Metallurgy for Non Metallurgists

Venue Information

Venue: London UK

Place:

Start Date: 2026-11-24

End Date: 2026-11-28

Course Details

Net Fee: £4750.00

Duration: 1 week

Category ID: METC

Course Code: METC-11

Syllabus

courses Syllabus

Introduction

Our program offers a comprehensive exploration of metals and alloys, emphasizing their mechanical and physical characteristics. Beginning with materials testing and properties, we progress through corrosion prevention, heat treatment, and the intricacies of ferrous and non-ferrous alloys. Practical examples elucidate key concepts, preparing participants for real-world applications.

Objectives

By the courses's conclusion, participants will:

1. Understand the essential principles of engineering concerning metals and alloys, including their fabrication and heat treatment.

Day 1 - Testing and Mechanical Properties of Metals

- Tensile, Impact, Hardness, and Compression Tests
- Crystalline Structure: Bonding, Solidification, Defects

Day 2 - Specimen Preparation and Microscopic Examination

- Techniques for Metal Specimen Preparation
- Metallurgical and Electron Microscopes
- Dislocations and Strengthening Mechanisms

Day 3 - Binary Equilibrium Diagrams

- Solubility and Cooling Curves
- Thermal Equilibrium Diagrams
- Ferrous Alloys: Carbon, Alloy, Stainless Steels, Cast Irons

Day 4 - Fabrication of Metals and Heat Treatment

- Metal Fabrication Methods: Forming, Casting, Welding
- Heat Treatment of Carbon Steel: Hardening, Annealing, Normalizing, Tempering

Day 5 - Non-Ferrous Alloys and Corrosion in Metals

- Non-Ferrous Alloys: Nickel, Cobalt, Titanium
- Corrosion Types: Electrochemical, Pitting, Crevice, Stress Corrosion
- Protection and Inspection: Coatings, Inhibitors, Cathodic Protection

Enroll now to gain a deep understanding of metallurgy and its practical applications in engineering.