

Master Thesis Brief Description

Thesis Title	Hydrogen: The Transition to the Next Future Fuel for Internal Combustion Engines
Programme of Studies	MSc in Energy Engineering
Course	MEE 540 - MSc Thesis
Area of Study	Sustainable Transport – Hydrogen Technologies
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Supervisory Committee	Dr Byron Ioannou, Assoc. Professor, Architectural Department Dr. Gregoris Kalnis, Asst. Professor, Architectural Department
Semester	Fall Semester 2024
Short Description	This thesis explores the feasibility of hydrogen-powered internal combustion engines (H2ICEs) as a transitional technology toward carbon neutrality in transportation. It evaluates technical modifications such as direct injection systems, assesses safety issues including hydrogen embrittlement, and analyzes environmental benefits compared to fossil fuel ICEs. Emphasis is given to retrofitting potential, cost-benefit implications, and the compatibility of H2ICEs with existing infrastructure. The study affirms hydrogen's role in accelerating the shift to low-emission mobility.