

Master Thesis Brief Description

Thesis Title	Energy Performance Analysis of Frederick University Building using REVIT software
Programme of Studies	BSc in Mechanical Engineering, Frederick University
Course	AMET 400 Senior Project
Area of Study	Sustainable Energy Technologies – Biomass assessment
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Supervisory Committee	Dr Michalis Menicou, Assoc. Professor, Mechanical Engineering Department Dr. George Karagiorgis, Assoc. Professor, Mechanical Engineering Department
Semester	Spring Semester 2020
Short Description	<p>This diploma thesis implements the energy performance analysis of an existing building, Frederick University Building in Nicosia, Cyprus (Latitude: 35°10'46.36"N / Longitude: 33°22'46.80"E). The purpose of this thesis is to deal with the B.I.M. (Building Information Modelling) energy performance analysis and the comparative analysis of three energy saving measures (scenarios).</p> <p>The building model and the energy analysis of the building was developed in Revit Autodesk 2019 software. After the completion of the 3D Energy Model, another platform, Insight 360 software, creates the energy analytical model and identifies exactly the energy consumption of the building. Afterwards, three energy saving scenarios will be examined:</p> <ul style="list-style-type: none">▪ Building shell (external walls and roof) high thermal insulation▪ Installation of (high performance) double glazed Windows with low – e glass▪ Installation Photovoltaic Panels on the roof of the building (90% coverage of the roof area that it corresponds to about 60 kW PV installation) <p>The updated results of Energy Use Intensity (kWh/m²/year) of each scenario will be analysed and the base run analysis and these scenarios will be compared. Finally, these scenarios were examined from a techno-economic approach and the most value scenario was selected.</p>