

205050 - Infrared Thermography for Building Diagnostics

Coordinating unit: 205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering
 Teaching unit: 758 - EPC - Department of Project and Construction Engineering
 Academic year: 2019
 Degree: MASTER'S DEGREE IN AERONAUTICAL ENGINEERING (Syllabus 2014). (Teaching unit Optional)
 MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2013). (Teaching unit Optional)
 MASTER'S DEGREE IN SPACE AND AERONAUTICAL ENGINEERING (Syllabus 2016). (Teaching unit Optional)
 ECTS credits: 3 Teaching languages: English

Teaching staff

Coordinator: Blanca Tejedor

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

Total learning time: 75h	Hours large group:	27h	36.00%
	Hours medium group:	0h	0.00%
	Hours small group:	0h	0.00%
	Guided activities:	0h	0.00%
	Self study:	48h	64.00%

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Content

<p>Module 1: Introduction to Infrared thermography</p>	<p>Learning time: 32h Theory classes: 12h Self study : 20h</p>
<p>Description:</p> <ul style="list-style-type: none"> ? 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 <p>Related activities:</p> <ul style="list-style-type: none"> ? 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 	
<p>Module 2: IRT for building diagnostics</p>	<p>Learning time: 43h Theory classes: 15h Self study : 28h</p>
<p>Description:</p> <ul style="list-style-type: none"> ? Techniques of measurement and assessment ? Interpretation of a thermogram ? IRT for building refurbishment <p>Related activities:</p> <ul style="list-style-type: none"> ? 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 	

Qualification system

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

Bibliography

Others resources:

Material attached in virtual Campus