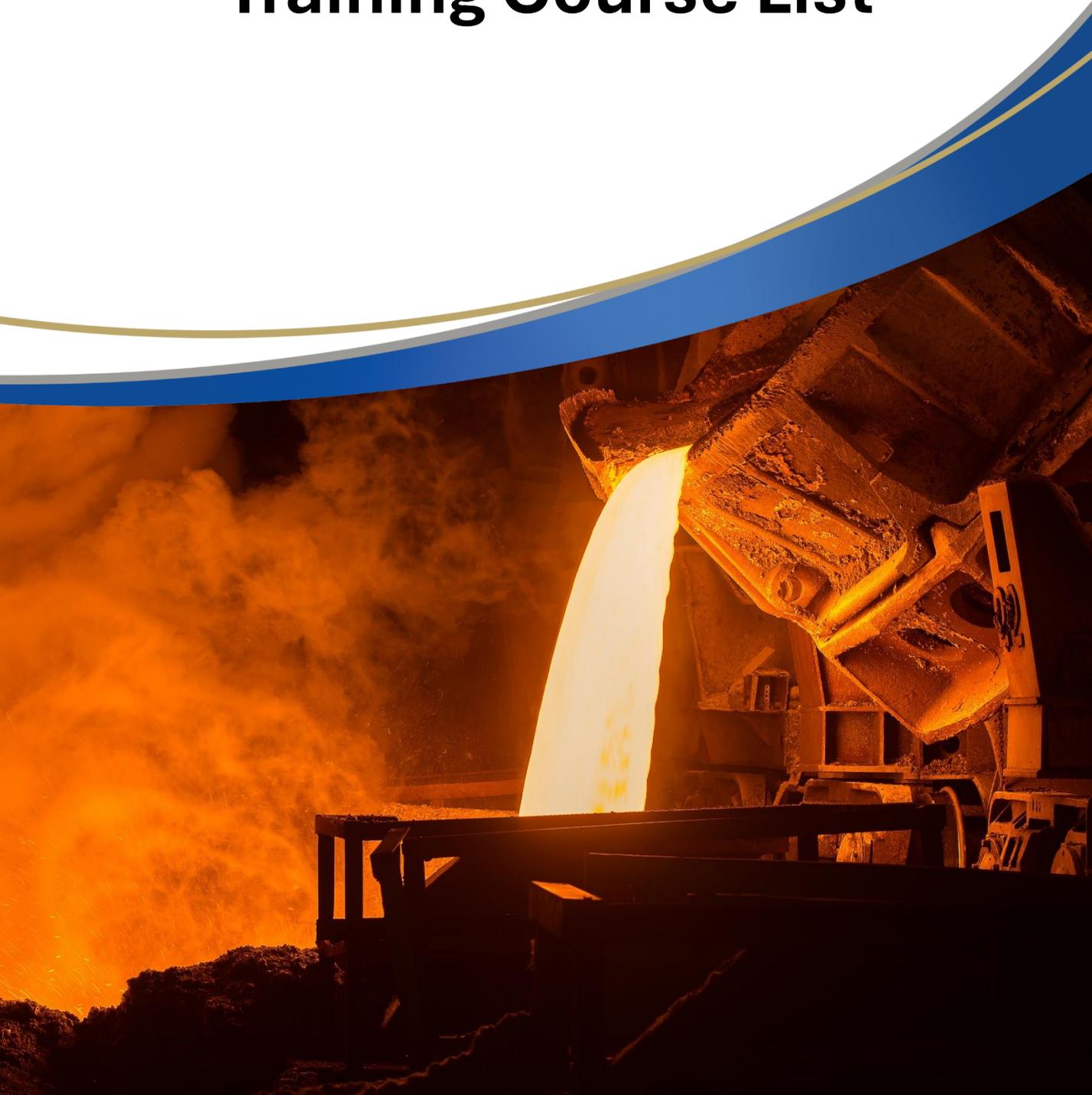




**Materials
Processing
Institute**

Services Portfolio

Training Course List



Training Course List

Processes	Page
- Ironmaking	3
- Desulphurisation or Iron	3
- Steel Plant Raw Material	3
- Primary Steelmaking	3
- Secondary Steelmaking	4
- Ladles	4
- Practical Steelmaking	4
- Stainless Steelmaking	4
- Electric Arc Furnace (EAF) Steelmaking	5
- Continuous Casting	5
- General	5
Supplementary	Page
- Engineering	6
- Metallurgy	6
- Environmental Protection	7
- Management	7
- Research	7
Applications	Page
- Circular Economy	8
- Digital Technology	8
- Analytical Techniques	8
Products	Page
- Finished Goods	8



Training Course List

Processes - Ironmaking

- Coal and Iron Ore Selection
- An Introduction to Coal and Carbonisation
- Coke Making Operations and Quality
- Coke Oven By-products and Gas Cleaning
- Agglomeration Processes
- Sinter Making Operations and Quality
- Blast Furnace Operations
- Blast Furnace Refractories
- Integrated Ironmaking Operations

Processes - Desulphurisation of Iron

- The science of Desulphurisation

Processes – Steel Plant Raw Material

- Scrap Raw Materials, Quality considerations
- Flux materials

Processes - Primary Steelmaking

- Adding Value in Integrated Primary Steelmaking
- Introduction to Steelmaking
- Basic Oxygen Steelmaking Theory and Practice
- Basic Oxygen Steelmaking Converter Process Control
- BOS Vessels Theory and Practice
- BOS Waste Gas Collection
- Primary Process Control, Sampling



