

# *Mechanical Department*

Under TEQIP-II

## **EXPERT LECTURE**

On

# **“INFRARED THERMOGRAPHY”**

**(a tool to capture the essence of heat transfer)**

@ MITS Seminar Hall - on 11<sup>th</sup> April 2014 at 3 pm



*The Guest Lecture was conducted on 11/04/2014 by the Department of Mechanical Engineering. The Guest Lecture was conducted on “INFRARED THERMOGRAPHY” by Dr. S.V. Prabhu Professor, Department of Mechanical Engineering, Indian Institute of Technology, Bombay.*

### **Report by Dr P. Suryanarayana Raju, Professor**

The seminar commenced with a brief introduction of the speaker to the audience, given by Dr. C. Yuvaraj. The technical lecture began with a short review of some fundamental concepts of convection heat transfer. The importance of accurately estimating the convection heat transfer coefficients in engineering practice is explained in detail using several real life examples. The basic working principles of infrared thermography are described along with the procedure for building an experimental set-up for measuring local temperature distribution using an infrared camera. The methodology for measuring the local wall temperature distribution using the state of the art technique of infrared thermography and deducing the local heat transfer coefficients from the measured temperature data is elaborated. The concepts of calibrating the instrument and verifying the experimental results are touched upon. Several case studies from Prof. Prabhu’s original research are described where thermal imaging is used to assess the local heat transfer coefficients. The process of performing experimental heat transfer analysis on real world systems and improving their performance through rigorous engineering is elucidated using the case studies of jet cooling and ribbed internal flows. An interaction session followed the lecture where Prof. Prabhu answered the questions from the audience and gave some information about procuring an infrared thermography camera at MITS through some possible external funding. The session concluded with Principal and HOD felicitating the speaker and thanking him for visiting MITS and delivering the expert lecture.