

About the Program

This seminar provides a comprehensive overview of hot rolling steel strip and plate. The course covers fundamentals, metallurgical and quality requirements, equipment, rolling theory, control, rolls, temperature control, measurement, safety, maintenance and reliability, and new technology. Attendees will leave this course with a better understanding of the basic metallurgy involved; the different types of products and their attributes; the types of rolling mills and equipment; rolling theory; the latest technologies involved in hot rolling; safety aspects; production measures; maintenance practices and much more. There will be opportunities to discuss issues and solve problems during this interactive course. A full-day parallel session will be devoted to discrete plate and Steckel rolling, and tours will be offered of sheet and plate rolling operations.

Who Should Attend

Anyone who would like to expand their knowledge and understanding of hot strip mills, Steckel mills, plate mills and hot rolling. This includes electrical, mechanical, lubrication and metallurgical engineers; maintenance personnel; operators; management; commercial; and those responsible for quality assurance and safety. Equipment manufacturers and service suppliers would also benefit from this course.

Registration Fees

Advance registration by 22 January 2024: Member US\$1,295, Non-member US\$1,545. Registration after 22 January 2024: Member US\$1,395, Non-member US\$1,645. Registration includes breakfast and lunch Monday–Thursday, receptions Monday and Tuesday, plant tour with bus transportation, and a course workbook or flash drive including presentations.

Hotel Accommodations

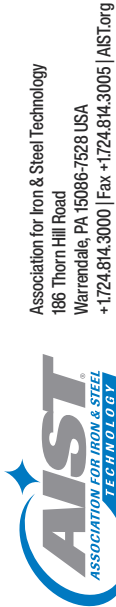
A block of rooms has been reserved at Omni Corpus Christi Hotel. Please call the hotel at +1.800.843.6664 by 12 February 2024 to secure the AIST discount rate of US\$179 per night for single/double occupancy.

Professional Development Hours

This course may qualify for up to 26.25 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 Hot Sheet Rolling and Plate Rolling Technology Committees.



AIST Members

US\$1,295 Before 22 January
US\$1,395 After 22 January

Non-Members

US\$1,545 Before 22 January
US\$1,645 After 22 January



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HOT SHEET AND PLATE ROLLING FUNDAMENTALS

A Practical Training Seminar

4–7 March 2024

Omni Corpus Christi Hotel
Corpus Christi, Texas, USA

Plant Tour: Steel Dynamics Inc. –
Flat Roll Group Southwest-Sinton Division

Monday, 4 March 2024

- 7 a.m. Registration and Breakfast
- 8 a.m. Keynote Presentation
- 8:30 a.m. Supporting a Safety Culture, *Robert Brock, SDI Biocarbon Solutions LLC*
This presentation is a purposeful discussion about building a safety culture that moves beyond regulatory compliance into the realm of seeing each other home safe, daily.
- 9:15 a.m. Group Discussion on Safety, *Robert Brock, SDI Biocarbon Solutions LLC*
- 9:45 a.m. Break
- 10:10 a.m. Overview of Rolling, *Nancy Hake, NLMK Indiana*
This presentation will provide a history of hot rolling and illustration of different types of current rolling mills.
- 11 a.m. Basic Rolling Theory, *Yuli Liu, Quad Engineering Inc.*
This presentation begins with basic concepts of rolling, and then introduces the theories to calculate rolling force, torque and power. A common misunderstanding on gaugemeter control model is rectified. An interactive program will be used to demonstrate basic rolling theories.
- Noon Lunch
- 1 p.m. Review of Metallurgical Basics, *John Speer, Colorado School of Mines*
Metallurgical fundamentals relevant to hot rolling and hot-rolled products will be presented.
- 2 p.m. Break
- 2:15 p.m. Application of Fundamentals to Hot Rolled Processing/Products, *John Speer, Colorado School of Mines*
- 3 p.m. The Reheat Furnace, *Matt Druciak, Tenova Inc.*
This presentation offers a basic description of the reheat furnace used in plate rolling mills.
- 4 p.m. Roughing Mill Area Equipment, *Frank Beddings, Primetals Technologies USA LLC*
Introduction to the roughing mill equipment from the exit of the reheat furnaces through the transfer bar tables.
- 5 p.m. Reception

Tuesday, 5 March 2024

- 7 a.m. Breakfast
- 8 a.m. Introductions and Safety Share
- 8:30 a.m. Flatness With Profile Control, *Eugene Nikitenko, United States Steel Corporation*
This presentation will cover the following topics: (1) Flatness definitions; (2) Fundamentals of strip buckling; (3) Relationship between flatness and profile; (4) Mill actuators; and (5) Flatness sensors.
- 9:45 a.m. Break
- 10 a.m. Roll Design Concepts, *Chris Hrizo, Whemco*

