

Registration (Fax Reply)

To: ECPE e.V.
Att.: Ingrid Bollens, Ingrid.bollens@ecpe.org
Please **e-mail** a scanned copy of the completed form or
send a fax to: +49 (0)911 / 81 02 88 – 28

Register before **1 June 2011**

Participation fee:

- €480,- * for industry
- €380,- * for universities/institutes
- €150,- * for students/Ph.D.

The fee includes dinner, lunch, coffee/soft drinks and hand-outs.

With the confirmation of registration you will receive the invoice (*plus VAT). 50 % discount for ECPE Member Companies.

In case of cancellation after 1 June 2011 or non-attendance 50 % of the participation fee are payable.

Sender:

Title, given name, name

Company, department

Full address

Phone, fax

E-mail

Date, signature

Organisational information

Organiser ECPE e.V.
90443 Nuremberg, Germany
www.ecpe.org

Course instructor Prof. Dr. Eckhard Wolfgang
P. de Place Rimmen
Dr. W. Gerling

Organisation Ingrid Bollens, ECPE e.V.
+49 (0)911 / 81 02 88 – 10
ingrid.bollens@ecpe.org

Venue Aalborg University
Dept. of Energy Technology
Pontoppidanstraede 101, Room 41
9220 Aalborg Ost, Denmark



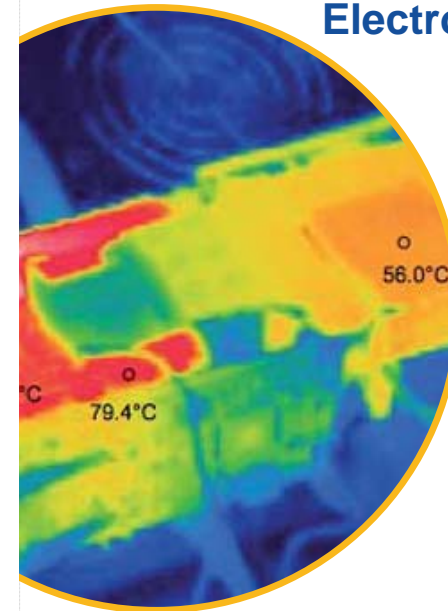
Further information (hotel list and maps) will be provided after registration.



ECPE Tutorial

Reliability of Power Electronic Systems

9 - 10 June 2011
Aalborg University
Denmark



Reliability of Power Electronic Systems

9 - 10 June 2011
Aalborg, Denmark

The aim of the tutorial is to teach the basics of modern reliability engineering. This is based on the physics-of-failure-concept and the intended mission profile of the electronic system and its components.

The mission profile determines the combination of stresses versus time to which the electronic system is subjected during its application. Its consideration by the design of a product demands the control of stresses with respect to the planned application period. The application oriented confirmation requires the definition of appropriate accelerating stress tests.

To secure the reliability of power electronics systems the building-in reliability philosophy and the methodology of implementation will be explained and illustrated by examples.

Beside the very successful ECPE Seminar and Workshop series, ECPE offers a tutorial programme focussing more on education of young engineers and engineers from neighbouring disciplines.

The course instructor of the reliability tutorial is
Prof. Dr. Eckhard Wolfgang, ECPE e.V.

Co-instructors are
Dr. Wolfgang Gerling, Consultant
Peter de Place Rimmen,
Danfoss Power Electronics A/S

All presentations and discussions will be in English

Programme

Thursday, 9 June 2011

- 9:30 Start of Registration
- 10:00 Welcome,
T. Harder, ECPE e.V.
- 10:15 Overview
- Content and goals
E. Wolfgang
- 10:30 1. Reliability Basics
- Definitions, parameters, models
- Failure mechanisms
W. Gerling

Requirements

- 11:30 2.1 Functional Requirements
- Specification
- Mission Profile
E. Wolfgang

12:00 Lunch

- 13:00 2.2 Reliability Requirements
P. de Place Rimmen

Virtual Performance Assessment

- 13:45 3.1 Electrical and Thermal Design
- Design for reliability
- Advanced cooling
E. Wolfgang

15:00 Coffee Break

- 15:30 3.2 Impact of Cooling Concepts on System Design and Reliability
P. de Place Rimmen

Virtual Reliability Assessment

- 16:30 4.1 Physics-of-Failure Concept
W. Gerling
- 17:20 General Discussion

19:00 Dinner

Programme

Friday, 10 June 2011

- 9:00 Summary 1st day, open questions
- 9:20 4.2 Wearout Issues
P. de Place Rimmen

10:10 Coffee Break

- 10:30 4.3 Mission Profile for Components
E. Wolfgang
- 11:00 4.4 Life Time Prognosis
- example solder connection
E. Wolfgang
- 11:30 4.5 Risk Assessment
- FMEA
P. de Place Rimmen

12:15 Lunch

Reliability Verification, Qualification, Validation

- 13:15 5.1 Qualification Concept
- example components
W. Gerling
- 13:45 5.2 Robustness Validation
- examples
W. Gerling

14:20 Coffee Break

- 14:40 5.3 Intelligent Testing
E. Wolfgang
- 15:10 5.4 Requirement Engineering
- methodology for performance and reliability
W. Gerling
- 15:40 Final Discussion, Feedback
- 16:00 End