

THERMAL CERTIFICATION **MANAGEMENT PROGRAM**

ADVANCED THERMAL SOLUTIONS, A LEADING ENGINEERING AND MANUFACTURING COMPANY SUPPLYING COMPLETE THERMAL AND MECHANICAL PACKAGING SOLUTIONS FROM ANALYSIS AND TESTING TO FINAL PRODUCTION, IS NOW OFFERING A UNIQUE THERMAL MANAGEMENT CERTIFICATION AND SUPPORT PROGRAM.



ATS ADVANCED THERMAL
SOLUTIONS
EUROPE, B.V.
Innovations in Thermal Management®

WHO:

Dr. Kaveh Azar, president and CEO of Advanced Thermal Solutions and Norbert Engelberts, Director of ATS-EU

WHAT:

Power dissipation of electronic circuits is growing exponentially while the space design engineers have to work with is decreasing. The result is a demand for thermal management expertise during the earliest stages of design.

Join the experts at ATS for a Thermal Management Certification Program; a content-rich, eight month course of workshops, laboratory sessions, certification and technical support provide attendees with all the tools to successfully analyze and solve a variety of thermal challenges.

The Thermal Management Certification Program includes:

- Three, two-day workshops presented by Dr. Kaveh Azar and Norbert Engelberts
- Eight laboratory days where engineers can put the theories, strategies and techniques they will learn to practice. Attendees will be encouraged to bring their thermal management design projects to ATS' research and testing facilities where they can perform all required measurement and analysis with the support of the company's expert thermal engineering staff
- Five hours of phone support, which can be used up to six months after the completion of the program

This course is designed to assist engineers to employ sound and proven thermal design principles that will help bring their products to market faster and within budget.

WHEN:

ATS' Thermal Management Certification Program begins in November 2008 and runs through June 2009.

WHERE:

Advanced Thermal Solutions,
Europe Research and Testing Facility
De Nieuwe Vaart 50, 1401 GS Bussum, The Netherlands

ABOUT THE PRESENTERS:



Kaveh Azar, Ph.D.

Kaveh Azar, Ph.D., is the president, CEO and founder of Advanced Thermal Solutions, Inc. (ATS), and an internationally recognized expert in the thermal management of electronics. Prior to ATS, Dr. Azar was the founder and manager of Lucent Technologies' Thermal Management Center, responsible for developing the next generation of cooling systems. He holds more than 36 national and international patents, and has published more than 75 articles, 3 book chapters and a book entitled "Thermal Measurements in Electronics Cooling". Dr. Azar has also served as the editor in chief of Cooling Magazine, the premier resource for practitioners in the field of electronics thermal management, from the publications, founding in 1995 to 2006.



Norbert P. Engelberts

Norbert P. Engelberts is the director of Advanced Thermal Solutions Europe and has been actively involved in electronics cooling since 1992. Prior to ATS, Engelberts headed the Thermal Design and Environmental Testing Group for Bell Labs, Lucent Technologies (now Alcatel-Lucent). During his 11 year tenure at Bell Labs, he was responsible for the thermal management and environmental testing (indoor and outdoor) of all telecommunications system equipment developed by the company in the Netherlands. In addition, Engelberts also brings with him expertise in HVAC system design, particularly those that house telecommunications and networking equipment.

NEXT STEPS:

Due to the fact we want to give you maximum support and attention, we will have only 20 seats available for this program. We urge you to respond quickly and secure your seat for the next program, starting November 2008.



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CONTENT WORKSHOPS:

17-18 November 2008

Session One - Introduction and Fundamentals

Duration 2 Days

Topics covered

- Introduction to electronics cooling
- Review of market available cooling solutions
- Review of Fundamentals of Heat Transfer and Fluid flow.
- Analytical modeling principles - approaches for the firstorder modeling

Lab work : These experiments will take place in a wind tunnel at ATS-EU Thermal Fluids Lab

- Air flow distribution on a PCB
- Measuring air flow on a PCB
- PCB thermal optimization based on component layout.

Bring Your Problem:

Bring a problem with you and work on it with the experts

19-20 January 2009

Session Two - Modeling and Measurement

Duration 2 Days

Topics Covered

- Thermal Modeling - - Component, Board and Systems
- Fundamentals of Heat pipe, TEC and Liquid cooling (cold plate)
- Review of experimentation in electronics cooling - how to measure temperature, velocity, pressure, heat flux and sound.

Lab work : These experiments will take place at ATS-EU Thermal Fluids Lab

- Characterize heat pipe, TEC, Coldplate, Heat sink and fan's flow rate.

15-16 June 2009

Session Three - Application and Simulation

Duration 2 Days

Topics Covered

In these sessions, application specific thermal problems are solved and simulation tools like CFD are reviewed. Participants are encouraged to submit their specific applications a priori for review and solution by our experts

- Dos and Don'ts of CFD simulation - when, how and what to use. Hands on experience with Flotherm and Cfdesign.
- LED cooling
- Telecomm cooling
- Datacomm and computer cooling
- Military electronics cooling
- Consumer electronics cooling

Closing Presentation

- Electronics Cooling - Past, Present and Future.



Time Line Courses

Course Session 1	Course Session 2	Course Session 3
17-18 Nov. 2008	19-20 January 2009	15-16 June 2009



Registration Form

Name:

Company:

Job Title:

Address:

City:

Phone:

E-mail:

Fax:

Fax to: + 31 (0)35 69 212 94

HOW TO REGISTER FOR THIS PROGRAM:

Tuition for the Thermal Management Certification Program is € 5,950 (excluding VAT) and includes all course materials as well as lunch/diners on workshop/course days. A subscription becomes valid when a purchase order has been received.

Please contact ATS-Europe BV via e-mail at info@qats-europe.com or by telephone at +31 (0)35 69 847 15 by October 17, 2008 to reserve your place.