Training Course List

Processes - Secondary Steelmaking

- Types of Stirring
- Secondary Steelmaking Units
- Secondary Steelmaking Chemistry / Practice
- Secondary Steelmaking and Ladle Considerations
- Degassing, Hydrogen and Nitrogen Removal
- Role of Alloys within Steel
- Slags – Requirements and Types of Synthetic Slag, Addition Methods
- The Secondary Steelmaking Metallurgy and Slags
- Ca Addition and Castability

Processes - Ladles

- Ladles - Construction and Role
- Ladle Metallurgy

Processes – Practical Steelmaking

- Steelmaking Compositional Control
- KPI Formulation
- Role of Scheduling

Processes – Stainless Steelmaking

- Stainless Steelmaking



Training Course List

Processes – Electric Arc Furnace (EAF) Steelmaking

- Electrode Consumption and Reduction
- Infrastructure
- Melting Process, use of Oxy-jet Burners
- Process Developments
- Raw Materials Including DRI and Scraps, Use of Hot Heal, Continuous Raw Material Feeding
- Slag Making
- Steelmaking
- Steelmaking Cycle
- Steelmaking Process

Processes – Continuous Casting

- Caster Operation and Design
- Continually Cast Product Quality
- Continuous Casting
- Operation and Design of Concast Moulds
- Mould Powder
- Tundish Design and furniture

Processes – General

- Steelmaking and Continuous Casting for Beginners
- Ladle Metallurgy

Processes – Stainless Steelmaking

- Stainless Steelmaking



Training Course List

Supplementary - Engineering

- Continuous Casting Instrumentation for Optimum Steel Quality
- Principles of Reheating
- Continuous Casting Cooling Design

Supplementary - Metallurgy

- Building Blocks for Metallurgical Success – Ferrous
- Casting Machine Breakout Prevention – Increasing Productivity and Reducing Costs
- Continuous Casting Metallurgy
- Ellingham Diagram
- Fe-C Phase Diagram, Liquidus and Solidus
- Key Steel Properties and Tests requirements
- Metallurgical Properties, How to Measure, Assess and Influence
- Metallurgy Explained
- Principles of Rail Steel Production and Preventing Quality Issues
- Properties of Inclusions in Steel, Are All Inclusions Bad?
- Steel Practical Grade Consideration and Production
- Steel Process Control and Reactions, Deoxidation, Decarbonisation, Desulphurisation
- Steel Specification Control
- Steel Structures and Properties
- Steelmaking Alloying and Compositional Control, Metallurgical Issues



Training Course List

Supplementary – Environmental Protection

- Temperature, Liquidus and Temperature Flight Path Calculations – Ferrous
- Theoretical and Practical Aspects of Strand Solidification to Increase Productivity and Reduce Quality Defects
- What is Clean Steel?

Supplementary - Management

- 7 Tools for Success in Innovation Strategy & Management

Supplementary - Research

- Fluid Flow Modelling for Process Improvements
- Fossil Fuel Reduction - Use of Hydrogen - Production Processes/Ironmaking (DRI) / Steelmaking
- Future Steelmaking Developments and Decarbonisation
- Green Steel Production
- Inclusions
- Process Physical Modelling
- Refractories for Steelmaking and Continuous Casting
- Steel Cleanliness Evaluation
- Steelmaking and the Circular Economy
- Steelmaking Refractories



Training Course List

Applications – Circular Economy

- Other Potential Recycling Opportunities and Barriers, Developments

Applications - Digital Technology

- Industry 4.0 Digitisation of the Normanton Steel Plant at the Materials Processing Institute
- Use of Digital within Industry
- Can AI help – the role within the steel Industry

Applications – Analytical Techniques

- Optical Microscopy Training
- Use of Test Equipment

Products – Finished Goods

- Hot Rolling and Finishing of Steel
- Product Requirements
- Reheating
- Rolling Process
- Steel Pipe Production
- Powder Characterisation and Metallurgy

Full Services Portfolio

Advanced Metals & Green Steelmaking

- Green Steel
- Product Development
- Process Improvement
- Extra

Advanced Materials Development

- Custom Alloy Development
- New Steel
- Supporting R&D
- Additive Manufacturing & Powder Metallurgy
- Additional Services

Characterisation and Analysis

- Characterisation and Analysis

Critical Raw Materials

- By-product Valorisation
- End of Life Process Development
- Mine Tailing Valorisation
- Piloting /Testbed Hosting
- Process Scale-up
- Process Optimisation

Sustainable Cement and Concrete

- Product Development
- Process Improvement

Powder Analysis and Additive Manufacturing

- Powder Analysis
- Additive Manufacturing
- Powder Processing

Energy and Process Decarbonisation

- Feasibility Studies
- Energy and Emission Optimisation
- Process Optimisation
- Leveraging Facilities

Facilities and Equipment

Full Services Portfolio

Training

Processes

- Ironmaking
- Desulphurisation or Iron
- Steel Plant Raw Material
- Primary Steelmaking
- Secondary Steelmaking
- Ladles
- Practical Steelmaking
- Stainless Steelmaking
- Electric Arc Furnace (EAF) Steelmaking
- Continuous Casting
- General

Supplementary

- Engineering
- Metallurgy
- Environmental Protection
- Management
- Research

Applications

- Circular Economy
- Digital Technology
- Analytical Techniques

Products

- Finished Goods

Materials Processing Institute
Eston Road
Middlesbrough
United Kingdom
TS6 6US

+44 (0)1642 382000
info@mpiuk.com
www.mpiuk.com



**Materials
Processing
Institute**

www.linkedin.com/company/materials-processing-institute/

in

