



9 - 10 January 2012
Renaissance KL

Normal Price:	RM2,000 per person
Group of 3 and above:	RM1,500 per person
Early Bird Price:	RM1,800 per person

OVERVIEW

Energy efficiency plays a key role in a company's drive to reduce its production costs and minimise waste treatment bills. How does a company achieve worthwhile reductions in energy consumption and effluent emissions? Good housekeeping, frequent preventive maintenance and improvement of utility systems are standard measures that must be implemented by all energy consuming processes. However, such measures will not provide a company with a clear competitive edge since the energy savings can often be marginal. This workshop introduces Pinch Analysis, which is a systematic procedure for the design and retrofit (improvement) of process systems for optimum energy usage and minimum waste generation.

In the process industry, there are processes dominantly at sub-ambient temperature, for example, air separation, ethylene production and natural gas processing. The design of low temperature systems processes is critical to achieve high energy for covering the wide range of low temperature in industrial systems, multiple levels of refrigeration, cascaded systems, and mixed refrigerants. Considering these various structural options and determining optimal conditions, coupled with the integration of heat exchangers, are not straightforward, due to complex design interactions. The design of refrigeration cycle is closely linked with driver selection, supply mechanical shaftpower for driving the compressor in the refrigeration cycle. Integration of such systems is again complex, and requires systematic integration with the refrigeration system. The second part of this workshop is an introduction to the technologies used in the design of the refrigeration cycles and provides insight and systematic process integration methodologies required for obtaining cost-effective design solutions.

LEARNING OBJECTIVES

Through this programme, you will:

- Review the basics of energy recovery and refrigeration systems
- Insights into the complexities and trade-offs involved in the selection of refrigeration cycles.
- Understanding of the use of shaftwork targeting in the synthesis of power systems
- Understanding of strategic driver selection
- Hands-on experience of the modeling and design of refrigeration cycles for low temperature systems

TARGET AUDIENCE

This Executive Programme is designed for:

- Plant Managers
- Process/Utility Engineers
- University Lecturers
- Researchers
- Plant Designers
- Process Technologists
- Plant Supervisors
- Postgraduate Students



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Dr. Jin-Kuk Kim
Associate Professor,
Hanyang University, Seoul, Republic of Korea

Dr. Kim has significant research experience in the design of energy systems, including site utility systems, CHP (combined heat and power), power systems design, low temperature energy systems (i.e. refrigeration and cooling water systems) and energy recovery systems. He has an excellent engineering background in conceptual design, thermodynamic analysis, mathematical modeling and optimisation. He has published more than 45 papers in refereed journals, book chapters and international conference proceedings, including one edited book, in the area of process design, synthesis and integration. Dr. Kim has given 40 presentations in various international conferences, including two keynote presentations in PRES (Conference on Process Integration, Modeling and Optimisation for Energy Saving and Pollution Reduction) in 2006 and 2008. He has been involved in the investigation of various research projects funded by EPSRC, UK and EC Frameworks programme as a leading scientist or co-investigator when he was working for the University of Manchester.



Dr. Denny Ng
Assistant Professor, Department of Chemical and Environmental Engineering,
The University of Nottingham Malaysia Campus, Malaysia

Before joining the university, Dr. Ng worked as a post-doctoral research associate at the Chemical Engineering Department of Texas A&M University, United States. He obtained his Ph.D. degree from the University of Nottingham Malaysia Campus. His areas of specialisation include energy management, resource conservation via process integration techniques (pinch analysis and mathematical optimisation), synthesis and analysis of biomass processing and integrated bio-refinery, as well as energy planning for greenhouse gas emission reduction. He has published more than 30 journal papers and have made more than 70 presentations in various international and national conferences. Dr Ng is also serving as international scientific committee for several international conferences. He has established collaborations with well known international researchers from the United States, the Philippines, Taiwan and other countries throughout his career. He was the recipient of the World Federation Scientists (Malaysia National Scholarship) award in 1007. Apart from focusing on research and development (R&D), Dr. Ng has also applied his R&D output in industrial consultation projects, both on resource conservation and integrated bio-refinery. Dr. Ng has also been nominated for various excellence awards, e.g. IChemE Young Engineering Award 2011, The Prosper.Net-Scopus Young Scientist Award 2011, ACM Doctoral Dissertation Award 2010, EFCE Excellence Award 2010.



