Thesis Title	**Numerical and Experimental Investigation of the Performance of Solar Thermal Systems for Domestic Hot Water Use**
Programme of Studies	MSc in Energy Engineering
Course	MEE 540 - MSc Thesis
Area of Study	Experimental and Computational Solar Thermal Systems
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Semester	Fall Semester 2024
Short Description	This thesis investigates the performance of solar thermal systems (STS) for domestic hot water production through combined experimental measurements and computational modeling. Two STS configurations—thermosyphon and forced circulation—were analyzed using sensor-based data collection and Computational Fluid Dynamics (CFD) simulations. The study developed a digital twin to represent system behavior under varying ambient conditions typical of Cyprus. The research concludes with performance benchmarks and highlights the potential of digital twins in optimizing renewable energy systems.