical Energy Inputs and EAF Performance, Sam Matson, CMC Steel Texas

The presentation will cover the timing and relationship between the electrical energy input and chemical energy input. Tracking energy inputs and losses will be discussed, as well as their relationships to the timing and magnitudes of the energy inputs.

4 p.m. LMF Metallurgy and Secondary Steelmaking, Abhishek Bhansali, Nucor Steel–Berkeley

**Wednesday, 22 February 2023**

7 a.m. Breakfast

8 a.m. EAF Designs and Operations, Jeremy Jones, CIX Inc.

This session will provide an overview of EAF technologies and an approach to EAF optimization.

9 a.m. Break

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

10:30 a.m. Break

10:40 a.m. Environmental Operations for the EAF, Sam Matson, CMC Steel Texas

This presentation will review the main gaseous emissions, which part of the steelmaking process is likely to generate, and potential ideas for how to reduce them. Also included will be an overview of air pollution control equipment operation.

Noon Boxed Lunch

12:30 p.m. Plant Tour of CMC Steel Texas

4:30 p.m. Reception and Roundtable Discussion, Moderator: Brett McGee, Management Services GmbH

**Thursday, 23 February 2023**

7 a.m. Breakfast

8 a.m. Metalloids for the EAF, Zane Voss, CIX Inc.

The choice of metallic feedstocks for the EAF has a huge impact on the performance and cost of electric steelmaking. This presentation will discuss the common types of scrap along with how to evaluate and compare raw materials.

9:45 a.m. Break

10 a.m. EAF Maintenance Requirements, Stephan Fenency, ENE/TCI Inc.; Bob LaRoy, Steel Dynamics Inc. – Flat Roll Group Butler Division

10:45 a.m. EAF Steelmaking Fundamentals (cont’d), Mark Trapp, CIX Inc.

Noon Conference Adjourn

**Friday, 24 February 2023**

7 a.m. Breakfast

8 a.m. Gas/Carbon Injection Systems, Michael Grant, Air Liquide Global Management Services GmbH

This presentation will discuss the theory, practical aspects, and strategy of the use of oxygen, natural gas and carbon injection in the EAF as well as the technologies used to apply these. The use of direct reduced iron (DRI), its advantages and challenges as well as the necessary operational adjustments to DRI use will be presented. The importance of EAF steelmaking on the steel industry’s journey toward carbon neutrality is discussed. A strong emphasis on oxygen safety and its precautions is presented.

9:15 a.m. Break

9:30 a.m. EAF Steelmaking Fundamentals, Mark Trapp, CIX Inc.

10:30 a.m. Break

10:45 a.m. EAF Steelmaking Fundamentals (cont’d), Mark Trapp, CIX Inc.

Noon Lunch