



# Introduction to Aluminium Metallurgy.

This 3 x 0.5-day training course contains the following modules:

## **Introduction to Aluminium.**

- Aluminium production and usage
- Overview of alloy systems and applications
- Common manufacturing methods

## **Aluminium Microstructure & Metallurgy Fundamentals.**

- Aluminium crystal structure, alloy systems and phase diagrams
- Casting and solidification microstructures
- Strengthening Mechanisms
- Microstructure evolution during processing

## **Thermal Treatments.**

- Homogenisation and preheat
- Solution heat treatment
- Artificial ageing

## **Deformation and Annealing Mechanisms.**

- Deformation and microstructure
- Recovery and recrystallisation
- Control of grain structure

## **Aluminium Surface Control.**

- Surface generation
- Surface problems related to metallurgy
- Surface Analysis Techniques
- Cleaning and pre-treatment

## Testing & Materials Characterisation.

- Chemical composition
- Mechanical properties and formability
- Microstructure: intermetallic particles, grain structure and texture
- Fractography and failure analysis

## Q&A Session.

- Interactive session with Innoval's experts
- Wrap-up

Sample agenda:

| DAY 1: 0900-1230 / 1300-1630 (UK)                        | DAY 2: 0900-1230 / 1300-1630 (UK)               | DAY 3: 0900-1215 / 1300-1615 (UK)        |
|----------------------------------------------------------|-------------------------------------------------|------------------------------------------|
| Welcome and brief introduction to Innoval Technology     | Thermal Treatments 1 (Homogenisation)           | Thermal Treatments 3 (Artificial Ageing) |
| Introduction to Aluminium                                | BREAK                                           | BREAK                                    |
| BREAK                                                    | Deformation & Annealing Mechanisms (+ workshop) | Aluminium Surface Control                |
| Aluminium Microstructure and Metallurgy Fundamentals (1) | BREAK                                           | BREAK                                    |
| BREAK                                                    | Thermal Treatments 2 (Solution Heat Treatment)  | Testing & Materials Characterisation     |
| Aluminium Microstructure and Metallurgy Fundamentals (2) |                                                 | Final Q&A and Wrap-up                    |

For more information please contact

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