Thesis Title	**Life Cycle Assessment (LCA) of Aluminium Profiles Using Industrial LCA Software Tools**
Programme of Studies	MSc in Energy Engineering
Course	MEE 540 - MSc Thesis
Area of Study	Sustainable Transport – Hydrogen Technologies
Student's Name	Leontios Mina
Students Reg. Number	25906
Supervisor	Dr.-Ing. Paris A. Fokaides, Associate Professor, Mechanical Engineering Department
Co-supervisor	Ms Kyriaki Koumenidou, Sustainable Energy Research Group
Supervisory Committee	Dr George Karagiorgis, Professor, Mechanical Engineering Department Dr Chris Christodoulou, Professor, Mechanical Engineering Department
Semester	Spring Semester 2025
Short Description	This thesis focuses on the life cycle assessment of aluminium profiles, aiming to identify environmental impacts and hotspots across the full production chain. The study applies LCA methodology using professional tools such as Sphera, supported by background research on energy inputs, material flows, and waste outputs associated with aluminium manufacturing processes. A worst-case scenario approach is adopted to develop a detailed process flowchart with quantified inputs and outputs. The analysis enables the evaluation of key life cycle stages contributing to environmental burdens and supports informed decision-making for improving resource efficiency and reducing emissions in aluminium profile production.