



# DIGITALIZATION APPLICATIONS FUNDAMENTALS TECHNOLOGY TRAINING SEMINAR

12-13 OCTOBER 2021  
Renaissance Cleveland Hotel • Cleveland, Ohio, USA

## ABOUT THE PROGRAM

Digital transformation is a critical component for steel companies' future success to ensure enhanced productivity with optimal quality, safety and profitability. Digitalization comprises the technologies that enable digital transformation. These technologies can be applied to almost all aspects of the steel business, including production, maintenance, quality, safety, scheduling, purchasing, sales, etc. The AIST Digitalization Applications Fundamentals training course covers the history, technology and example applications of each of these technologies. The two-day program will enlighten attendees on how they can apply these technologies to improve their business/operation. Technology leaders from across the steel industry will share their knowledge and experience on how digitalization can transform the industry.

## WHO SHOULD ATTEND

This course is intended for all key problem-solvers in the steel industry who aspire to expand their toolbox for solving complex problems. This includes entry- to senior-level engineers and leaders who would benefit from understanding how digitalization technology solutions can improve their business/process.

## ATTENTION NON-MEMBERS

Non-member registration fees include membership in AIST through 31 December 2022. Membership is not automatic. A completed membership application must be returned to AIST.



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YOUNG PROFESSIONAL**

Visit [AIST.org/byoypp](http://AIST.org/byoypp) for more information.

## UPCOMING EVENTS

### Maintenance Solutions: Fundamentals and New Frontiers

21-23 September 2021  
Embassy Suites San Antonio Riverwalk  
San Antonio, Texas, USA

### Specialty Alloy and Foundry – A Practical Training Seminar

21-23 September 2021  
Sheraton Columbus Hotel at Capitol Square  
Columbus, Ohio, USA

### Secondary Steelmaking Refractories – A Practical Training Seminar

5-7 October 2021  
The Doubletree Colorado Springs  
Colorado Springs, Colo., USA

### Environmental Solutions: Water Management

9-11 November 2021  
Omni Corpus Christi Hotel  
Corpus Christi, Texas, USA



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## REGISTRATION INCLUDES

Breakfast and lunch Tuesday and Wednesday, reception and a course workbook or flash drive including presentations.

## HOTEL ACCOMMODATIONS

A block of rooms has been reserved at the Renaissance Cleveland Hotel. Please call the hotel at +1.800.468.3571 by 20 September 2021 to secure the AIST discount rate of US\$139 per night for single/double occupancy.

### AIST MEMBERS

**US\$845** **US\$ 1,090**  
by 31 August 2021 after 31 August 2021

### NON-MEMBERS

**US\$945** **US\$1,190**  
by 31 August 2021 after 31 August 2021

## PROFESSIONAL DEVELOPMENT HOURS

This course may qualify for up to 14 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 Digitalization Applications Technology Committee and Digital Transformation Subcommittee.

**AIST.ORG**

# SCHEDULE OF EVENTS



## Tuesday, 12 October 2021

7 a.m.  
**Registration and Breakfast**

8 a.m.  
**Opening Remarks**

8:15 a.m.  
**Keynote Presentation: Industrial Digitalization Technologies: An Integrative Overview**  
Gary Fedder, Carnegie Mellon University  
This kickoff presentation will provide an overview of the various digitalization technologies for manufacturing and how these technologies integrate and interact synergistically. Topics include artificial intelligence, machine learning, big data, edge and cloud computing, Industrial Internet of Things, multi-physics hierarchical simulation, digital twin, additive manufacturing, augmented and virtual reality, and industrial cybersecurity. Select research and development examples illustrate applicability to manufacturing from its present to future state.

9:15 a.m.  
**What Is Digitalization/Industry 4.0?**  
Derrick Willingham, Commercial Metals Company

10:15 a.m.  
**Break**

10:45 a.m.  
**Digitalization – Why Now?**  
James Hendrickson, ArcelorMittal USA  
Most of the technologies that comprise digitalization are not new. In fact, some such as artificial intelligence and autonomous robotics have been around for many decades. So, the question is why are companies now embracing and investing in digitalization technologies?