- 11 a.m. Finishing Mill Equipment 1 and 2, *Frank Beddings, Primetals Technologies USA LLC*
Introduction to the finishing mill equipment from the crop shear to the downcoilers.
- Noon Lunch
- 1 p.m. Plant Tour of Steel Dynamics Inc. – Flat Roll Group Southwest-Sinton Division 🏠
- 5:30 p.m. Reception

Wednesday, 6 March 2024

- 7 a.m. Breakfast
- HOT SHEET ROLLING TRACK**
- 8 a.m. Hot Sheet Introductions and Safety Share
- 8:15 a.m. Finishing Mill Operations and Temperature Control, *Rajat Bathla and Cliff Chatman, Cleveland-Cliffs Burns Harbor*
- 9:30 a.m. Break
- 9:45 a.m. Mini-Mills, *Stu Hardcastle, Hatch Associates Inc.*
- 10:45 a.m. Continued Developments in Hot Rolling, *Jennifer Grzyb, SMS group*
Overview of latest hot rolling technologies.
- 11:45 a.m. Lunch
- 12:45 p.m. Hot Strip Mill Surface Defects, *Greg Gutmann, ISRA Vision Parsytec*
This presentation provides a look at the technology behind analysis of a defect image to ensure correct classification. Segmentation, pixel analysis, classification decision tree algorithm and more are discussed. A brief overview is given on the use of artificial intelligence to augment defect classification.
- 1:45 p.m. Break
- 2 p.m. Hot Strip Mill Surface Defects — Automated Surface Inspection Systems, *Kevin Skero, Nucor Steel–Berkeley*
A brief overview of common surface defects formed during the hot rolling process, in conjunction with how these issues are captured by current surface inspection systems.
- 3 p.m. Roll Failure and Possible Issues, *John Ballani, Rolls & Technical Service LLC*
- 4:15 p.m. Question-and-Answer Session
- PLATE ROLLING TRACK**
- 8 a.m. Plate Rolling Introduction and Safety Share
- 8:15 a.m. Introduction to Discrete Plate Rolling, *Tanya Ros, Cleveland-Cliffs Inc.*
Introduction to discrete plate manufacturing and mill configurations. Description of plate characteristics, properties, requirements and applications. Types of rolling practices, cooling technology, metallurgical phenomena occurring during plate hot rolling, process control and examples.
- 9:30 a.m. Break
- 9:45 a.m. Steckel Rolling – Equipment, *Mike Cooke, SSAB Iowa Inc.*

- 10:45 a.m. Plate Finishing Equipment, *Qiulin Yu, Nucor Steel Tuscaloosa Inc.*
This session will discuss typical plate mill configurations, cooling, leveling, shearing, sidetrimming, inspecting/testing, marking and stack piling.
- 11:45 a.m. Lunch
- 12:45 p.m. Practical Aspects of Plate Leveling
- 1:45 p.m. Break
- 2 p.m. Plate Heat Treatment, *B.J. Austin, EBNER Furnaces Inc.*
- 3 p.m. Roll Failure and Possible Issues, *John Ballani, Rolls & Technical Service LLC*
- 4 p.m. Question-and-Answer Session

Thursday, 7 March 2024

- 7 a.m. Breakfast
- 8 a.m. Introductions and Safety Share
- 8:30 a.m. Gauge and Width Control for Hot Rolling Mills, *Reginald Snyder, TMEIC Corp. Americas*
This instructional presentation is an overview of the concepts and control methods used in hot strip mills and plate mills for control of width and thickness. Practical considerations for quality issues in various mill configurations are provided.
- 10 a.m. Break
- 10:15 a.m. Drivetrain Design, *Ken Hutter, Belden-Hutter Inc.*
Good maintenance and reliability practices improve efficiencies, downtime control, and overall cost.
- 11:30 a.m. Lunch
- 12:30 p.m. Maintenance and Reliability, *Ken Hutter, Belden-Hutter Inc.*
- 1:30 p.m. Descaling, Roll Cooling and Spray Issues in Hot Rolling, *Matt Covington, Spraying Systems Co.*
An overview of how descaling and roll cooling work as well as factors that affect their efficiency.
- 2:30 p.m. Break
- 2:45 p.m. Runout Table Cooling Technology, *Stu Hardcastle, Hatch Associates Inc.*
- 3:45 p.m. Hot Strip Mill Downcoilers — Practical Considerations for Operation and Maintenance, *Jose de Jesus, XTEK Inc.*
A comprehensive overview of the downcoiler equipment and its operation. In-depth review of the coiling sequence and the maintenance parameters that affect performance.
- 4:45 p.m. Question-and-Answer Session and Conference Adjourn



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AND AN UP-TO-DATE SCHEDULE

