

WINTER SCHOOL

URBAN DESIGN CHALLENGE

WATER AND ENERGY SYSTEMS INTEGRATION

Monday 21 to Friday 25 June, 2021

The University of Queensland, St Lucia

Connect

Learn from experts and industry who participate and present during the tournament.

Participate

in a field trip to learn more about current approaches, solutions, challenges and site-relevant information.

Network

With mentors, judges, presenters, other disciplines and students – established specialists in their fields working in the industry.

Win

\$2000 worth of team prizes. Have your design showcased by the CRC Water Sensitive Cities and others.



The Design Challenge is proudly supported by:



Advanced Water
Management Centre

URBANENQUIRY
Research + Practice



CRC for
Water Sensitive Cities



International
WaterCentre



Griffith
UNIVERSITY
Queensland, Australia



ERGON
ENERGY
NETWORK



Unitywater



Energy
Queensland

BLIGH
TANER

MORE INFO

Have fun!

Get creative, systematically plan and then build with Lego your city.

- Build applied knowledge. Use critical thinking around a key issue influencing city design and management.
- Employ your understanding of the field (energy, water, architecture, planning) to solve real-life problems related to urban growth, water and energy supply, security and efficiency.
- Presentations from leading international scientists and industry managers working in the domain of water and energy efficient cities.
- 40hrs of Continuing and Professional Development including knowledge and use of CRC Water Sensitive Cities analysis tools.
- Check feasibility of your ideas with team members from other fields (all teams will be multidisciplinary). On-line real-time scoring.
- Morning/afternoon tea and lunch included everyday plus a networking dinner.



Organised By:

- Professor Steven Kenway (UQ)
- Dr Steve Conrad (UBC Canada)
- Dr Ilje Pikaar (UQ)
- Dr Paola Leardini (UQ)
- Professor Peta Ashworth (UQ)
- Dr Sébastien Darchen (UQ)

Supported by:

- Bligh Tanner (David Hamlyn Harris)
- Conrad Research Associates (Steve Conrad)
- Energy Queensland (Axel Braunsberger)
- Ergon Energy
- Urban Enquiry (Cathryn Chatburn)
- CRC Water Sensitive Cities (Chris Tanner)
- International WaterCentre (Mark Pascoe)

ELIGIBILITY

Participation in all 5 days is required. Applications are encouraged from the following:

- Masters of Architecture (ARCH7042, 7060, 7061)
- Master of Sustainable Energy (ENGY7301)
- Masters of Urban Water (WATR7109, CIVL7131, or WATR 7103)
- Urban Hydrology (CIVL7131)
- Master of Urban and Regional Planning (MURP).
- Engineering Grand Challenges (ENGG7701)
- Environmental Risk Assessment and Management (CIVL4170)
- Bachelor of Urban and Regional Planning (3rd and 4th year)
- Environmental Issues and Sustainability in Engineering (CIVL2315) year).

Cost for participation

UQ Student - \$25 (including lunches, dinner, field trip and drinks)

External professionals - \$500 (5 full scholarships are available for partner organisations, by application.)

**Total spaces are limited to 55 so early applications are encouraged.
For more information contact Prof Steven Kenway (s.kenway@uq.edu.au)**

Register by 24th May 2021

Registration by application as places are limited

<http://bit.ly/UrbanDesign2021>

THE CHALLENGE

Regional population is growing but how do we ensure new developments are more liveable, efficient, sustainable, resilient and resource efficient? How do we integrate water and energy systems into existing infrastructure while taking advantage of the benefits distributed systems offer?

Your multidisciplinary team will work together on a case study to solve this problem!

LEARNING OBJECTIVES

This challenge aims to improve understanding and knowledge in areas of:

- Understand and evaluate the key issues, pressures, drivers and trends in urban water and energy management and their interconnections/interdependencies.
- Critically formulate strategies for implementing change in urban water management to influence energy efficiency/balance.
- Critically assess, transfer and apply learning from diverse expertise into another context or discipline (eg urban planning, civil and environmental engineering, water, energy, architecture and/or engineering).
- Learn how to effectively communicate trans-disciplinary ideas and solutions to a diverse stakeholder community.
- Understand the relationships between water and energy in urban water systems in terms of overall city metabolism, and be able to critically identify how to reduce or avoid increasing water-related energy use.
- Describe and assess the strengths and weaknesses of key water management and resource strategies and energy efficiency/recovery approaches and technologies for improving urban metabolism and sustainability at different scales.
- Understand and analyse how engineering options and other approaches contribute to water and energy security and productivity.
- Learn to effectively work in interdisciplinary groups, appreciate and critically analyse other perspectives, and have fun.

How is the Design Challenge structured?

- Preliminary readings relevant to the subjects will be provided.
- Handbooks are issued giving background information on roles, team assignments, rules and expectations.
- Surveys help identify participant views and knowledge in water and energy applications so appropriate team placements can be made and effectiveness of the challenge determined.
- Days 1-3 are lectures, interactive activities and site visits.
- Days 4 and 5 are intense group work with support of academics and professionals.

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PROGRAM OVERVIEW

Day 1 – Background and what is it all about?

- Mixture of lectures and interactive activities.
- Some networking and short group activities to familiarise with the topics and each other.
- Key principles presented and group discussions.
- Theory and practical information on relevant key disciplines.
- Welcome drinks

Day 2 – Lectures and interactive activities on key topics (regional or catchment scale)

- What are the problems? What solutions are being proposed? How have past options performed?
- Unbiased look at what policy and technical options are being or have been considered?
- Site visit and industry partner discussions to understand real world challenges of water and energy in cities.

Day 3 – Design and analysis

- Lectures on urban and water sensitive design and planning (district scale).
- Introduction to the tournament and its structure, issues and expectations.
- Introduction to relevant tools for analysis.
- Teams develop and present an overarching management goal, review and tools available to quantify choices, and develop and evaluate options, and work to prepare decision aids using provided templates.
- Field trip to see catchments, wetlands, floodplains and stormwater harvesting.
- Networking Dinner

Day 4 – Regional and Urban strategies

- Scenarios presented in the form of scientific briefings on future expected changes (eg to water and climate) as well as energy and land use planning policy (eg transport changes and expected blue-green infrastructure changes).
- Teams respond to the sequential challenges and collaboratively prepare, evaluate, and present their responses to a governing Board (industry and academic).
- All participants judge and score responses giving dynamic and detailed feedback.

Day 5 – Final planning and Design package

- Scenario 2 unfolds (expected as a greenhouse gas and/or renewable energy-related policy goal).
- Teams adjust their plans and present them, again being marked by all present.
- Design - teams have to design, build and market their city using diverse scientific information (photos, maps, land use zoning) and creative materials (Lego, pipe cleaners, craft fabrics etc).
- Student post-assessments completed.
- Team presentations and prizes awarded. Debrief.

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