Thesis Title	**Experimental and Numerical Analysis of Heat Transfer in Forced-Circulation Solar Thermal Systems**
Programme of Studies	MSc in Energy Engineering
Course	MEE 540 - MSc Thesis
Area of Study	Sustainable Built Environment – Solar Thermal Systems Analysis
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Semester	Fall Semester 2025
Short Description	This thesis focuses on the development of predictive models for forced-circulation solar thermal systems using real operational data and Python-based numerical techniques. Regression and time-series models are employed to estimate water heating times under varying system configurations and weather conditions. The study evaluates the influence of key parameters such as collector efficiency, circulation flow rate, solar irradiation, and ambient conditions. The results support improved system understanding, optimized operation, and enhanced design of solar thermal installations, contributing to higher efficiency and reliability in domestic hot water production.