



Proje ve Teknoloji  
Geliştirme Yönetim,  
Danışmanlık ve Eğitim  
Hizmetleri

CERTIFICATED EDUCATIONAL COURSE

# Next Generation Heat Exchangers and Thermal Management Systems with a Focus on Energy Efficiency

## December 1 - 2, 2011

Simultane çeviri yapılmayacaktır.

This course will be offered in two modules. The first module (total of 7 hours instruction) will focus on next generation heat exchangers (HXs) and thermal management systems, with case examples in electronics, energy/energy services, refrigeration/HVAC, and transportation systems. The second Module (total of 4 hours instruction) will focus specifically on thermal management and energy efficiency of electronics with particular emphasis on efficient data center thermal management design infrastructure. The focus of the course will be on energy efficiency and the methods that may be most suitable to meet future needs of diverse applications.

### Agenda and Course Contents:

#### Module I, Next Generation Heat Exchangers and Thermal Management Systems

Dec. 1, 2011 Thursday 9:00 - 17:30 (Total of seven hours of instruction)

- Overview of thermal management fundamentals
- Driving forces influencing next generation thermal management
- Case examples on Challenges and Opportunities in Thermal Management of electronics, energy and energy services, transportation, and building systems.
- Progress in local sensing and control of temperature, pressure, strain/stress, and other key parameters in energy systems
- Computation tools in thermal management design/optimization

#### Module II, Energy Efficient Thermal Management of Electronics and Data Centers

Dec. 2, 2011 Friday 9:00 - 13:00 (Total of four hours instruction)

- Driving forces for thermal management of next generation electronics
- Techniques for near junction cooling; cooling of 3-D electronics, and cooling of high flux electronics
- Thermal management and Energy efficiency opportunities in data centers
- Air cooling vs. liquid vs. phase-change cooling of data centers
- Reliability aspects of free air cooling and the choice of thermal management
- Best practices and case examples

**Date:** Dec.1, 2011 / 9:00-17:30 (7 hours and Lunch) • Dec.2, 2011 / 09:00-13:00 (4 hours)

**Place:** CENTRUM İş Merkezi - Küçükyalı Aydınevler Sanayi Caddesi No:3 Maltepe (0216) 489 22 64

**Price:** 480 TL (VAT included) **Contact:** info@suntekinternational.com **Fax:** (0216) 457 34 85

#### Biography

##### Prof. Dr. Michael Ohadi

*Dr. Ohadi is a Center for Environmental Energy Engineering (CEE) founding faculty member and founder of the Advanced Heat Exchangers and Electronics Cooling Consortium in University of Maryland, USA. He is internationally recognized for his research in heat and mass transfer and smart energy systems. He is the inventor/co-inventor of eight issued U.S. patents and has published more than 150 refereed technical publications. Dr. Ohadi has actively participated in promoting the support for fostering technological innovation and entrepreneurship. In 2002 he was featured in Washington Post for his efforts involving innovation and technology transfer. From 2003 to 2010 he was on leave assignment to the Petroleum Institute (Abu Dhabi) where served as Director of Mechanical Engineering (2003-2006) and Provost and Acting President (2006 to 2010). He is a fellow member of both ASME and ASHRAE and has won numerous awards from both societies.*