



## KNOWLEDGE SERIES MODULE 4: THE ENGINEERING PROPERTIES OF STEEL

### ASI KNOWLEDGE SERIES

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Introduction to the Knowledge Series
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Steel and Steel Making
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The Metallurgy of Steel
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The Engineering Properties of Steel
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Structural Steel Types
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The Steel Supply Chain
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Steel Quality and Compliance
- KNOWLEDGE SERIES MODULE 8a  
Steel Structures – An Introduction
- KNOWLEDGE SERIES MODULE 8b  
Steel Structures – Beyond the Basics

### COURSE OUTLINE

#### Lesson 1: The design and standards context

- Required engineering properties
- Applicable Standards
- Properties defined by Standards

#### Lesson 2: Steel strength, ductility and toughness

- Testing for steel strength
- The stress-strain curve
- Steel strength and stiffness properties
- Steel ductility
- Steel toughness

#### Lesson 3: Steel weldability

- What is welding?
- Weld thermodynamics
- Carbon equivalent
- Process controls

#### Lesson 4: Steel durability

- Durability perspectives
- Corrosion protection
- Paint systems
- Metallic coatings (hot-dip galvanizing, thermal spraying)
- Self-protection (stainless steel, weathering steel)
- Takeaways

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