

Administrative Details

Venue: The venue for the course will be Weetwood Hall Conference Centre and Hotel which offers first-class hotel facilities, a business centre and ample parking facilities. Weetwood Hall is the largest and most flexible conference centre and hotel in the North of England.

Weetwood Hall Hotel is ideally situated 15 minutes north of the centre of Leeds in wooded grounds at the junction of the Otley Road and the outer ring road. It is just 15 minutes from Leeds Bradford International Airport and a short distance from the A1, M1, M606, M621 and M62 motorways.

Further details can be found at www.weetwood.co.uk

Accommodation: Bed and breakfast accommodation at Weetwood Hall Hotel can be booked on behalf of delegates if required and this will be added to your invoice. All rooms are non-smoking and have en-suite facilities. Residents also have free access to the David Lloyd Leisure Centre which is a short distance away.

We have negotiated the following special rates per night:

Friday – Sunday evening, bed and breakfast **£66**

Monday – Thursday evening, bed and breakfast **£83**

Delegates are responsible for their own evening meals except on Monday 19 September when the course dinner is included. A list of alternative hotels is available on request.

Course Dinner: The course dinner will be held at a Leeds city centre restaurant and is included in the course fee. This will take place on Monday evening and transport from and to Weetwood Hall Hotel is provided. The dress code is smart casual. If you would like to attend please indicate on the registration form.

Course Fees: The following course fees include the cost of tuition, course notes, lunches and light refreshments for the day(s) of attendance:

£ 610 (Monday 19 and Tuesday 20 September 2011)

Terms and Conditions: Payment should accompany your registration form unless you have requested an invoice to be sent to you. Please note, registrations received without a supporting purchase order document cannot be processed. The course fee is exempt from VAT and payment can be made by bank transfer, credit card or cheque made payable to the 'University of Leeds'. Please note, due to University policy we can only accept credit card details over the telephone. Unfortunately we are unable to accept payment by American Express. Terms of payment are 30 days from date of invoice. Fees must be paid in full no later than 10 working days before the course commences. Failure to pay may result in attendance being refused.

Registrations are accepted on the understanding that the printed programme is given in good faith but may have to be re-scheduled or the speakers changed for reasons outside our control. The University of Leeds reserves the right to cancel or postpone the course, in which case fees will be refunded in full.

In the event of cancellation, the University will not be held liable for delegates travel or accommodation expenses. Where a delegate wishes to cancel a registration, written cancellations received up to 10 working days before the course will be subject to an administrative charge of 20% of the total remittance. After this date the full fee is chargeable and no refunds will be made, this also applies for non-attendance but copies of the course documents will be sent. Substitutions may be made at any time.

Registrations and Enquiries: To register please complete and return the registration form by email, post or fax. For enquiries please contact:

Rachael Lawson,
CPD Course and Events Co-ordinator,
CPD Unit, Faculty of Engineering,
c/o School of Civil Engineering, Room 209
University of Leeds,
LEEDS, LS2 9JT, UK.

T: + 44 (0) 113 343 8104

F: + 44 (0) 113 343 2511

E: cpd@engineering.leeds.ac.uk

W: www.engineering.leeds.ac.uk/short-courses/

Potential delegates who have any special requirements should contact the above as soon as possible.



Faculty of Engineering

UNIVERSITY OF LEEDS

Thermal Treatment of Municipal Waste

Registration Form

THERMAL TREATMENT OF MUNICIPAL WASTE

Monday 19 – Tuesday 20 September 2011

I wish to register on the above course (please tick and insert details)

Course Fees	Cost
<input type="checkbox"/> Thermal treatment of Municipal Waste	£610
<input type="checkbox"/> I am a local authority employee and wish to claim a 10% discount on the above course fee	

Total course fee £

Course Dinner

I would like to attend the course dinner on Monday 19 September 2011

YES NO

Accommodation	Cost
<input type="checkbox"/> Sunday 18 September 2011	£66
<input type="checkbox"/> Monday 19 September 2011	£83

Please book the following en-suite bed and breakfast accommodation which I understand will be added to the invoice and paid to the University of Leeds

Sunday 18 September 2011 £66
 Monday 19 September 2011 £83

Total accommodation fee £

Total payable to the University of Leeds £

Payment details (please tick box indicating payment method)

- I enclose a cheque* for £ made payable to 'The University of Leeds'
* Please note that cheques should accompany your registration form and should be made payable in pounds sterling and drawn on a UK bank
- Please invoice my organisation. I attach an official purchase order document to accompany this registration.
Please note registrations without a supporting purchase order document cannot be processed
- I wish to pay by credit card, please contact me for my card details

In sending this registration I agree to the terms and conditions stated.