Dr. Lam Hon Loong
Assistant Professor,
The University of Nottingham Malaysia Campus, Malaysia

Dr. Lam pursued a double Ph.D. in Chemical Engineering (University of Maribor, Slovenia) and Information Technology (University of Pannonia, Hungary). His research topics are in the area of process quality control and supply chain synthesis. He has completed his Bachelor Degree and Master Degree in Chemical Engineering, both from University Technology Malaysia with a specialisation in process system engineering. Dr. Lam is also active in several international scientific committees, i.e. as guest editor for the International Journal of Energy, Journal of Cleaner Production, Clean Technologies & Environmental Policy and Chemical Engineering Transaction. He is also the scientific secretary for international and conference - PRES (Conference on Process Integration, Modeling and Optimisation for Energy Saving and Pollution Reduction).



Ir. Dr. Dominic Foo
Professor, Process Design and Integration
The University of Nottingham Malaysia Campus, Malaysia

Professor Foo is a Professional Engineer registered with the Board of Engineers Malaysia. He is a world leading researcher in resource conservation with process integration techniques. He has established international collaboration with researchers from various countries in Asia, Europe, America and Africa. Prof Foo is an active author, with two forthcoming books and more than 180 scientific papers. He served as International Scientific Committee for several conferences (CHISA/PRES, FOCAPD, ESCAPE, PSE, etc.) He is the winner of the Innovator of the Year Award 2009 of Institution of Chemical Engineers UK (IChemE), as well as the 2010 Young Engineer Award for Institution of Engineers Malaysia (IEM). He also actively conducts professional training for practicing engineers.



PROGRAMME OUTLINE

- Day 01:**
- Introduction
 - Minimum utility targeting with graphical and algebraic techniques
 - Grand composite curve and multiple utilities selection, heat engines and heat pumps
 - The pinch design method (PDM) for exchange network design
- Day 02:**
- Refrigeration Basics
 - Complex Cycles using Pure Refrigerants
 - Heat Integration of Refrigeration Systems
 - Mixed Refrigerants
 - Driver Selection
 - Conclusions

WORKSHOP REGISTRATION FORM

Design of Low Temperature Refrigeration Systems

Date: 09 - 10 January 2012

Venue: Renaissance Kuala Lumpur

Registration Fee

- Normal Price: RM2,000/person
- Group of 3 and Above: RM1,500/person (For more than 3 persons per company/institution)
- Early Bird Price: RM1,800/person (register and pay before 31st December 2011)

Name: Dr/Mr/Mrs/Ms: _____

(Please provide name in full. Certificate issued will be based on this name)

Organisation/Company: _____

Job: _____ Designation: _____ Department: _____

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Authorised Signature/Organisation Stamp

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Date:

For further enquiries please email: marketing.myriad@nottingham.edu.my or call **Shameerah at 03-8924 8795**

Upon submission of the Registration Form, an invoice with bank details will be issued to request for payment. Registration fees must be prepaid by depositing full fee into our bank account or by issuance of a Local Order or Guarantee Letter by your Organisation to:

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TERMS AND CONDITIONS

A confirmation notification with details of the event will be issued to all participants at a nearer date. Payment is required to be made 2 days prior to workshop date. In the event the designated participant could not attend the event a substitute attendee is permitted however if a confirmed participant or substitute attendee who fail to attend the workshop is liable to pay the workshop fee in FULL. While changes in event date, venue, time, trainers and fees can occur from time to time, the Organiser reserves the right to reschedule/cancel the event and/or amend any information in this brochure at the Organiser's absolute discretion. In any circumstances, the Organiser's liability is limited only to refund of paid registration fee.