

Internship in Mechanical Engineering

Supervisor	Prof. Dr. Jacqueline Biancon Copetti
Project	Heat transfer and fluid flow in microchannels and applications
	Experimental studies of heat transfer with phase change (boiling) and single-phase flows in micro-channels for applications to compact thermal systems and heat dissipation in electronic devices of small dimension and high density of power. Analysis of the behavior of new refrigerants, nanofluids and the influence of different microchannel geometries. Besides that, the project propose studies in air conditioning systems and compact heat exchangers for performance characterization against variations of operating conditions and fluids.
Tasks	<ul style="list-style-type: none"> • Experiments in test benches for different geometries of microchannels, fluids, temperatures and heat fluxes conditions to evaluate boiling and liquid flow. • Data processing through computational tools (EES, MatLab, LabView) and uncertainties analysis. • Images processing and use of optical sensors for analysis of flow patterns in microchannels. • Development of micro heat exchangers (microfabrication techniques). • Tests to evaluate single-phase electronic cooling technology.
Requirements	<ul style="list-style-type: none"> • Students of Engineering (mechanical or thermal) • Undergraduate student (at least beginning of the 2nd year) • Basic skills in scientific working (lab and/or field experiments)
Language Skills	English or Spanish
Duration	4 months
Possible Beginning	March/August
Credits	According to agreement
Payment	None