

2022/2023 Summer Research Project Description

Project title:	Physical modelling of hydraulic structures
Project duration, hours of engagement & delivery mode	<p>Duration of the project: 8-10 weeks during Summer Vacation.</p> <p>Hours of engagement: 36hrs per week</p> <p>On-site attendance is required.</p> <p>The project will take place full-time on campus in the AEB Hydraulics Laboratory</p>
Description:	<p>Theoretical and numerical studies of turbulent flows in hydraulic structures are complicated by the large number of relevant equations: i.e., three basic equations (continuity, momentum, energy), plus a mass transfer equation. Most studies rely upon some physical experiments with sophisticated instrumentations. Laboratory model studies are performed under controlled flow conditions with geometrically similar models. Hydraulic investigations will be conducted in the AEB hydraulics laboratory to predict the hydrodynamic performances of man-made structures. The project will aim to characterise the turbulence and the effects of flow turbulence on the optimum flow conditions</p>
Expected outcomes and deliverables:	<p>The work will be conducted in the AEB hydraulic research laboratory. The student(s) will conduct some research experiments under academic supervision in a world-known research laboratory.</p> <p>They/he/she will gain skills in modelling and data processing, together with some critical analysis of the results. Student(s) may also be asked to produce a report and possibly oral presentation at the end of the project.</p>
Suitable for:	<p>Suitable for Civil and Environmental Engineering students who successfully completed course in Fluid Mechanics (UQ equivalent: CIVL2131), and preferably Open Channel Hydraulics (UQ equivalent: CIVL3140), and are likely undertake a CIVL4580/4582 Research thesis or CIVL4560 Project in 2022, starting in semester 1.</p> <p>Preference will be given to highly motivated students.</p> <p>UQ enrolled students only.</p> <p>Pre-requisite: Successful completion of Fluid Mechanics courses equivalent to CIVL2131 Fluid mechanics.</p> <p>The project requires all on-campus work and be full-time project</p>
Primary Supervisor:	Professor Hubert Chanson
Further info:	<p>For further information, contact Professor Hubert CHANSON: Room 49-553 h.chanson@uq.edu.au.</p>

2022/2023 Summer Research Project Description

Project title:	Sustainable Infrastructure Design towards Circular Economy
Project duration, hours of engagement & delivery mode	The project will run for 10 weeks with meetings and work undertaken at the St Lucia campus. Remote working arrangements are also acceptable if required, but the candidate is expected to work with the Team from Sustainable Infrastructure Research Hub - Faculty of Business, Economics & Law - University of Queensland (uq.edu.au)
Description:	The project is part of a collaborative initiative between UQ SIRH and the industry which supports Australia's infrastructure industry to transition to circular economy principles. The summer research project investigates key opportunities for a circular economy in the infrastructure industry via a review of literature and analysis of data from industry partners.
Expected outcomes and deliverables:	Applicants will gain skills in systematic literature reviews, data collection and analysis, and contributing to an academic paper for publication. In addition, the applicant will be exposed to a collaborative team environment and meetings with the industry.
Suitable for:	This position is open to students from ANY UQ Faculty at either Bachelor's or Masters's level. Knowledge of the infrastructure industry and sustainability will be well regarded.
Primary Supervisor:	Dr Jurij Karlovšek and Dr Cristyn Meath
Further info:	For further information please contact Dr Jurij Karlovsek at j.karlovsek@uq.edu.au or visit https://bel.uq.edu.au/sustainable-infrastructure/research