Please send completed registration to:
Rachael Lawson, CPD Course and Events Co-ordinator,
CPD Unit, Faculty of Engineering, c/o School of Civil Engineering, Room 209,
University of Leeds, LEEDS LS2 9JT, UK.
T: + 44 (0) 113 343 8104 **F:** + 44 (0) 113 343 2511

E: cpd@engineering.leeds.ac.uk **W:** www.engineering.leeds.ac.uk/short-courses/

Please send completed registration form to:

Delegate Prof / Dr / Mr / Mrs / Miss / Ms (please select)

Surname:

Initials:

First name for badge:

Position held:

Organisation:

Address:

Postcode:

T:

F:

E:

Special dietary requirements:

Monday 19 – Tuesday 20
September 2011

Course Director:
Professor Paul Williams

Energy and Resources
Research Institute
School of Process, Environmental
and Materials Engineering

Please pass this leaflet to
a colleague if this course
is not relevant to you



Information about the course

Thermal Treatment of Municipal Waste

Monday 19 – Tuesday 20 September 2011

Background to the course

Approximately 30 million tonnes of municipal solid waste is produced in the United Kingdom each year. Recent statistics show that landfill is still the major route for the disposal of municipal solid waste (MSW), representing about 83%. However, all that is due to change in the next decade as the EC Waste Landfill Directive impacts on waste management in the UK. The Directive sets ambitious targets for reducing the amount of waste going to landfill. Based on a 1995 baseline, the amount of biodegradable waste disposed of to landfill must be reduced to 35% of the 1995 level by the year 2016, derogated to 2020 for the UK and others heavily reliant on landfill.

Clearly, the diversion away from landfill to other treatment options will require a major change in the management of UK waste. Thermal treatment of waste through incineration and the newer technologies incorporating pyrolysis and gasification represent key options to comply with the EC Waste Landfill Directive.

Modern thermal treatment process plants with effective gas clean-up can reduce the emissions of acid gases, heavy metals and dioxins and furans to levels well below the EU Waste Incineration Directive emission limits. Together with energy recovery via electricity generation or district heating thermal treatment of municipal solid waste represents an efficient, economic and environmental attractive waste disposal option.

Course Objectives

This course is specifically designed to provide an introduction for all those considering the thermal treatment option for the disposal of municipal solid waste and give a detailed coverage of the various thermal treatment processes and associated issues.

Intended Audience

This course is designed for waste disposal engineers, companies and local authorities who are either considering, or who are already involved in the thermal treatment option for treatment of municipal solid waste.

Course Accreditation

The Leeds course in Thermal Treatment of Municipal Waste is accredited by the Chartered Institution of Wastes Management. This course provides two days towards the Institution's Graduate Structured Learning & Development Programme or 14 hours of Continuing Professional Development



The Energy Institute has approved Leeds University – Faculty of Engineering as an Approved Training Provider.



What our previous delegates say

“Very well presented, good rounded views, balanced opinions – excellent context to today's issues.” - Ascot Environmental

“Everything you need to know on municipal waste thermal treatment by the leaders in the field.” - Environment Agency

“Most useful course I have ever attended. Very relevant and up to date with excellent speakers.”

View the full programme online at www.engineering.leeds.ac.uk/shortcourses

To receive an electronic registration form email us at cpd@engineering.leeds.ac.uk

Other Environmental Engineering and Waste Management short courses:

- **Energy from Biomass Combustion**
Monday 9 - Friday 13 January 2012
- **Industrial Air Pollution Monitoring**
March 2012 (dates to be confirmed)

Full course programme

The programme of lectures is very intense and participants are free to choose the lectures most relevant to them.

