



Course guides

205050 - 205050 - Infrared Thermography for Building Diagnostics

Last modified: 29/05/2020

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 758 - EPC - Department of Project and Construction Engineering.

Degree: MASTER'S DEGREE IN SPACE AND AERONAUTICAL ENGINEERING (Syllabus 2016). (Optional subject).
MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2013). (Optional subject).
MASTER'S DEGREE IN AERONAUTICAL ENGINEERING (Syllabus 2014). (Optional subject).

Academic year: 2020 **ECTS Credits:** 3.0 **Languages:** English

LECTURER

Coordinating lecturer: Blanca Tejedor

Others:

TEACHING METHODOLOGY

The teaching methodology is focused on performing some tests and practices in relation with the concepts exposed over the course. The main aim is to establish a useful guideline for the student in order to detect anomalies and determine thermal properties of building elements. Like this, the student may propose improvements and solutions regarding building refurbishment.

LEARNING OBJECTIVES OF THE SUBJECT

STUDY LOAD

Type	Hours	Percentage
Self study	48,0	64.00
Hours large group	27,0	36.00

Total learning time: 75 h



CONTENTS

Module 1: Introduction to Infrared thermography

Description:

- ? Energy Audit Process
- ? What is IRT? Definition and Applications
- ? Regulatory Framework: EN 13187:1998, RESNET's guideline
- ? Infrared Camera: How capture an image
- ? Heat Transfer in relation with IRT

Related activities:

- ? What is the correlation between the variables to be measured and instruments to be used?
- ? To develop a document and presentation about a specific application where IRT is relevant. The background of such application is required
- ? To enumerate and explain what conditions are needed for inspections or tests by IRT
- ? To practice with an IR camera and Software FLIR TOOLS

Full-or-part-time: 32h

Theory classes: 12h

Self study : 20h

Module 2: IRT for building diagnostics

Description:

- ? Techniques of measurement and assessment
- ? Interpretation of a thermogram
- ? IRT for building refurbishment

Related activities:

- ? How detect anomalies by qualitative IRT
- ? To practice different techniques of measurement and assessment in different case studies.
- ? To analyze a sequence of thermograms recorded in a specific data acquisition interval by IR camera.
- ? To determine thermal properties of a building façade.
- ? To describe solutions for anomalies detected in buildings by IRT. It can be used techniques of refurbishment

Full-or-part-time: 43h

Theory classes: 15h

Self study : 28h

GRADING SYSTEM

20% (ATTENDANCE & PARTICIPATION IN CLASS) + 80% PRACTICES

RESOURCES

Other resources:

Material attached in virtual Campus