

INNOVAL

# Aluminium Rolling Technology Course.

**Diagnose and solve rolling problems faster.  
Improve your mill performance. Strengthen your engineering team.**

# Five days of learning directly from engineers with a lifetime of rolling mill experience.

- Diagnose rolling problems faster
- Improve mill performance
- Understand rolling mechanics, friction and lubrication
- Improve gauge, profile and flatness control
- Identify root causes of rolling defects

**I will keep a very good memory of that week spent with the group and with the team at Innoval: Amazing human beings, good vibe and smart learnings.**

Louis Gendreau, Technical Customer Service Manager

Our Aluminium Rolling Technology Course will give you more in-house problem solving capability, so you're less reliant on your suppliers.

You'll get an in-depth understanding of the fundamentals of aluminium rolling from internationally recognised experts.

This course is the only rolling course specifically for aluminium. It's our most popular training course and, since the first one in 2005, we've welcomed delegates from over 90 different companies.

For more information please contact **Jordan Holland**

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 [jordan.holland@innovaltec.com](mailto:jordan.holland@innovaltec.com)

# Aluminium Rolling Technology Course.

This course contains the following modules:

## Aluminium Market Dynamics & Drivers.

- Economics of rolling
- Business cycles
- Future trends

## Aluminium Casting Overview.

- Outline of the process routes continuous casting and direct chill casting
- Metal conditions at various stages during casting
- Machinery used in casting

## Process & Machinery Overview.

- Outline of Aluminium process routes
- Major components of reversing and hot mills, tandem mills and cold mills
- Outline of machinery used
- Types of actuator in rolling mills

## Mechanics of Rolling.

- Yield criteria
- Friction hill
- Factors determining rolling load
- Closed and open gap rolling
- Attenuation

## Tribology in Aluminium Rolling.

- Friction and lubrication basic principles
- Interaction of rough surfaces
- Role of additives
- Hot and cold rolling oils
- System maintenance
- Filtration

## Process Metallurgy.

- Alloy choice
- Microstructure
- Strengthening mechanisms
- Annealing


## Finishing Overview.


- Outline of finishing line process routes
- Outline of machinery used
- Affects of processing on product quality

## Thermal Aspects of Rolling.

- Heat sources and sinks
- Temperature distributions in rolls and strip
- Design of roll spray cooling systems
- Strip cooling

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### **Surface Generation & Surface Defects.**

- Surface generation during rolling
- Oil entrapment
- Strip brightness control
- Scuffing
- Types of defect
- Reduction marks
- Surface inspection

### **Automotive Aluminium & Visit to JLR.**

- Overview of Aluminium cars
- Introduction to the manufacturing process
- Visit and tour of Jaguar Land Rover plant

### **Introduction to Control.**

- Open and closed loop control systems
- PID control and gain determination
- Ziegler-Nichols testing
- Use of feedback

### **Mechanics of Profile & Flatness.**

- Definitions of profile and flatness
- Sources of variation
- In-process specification and targets for control

### **Mill Vibration.**

- Sources of vibration in cold mills
- Vibration modes
- Mechanical defects & vibration

### **Automatic Gauge Control.**

- Total gauge description
- Gauge control loops
- Measurement devices
- Different methods of gauge control in current use

### **Measurement & Control of Profile.**

- Measurement of profile
- Actuators for control
- An integrated control strategy
- Scheduling, setup, adapted setup & in-coil strategies

### **Data Workshop.**

- Introduction of data analysis and IBA software
- How to interpret rolling mill data and create meaningful templates

### **Automatic Flatness Control.**










































- Definition
- I-units
- Different types of off-flatness
- Relation with stress
- On-line measurement
- Flatness control actuators
- Strategies to control flatness