11:15 a.m.  
**Industrial Internet of Things**  
Franck Adjogble, SMS group Inc.  
The Industrial Internet of Things (IIoT) describes the use of the Internet of Things (IIoT) in multiple industries, such as manufacturing (Industry 4.0), logistics, transportation, energy, mining and metals, and other industrial sectors. The Industrial Internet of Things covers, the same way as the Internet of Things, many use cases and applications. The IIoT focuses on optimizing operational efficiency and maintenance, and plays an important role in the integration of information technology (IT) and operational technology (OT). It provides many opportunities for automation optimization, smart manufacturing and asset performance management. IIoT is a new way to provide services to customers and the establishment of a new revenue with an on-demand service model.

Noon  
**Lunch**

1 p.m.  
**Simulation Technology and Analysis**  
Perry Zalevsky, OSISoft, LLC

1:45 p.m.  
**System Integration – Foundation for Digital Transformation**  
Reginald Snyder, TMEIC  
A study of the past and present system architectures, new concepts, and new tools to facilitate data accumulation, dissemination, and analysis.

2:15 p.m.  
**Break**

2:45 p.m.  
**Machine Learning and Steel**  
Alp Kucukelbir, Fero Labs  
Machine learning (ML) has myriad applications in steel. This review begins with an introduction that situates ML with other forms of mathematical modeling. After establishing the basic principles of ML, modern use cases of ML within the steel sector are studied.

3:30 p.m.  
**Machine Learning/Vision**  
Rafal Bachorz, PSI Metals GmbH

4:15 p.m.  
**Big Data in the Metals Industry**  
Michael Peintinger, Smart Steel Technologies GmbH  
This presentation will look at big data in the metals industry, what it is and how it is useful.

5 p.m.  
**Reception**

## Wednesday, 13 October 2021

7 a.m.  
**Breakfast**

8 a.m.  
**Kickstart Presentation**  
James Hendrickson, ArcelorMittal USA

8:30 a.m.  
**Big Data Analysis**  
Edgardo La Bruna, Janus Automation LLC  
Use of state-of-the-art artificial intelligence technologies to improve the data analysis in the steel industry. Description of key aspects of phased implementation for successful digital transformation and data analysis systems.

9:15 a.m.  
**Break**

10:45 a.m.  
**Edge Computing**  
David Kober, iba America LLC

11:30 a.m.  
**Lunch**

12:30 p.m.  
**Cloud Computing**  
Patrick Gallagher, Management Science Associates Inc.  
Cloud computing is one of the key pillars of digital transformation. This session defines cloud computing, reviews the history and technologies used, and provides example applications used in the metals industry.

1:15 p.m.  
**Additive Manufacturing**  
Daniel Pesta, EBNER Furnaces Inc.  
This presentation will familiarize the participant with the fundamentals of additive manufacturing. No prior experience or education in this field is assumed. Special emphasis will be given to the technologies' application in metallurgy and metal manufacturing.

2 p.m.  
**Break**

2:30 p.m.  
**Introduction and Application of Augmented Reality Technology for Steel Plants**  
Eric Almquist, Star Tool & Die Works Inc.  
Augmented reality (AR) is a technology of combining reality with digital content that will become the standard method of interacting with digital devices over the coming decade and has already proven its potential in steel plants. This practical presentation will provide an introduction to AR technology, its strengths, its weaknesses and how AR has begun to revolutionize frontline workers' jobs with information technology in steel plants.

3:15 p.m.  
**Building Defense-in-Depth OT Cybersecurity for the Iron and Steel Industry**  
Nate Smith, GrayMatter  
Iron and steel producers must consistently evaluate the risks and resiliency inherent in their operational technology (OT) cybersecurity strategies. This presentation will review how organizations can assess their ability to identify, protect, detect, respond and recover from a cybersecurity event. The session will also highlight what tools and solutions are available to establish a defense-in-depth approach to protecting valuable, production-floor equipment, assets and other connected devices from threats, including ransomware, malware, supply chain attacks and other threats that have impacted iron and steel organizations.

4 p.m.  
**Digital Transformation for Plant Logistics in Practice**  
Tony Leikas, PESMEL OY Finland, and Jagannathan Rajagopalan, Pesmel South Asia  
To correlate the two-day training program on digital transformation technology toward summing up the practical benefits and applications for logistics practice, the following tools would be relevant:  
1. Automatic storage and retrieval system with digitalized warehouse management system.  
2. Digitalized transport, automated coil cars/shuttle cars with automatic transfer and dispatch system.  
In this paper, the above applications and tools are explained, with relevant case studies that could help in enhancing productivity with man-less systems, assuring shortened lead times, total safety and the lowest total cost of ownership.

4:30 pm.  
**Workshop and Roundtable**

5 p.m.  
**Conference Adjourn**