

Master Thesis Brief Description

Thesis Title	Smart Readiness Indicator for Buildings
Programme of Studies	MSc in Sustainable Energy Systems
Course	MES 580 Master Thesis
Area of Study	Computational Building Physics – Smart Buildings
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Supervisory Committee	Dr Byron Ioannou, Ass. Professor, Architectural Department Dr. George Karagiorgis, Assoc. Professor, Mechanical Engineering Department
Semester	Fall Semester 2020
Short Description	<p>The concept of Smart Buildings was introduced by the Energy Performance Building Directive, with the aim to promote energy flexibility, renewable energy production and user interaction. A wide range of definitions have been introduced in the literature to characterize smart buildings but in contrast, its' concept and features are not transparent and uniquely defined. Simultaneously, building energy retrofit concept has been introduced to facilitate achieving the nearly Zero-Energy Building target and reduce energy consumption in existing buildings. Up to 90 % of the existing European building stock will still be standing and in use in 2050. Thus, there is a need to upgrade the existing retrofitting strategies into Smart Retrofitting, to achieve the nearly Zero Energy Building target and be able to respond to external dynamic conditions such as the weather and the grid.</p> <p>The aim of this research is first to review the concept of smartness in the built environment and secondly the development of an application where it will have the ability to calculate the total SRI score and also the impact scores and domain scores of a building.</p>