### **Wrap-up and Q&A Session.**


- Interactive session with Innoval's experts
- Wrap-up of the week


## Sample Agenda

## Innoval Technology Ltd. Aluminium Rolling Technology Course 2025

Monday 08:15 BST Arrival		Tuesday 08:15 BST Arrival		Wednesday 08:15 BST Arrival		Thursday 08:15 BST Arrival		Friday 07:00 BST Arrival	
08:30	Introduction	08:30	Process Metallurgy 	08:30	Introduction to Control 	08:30	Measurement & Control of Profile 	07:00	Travel to JLR
09:15	Aluminium Market Dynamics & Drivers 	09:30	Process Metallurgy Workshop 	09:00	Control Workshop 	10:00	Measurement & Control of Profile Workshop 	09:30	Course Visit & Tour at Jaguar Land Rover (JLR) 
10:00	Break 	10:30	Break 	09:45	Break 	11:30	Break 	12:00	Travel to Birmingham International Rail Station
10:15	Aluminium Casting Overview 	10:45	Thermal Aspects of Rolling 	10:00	Mechanics of Profile and Flatness 	11:45	Automatic Flatness Control 	12:45	Course Finish
11:15	Break 	12:45	Lunch 	11:45	Data Workshop 	12:45	Group Photo & Lunch 		
11:30	Process & Machinery Overview 	13:30	Thermal Aspects of Rolling Workshop 	12:45	Lunch 	13:45	Automatic Flatness Control 		
13:00	Lunch 	14:00	Surface Generation 	13:30	Automatic Gauge Control 	14:45	Automatic Flatness Control Workshop 		
13:45	Mechanics of Rolling 	15:00	Break 	15:00	Automatic Gauge Control Workshop 	15:45	Break 		
15:00	Break 	15:15	Surface Defects / Lab Workshop 	16:30	Mill Vibration 	16:00	Automotive Aluminium 		
15:15	Mechanics of Rolling Workshop 	16:15	Finishing Overview 	17:30	End of the Day	17:00	Summary & Wrap-up		
16:00	Tribology in Aluminium Rolling 	17:30	End of the Day	18:00	Social Event 	17:30	End of the Day		
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18:00	Social Event 								

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# Location.

## The course will be held at Innoval's offices in Sheffield / Rotherham.

Innoval Technology Limited  
Unit 9, Selden Way  
Rotherham  
S60 5AA  
Tel: 01709 724300

Our offices are within our parent company's UK head office, and you will see signage for Danieli on the front of the building.

## Accommodation.

We recommend the following local hotels:

- [Mercure Sheffield Parkway](#)
- [Courtyard by Marriott](#)

We have a corporate rate agreement with both of these hotels. When making the reservation, quote Danieli UK Holding Limited, to ensure you take advantage of this benefit.

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# Getting here.

## By plane.

The closest airports to the venue are:

- **Manchester Airport** (~1 hour 30 mins)
- **Leeds Bradford Airport** (~1 hour 10 mins)

You can fly into **London (Gatwick)** or **London (Heathrow)** and travel by train to Sheffield (~4 hours).

You may also wish to consider **Birmingham International Airport**, as our trip to Jaguar Land Rover on the last day takes place in Birmingham.

## By train.

The venue is a 15 minute car journey from **Sheffield** train station.

## By car.

On-site parking is available at the venue, and electric charging bays are available on a first-come-first served basis.

## Local taxis.

We recommend the following local taxi companies:

[A1 Sheffield Taxis](#)


+44 114 288 8888

[Veezu Sheffield](#)

+44 114 239 3939

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# Social activities & dining.

## Monday & Wednesday social events.

On Monday and Wednesday evening, we hold social events at a local attraction. These are a great opportunity to get to know your fellow delegates and relax.

## Visit to Jaguar Land Rover (JLR) on Friday.

Our past delegates tell us that this visit is one of the highlights of the course! We will take you to Solihull, near Birmingham, where you will be given a private tour of the JLR manufacturing facility. It's a great opportunity to see an end-user processing aluminium sheet.

## Dining in Sheffield.

Sheffield is a thriving city, so there are plenty of places to choose from. Here are some links to resources should you need some inspiration.

- [Welcome to Sheffield Guide](#)
- [Sheffield Restaurant Guide](#)
- [Cambridge Street Collective Food Hall](#)
- [Leopold Square Restaurants](#)

# Itinerary.

The course will begin at **08:30 on Monday**, but we recommend you arrive at 08:15 to find your place. All lectures will take place in the Innoval Conference Room (Gianpietro Benedetti) within the Danieli UK building. Coffee will be available for you on arrival.

There will be breaks scheduled throughout the day and refreshments will be available. Lunch will be provided each day.

On Friday and after checkout from the hotel, we will leave the hotel at 07:15 to travel to Jaguar Land Rover in Solihull, Birmingham.

Each day will end at around 17:30, apart from the last day at Jaguar Land Rover which ends at approximately 12:30.

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