A full programme [including detailed lecture descriptions](#) can be viewed online at www.engineering.leeds.ac.uk/short-courses

Monday 19 September 2011

- 08.30 Registration and coffee
09.00 **Introduction**
Professor Paul Williams, Energy and Resources Research Institute, University of Leeds
Introduction to the course. Review of the waste disposal options in the UK, the economic and environmental advantages and disadvantages, waste composition, types of thermal treatment, overview of thermal treatment technologies, pollution and energy recovery.
10.00 **Emissions from thermal treatment of waste**
Professor Paul Williams, Energy and Resources Research Institute, University of Leeds
Formation of solid, liquid and gaseous pollutants, dioxins, furans and polycyclic aromatic compounds, heavy metals, health hazards.
11.00 Coffee
11.15 **Regulation of incineration plants under Environmental Permitting Regulations**
Dr Amin Anjum, Environment Agency
Regulation of incineration and other thermal treatment technologies by the Environment Agency under the Environmental Permitting Regulations regime. Including an overview of incineration processes, BAT and WID considerations.
12.00 **Flue gas emissions control**
John Wade, MWV Environment Limited
Flue gas clean-up systems to meet the Waste Incineration Directive emission requirements, including fabric filters, electrostatic precipitators, wet and dry scrubbers, combined and DeNO_x systems.
13.00 Lunch
14.00 **Sampling and analysis of emissions**
Dr Brian Moyle, Servomex Group Ltd
Sampling and analysis systems for monitoring emissions from MSW incinerator and other waste thermal treatment technologies.
14.45 **Operational aspects of incineration**
Peter Lewis, formerly of Veolia Environmental Services Selchp Ltd
Practical, day to day issues of running an incinerator, covering economics, throughput, technological problems.
15.30 Tea
15.45 **Health effects of waste incineration**
Dr Stephen Burnley, Integrated Waste Systems, The Open University
Review of literature relating to the health effects of waste incineration.
16.30 **Mathematical modelling of incinerators**
Professor Vida Nasserzadeh, Sheffield University Waste Incineration Centre
17.15 End of day one
19.00 COURSE DINNER

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Tuesday 20 September 2011

- 08.30 Coffee
08.45 **Large scale MSW incineration technologies**
Dr Kevin Whiting, Laing O' Rourke plc.
A review of currently used combustion technologies for the recovery of energy from MSW.
09.45 **Energy recovery**
Paul Darley, Darley & Associates
A review of equipment used to recover energy from waste incineration, and an outline of the options and systems available for generating and using heat and power.

- 10.45 Coffee
11.00 **Pyrolysis and gasification of MSW**
Dr Kevin Whiting, Laing O' Rourke plc.
An overview of processes currently under development and an assessment of the commercial status of the technology.
12.00 **Consultation and planning of an energy from waste incinerator**
Paula Boyce, Projects Director, Sauce Consultancy
Planning application for waste incineration, procedures and the steps involved. Public enquiries and impact assessment
12.45 Lunch
13.45 **Thermal Technologies – analysis, efficiency and procurement issues**
Euston Ling, AEA Technologies
High level overview of current and emerging technologies; typical criteria for technology assessments; CHP and thermal efficiencies; achieving technological credibility for procurement.
14.30 **Bottom ash utilisation**
David York, Ballast Phoenix Ltd
Getting the best from an Energy from Waste plant must include the processing and marketing of the IBA. There are important benefits and some pitfalls.
15.15 Tea
15.30 **Economic and commercial issues in waste management**
Ian Crummack, Cobalt Energy Limited
Comparative costs of landfill, incineration and other treatment technologies; impact of the landfill tax; the role of incineration in integrated waste management; the challenges of commercial development and financing.
16.15 **Alternatives to thermal treatment**
Paul Darley, Darley & Associates
Overview of other treatment technologies for municipal solid waste; MBT, autoclaving, composting, anaerobic digestion etc.
17.00 End of course