

How To Enrol

The enrolment fee is £900 + VAT for this three day workshop.
To enrol for Heat Treatment: Principles and Practice
Please complete the form below and return to:

NAMTEC
Swinden House,
Moorgate Road,
Rotherham
S60 3AR

Fax: 01709 724999
Website: www.namtec.co.uk

Name: _____

Job Title: _____

Organisation: _____

Address: _____

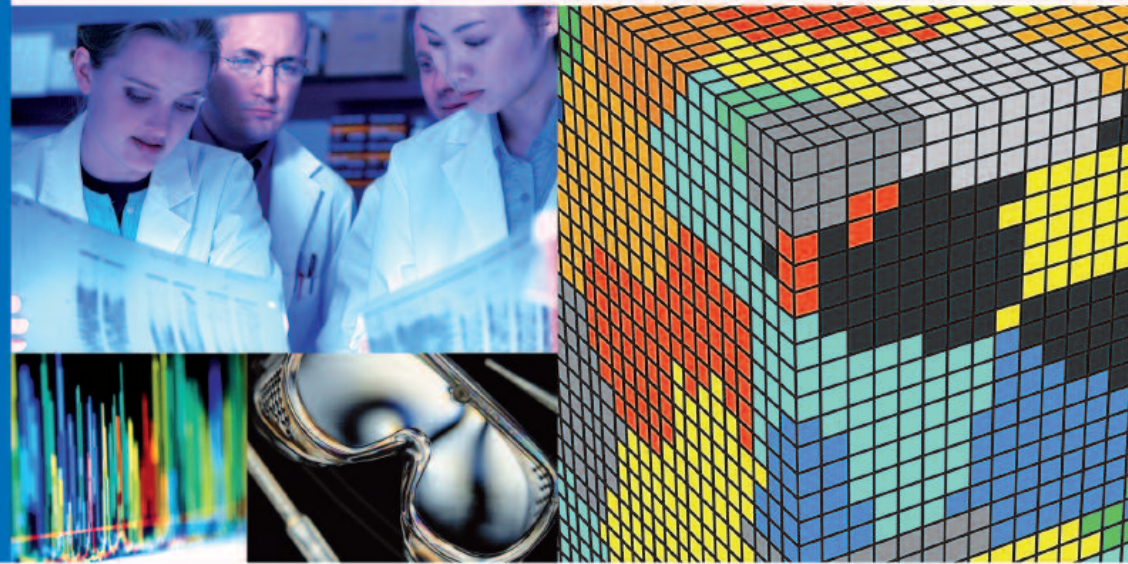
Telephone: _____

Email Address: _____

How did you hear about this workshop? _____

Invoices will be issued on receipt of completed forms.
Buffet lunch is provided each day so please notify us of any special dietary requirements.

Continuing Professional Development in Manufacturing, Materials & Management



Candidates successfully completing the MSc Programme will meet the required standards for registration with EC (UK) and IOM3 Chartered Engineer status.

Supported by



The Region's
Development Agency

Heat Treatment: Principles and Practice 3 Day Workshop

NAMTEC
Swinden House, Moorgate Road, Rotherham S60 3AR
Tel: 01709 724990 www.namtec.co.uk



SHARPENS YOUR THINKING



SHARPENS YOUR THINKING





Heat Treatment: Principles and Practice

Workshop Details

08.30-18.30hrs

This module can be studied as part of the MSc Manufacturing, Materials and Management Programme or as an individual module for people needing this specific technical knowledge.

The course is run in partnership with Sheffield Hallam University. It is an intensive three day workshop which, if successfully completed and assessed will gain 15 credits towards a Post Graduate qualification from the Materials Manufacturing and Management programme.

THE AIMS OF THE MODULE ARE:

- To study basic metallurgy of materials with respect to the development of microstructure and find out how heat treatment processes alter the subsequent properties of materials.
- To describe the basics of solid state transformations taking place as metals are heated and cooled.
- To study the concepts of phases, equilibrium and meta-stable phases.
- To explain why isothermal time temperature and transformation (TTT) and Continuous Cooling Transformation Diagrams (CCT) were developed. Including: how these are used and where relevant; the use of predictive tools.
- To study the development of microstructure and its influence on the properties of materials

WHO SHOULD ATTEND

Graduates in science, engineering or technology who are working in the metals manufacturing sector and wish to widen their technical knowledge into physical metallurgy and the rationale and effect of heat treatment on materials. Entrants who do not have a first degree but can demonstrate that they have the equivalent academic, professional and personal capabilities can be interviewed to assess their suitability for the course.



MODULE LEADER

Dr Jess Cawley initially trained as a maintenance engineer completing an engineering apprenticeship in 1971. He then joined The University of Sheffield as a metallurgical technician and completed technical qualifications. He left in 1974 to study for a first degree at Sheffield City Polytechnic (now Sheffield Hallam University (SHU)). Graduating in 1978 he studied for a Ph.D. under the supervision of Professor B Pickering. Following a Post Doctoral post at The University of Liverpool he rejoined the materials department at SHU as an academic and became head of a small department until his retirement in 2002. He now operates as a materials consultant with strong links to industry and academia. He is a visiting research fellow of The University of Sheffield.



MODULE CONTENT

- The rationale for heat treatment
- The relevant fundamental aspects of metallurgy
- Furnaces and heat treatment methods
- Process control and measurement
- Post furnace treatment and control
- Measurement of properties and quality control
- Applications
- Case study/Assignments (includes Plant visit)
- Phase equilibrium diagrams, tools as the lever rule, the phase rule and carbon equivalence to predict microstructure
- Hardenability and strengthening mechanics including: dispersion hardening, solution strengthening, work hardening and shear transformations
- Equipment used in heat treatment practice, its development, use and control
- Measurement of the properties of materials
- Ashby diagrams to study the interaction of material specification and process with material properties



VENUE

NAMTEC is located in Swinden House, conveniently located close to both the M1 and M18. See www.namtec.co.uk for directions