Thesis Title	**CFD-Based Investigation of Ventilation Strategies for Indoor Air Quality Enhancement**
Programme of Studies	MSc in Energy Engineering
Course	MEE 540 - MSc Thesis
Area of Study	Computational Building Physics – Finite Elements Methods
Student's Name	Georgios Konstantinou
Students Reg. Number	14769
Supervisor	Dr.-Ing. Paris A. Fokaides, Professor, Mechanical Engineering Department
Co-supervisor	Ms Artemis Georgiou, Sustainable Energy Research Group
Supervisory Committee	Dr George Karagiorgis, Professor, Mechanical Engineering Department Dr Byron Ioannou, Professor, Architectural Department
Semester	Fall Semester 2025
Short Description	This thesis uses Computational Fluid Dynamics (CFD) to evaluate ventilation strategies for improving indoor air quality (IAQ) and thermal comfort in buildings. Natural, mechanical, and hybrid ventilation systems are analysed under different climatic conditions using Autodesk CFD. Airflow patterns, temperature distribution, and pollutant dispersion are assessed to identify optimal inlet and outlet configurations. The findings support energy-efficient ventilation design, improved occupant health, and compliance with indoor air quality standards in both new and renovated buildings.