

# Thermal Management of Electronic Systems and Components

## About the Seminar:

This two-day program provides an understanding of the issues involved in thermal management of electronic and telecommunication systems. The course focuses on the principles of heat dissipation and evaluates the tools available to design engineers for proper thermal management of systems and components. Practical techniques that are effective in the dissipation of heat generated in these systems as well as thermal dissipating equipment such as heat sinks, heat pipes, PCMs, and heat exchangers are covered in detail.

## Who Should Attend:

This course is designed to help engineers and technicians with some thermal background (but new to the electronics or telecommunications field) understand the thermal challenges and demands of the electronics field. Experienced engineers will also find the course very instructive and useful.

## Benefits of Attending

- ▶ Understand heat transfer and fluid mechanics principles
- ▶ Learn effective heat dissipation techniques
- ▶ Discuss the evaluation of design tools and thermal dissipating equipment
- ▶ Troubleshoot and identify practical solutions

## Concepts Covered

- ▶ Thermal Problems
- ▶ Fundamentals and Theory
- ▶ Thermal Characterization of Components
- ▶ Thermal Management of LEDs
- ▶ Numerical Simulation
- ▶ Thermal Management of Equipment
- ▶ Thermal Management for Telecom



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## Course Syllabus

### Overview of Thermal Problems in Electric, Electronic, and Telecom Components and Systems

### Overview of Fundamentals and Theory

- Heat Transfer
- Fluid Mechanics
- Thermal Systems

### Thermal Characterization of Components

- Thermal Resistance Components
- Junction Temperatures
- Cooling
- Heating Loads

### Thermal Management of LED Systems and Components

### Experimental Methods in Electronics/ Telecom Cooling Equipment

### Thermal Management of Outdoor Equipment

- Active
- Semi-active or Passive Cooling
- Solar Loads

### Overview of Numerical Simulation, Background, Review and Evaluation of Commercial CFD Software Packages/ Tools

### Review and Evaluation of Thermal Management Equipment

- Heat Sinks
- Heat Pipes
- Microchannel Heat Sinks
- Fans and Blowers
- Thermoelectric
- Interface Materials
- Phase Change Materials

### Thermal Management of Electronics/ Telecom Systems using PCMs

### Overview of Thermal Management of Indoor and Outdoor Telecom Systems