

Project Title: System of Systems Approach to Techno-Environmental Evaluation of Hydrogen Value Chains

Project background and description: International climate targets require immediate emission reduction. Societies around the world envisage that hydrogen will play a key role in the decarbonisation of transportation and the heavy emitting industries such as steel, cement, paper etc. However, there is multiple hydrogen value chains, technologies, and associated life cycles, from production, storage, use to end-of-life. This requires technological and environmental impact evaluation of alternative hydrogen value chains and their environmental impact reduction potential in various heavy emitting industries to make sure problem shifting does not occur in the future.

This project, in collaboration with the associated partner organisations of GlobH2E (<https://www.globh2e.org.au/>), will involve investigation into the system of system modelling of hydrogen value chains and the analysis of the impact of decisions on the technology development, cost and environmental impact. The project will be undertaken through the Sustainable Manufacturing and Life Cycle Engineering Research Group @ UNSW (www.lceresearch.unsw.edu.au).

Aim/objectives: The aim of the project is to investigate the environmental impact and the reduction potential of various hydrogen value chains, their life cycle technology options with a system of system perspective.

Environment

The GlobHE Training Centre is offering 12 Higher Degree by Research (HDR) Scholarships (PhD) that will provide a unique training opportunity through:

- World-class and state-of-the-art facilities and experts across the participating universities, research institutions, industry partners and other organisations
- An integrated Training Centre research agenda with inter-disciplinary projects across 5 themes area
- Opportunity to work or placement with partner organisations and industry partners
- Research skills, career development workshops and relevant industrial training
- Competitive support for national and international conference travel and networking opportunity
- Generous project support and excellent mentorship
- Delivering the next generation of highly skilled workforce to give Australia the ability to build home-grown hydrogen solutions and economic models.

Eligibility

PhD applicants must be acceptable as candidates for a PhD degree at the [University of New South Wales](#), [University of Queensland](#), [University of Sydney](#), [University of Newcastle](#), [Curtin University](#) and [Monash University](#).

The minimum requirement for admission to a PhD programme is:

- an appropriate Bachelor degree with upper second class Honours from one of the above universities; or
- a completed Masters by Research from one of the above universities with a substantial research component and demonstrated capacity for timely completion of a high quality research thesis; or
- an equivalent qualification from a tertiary institution as determined by the Faculty Higher Degree Committee (HDC)

The minimum requirement for Scholarship with admission to a PhD is:

- a four-year Bachelor's degree with Honours Class I from an Australian institution or equivalent research qualification experience. This qualification must be in a field relevant to the proposed area of research.

Please note that ALL applicants, whether domestic or international must provide evidence that their language ability meets the **minimum English language*** requirements. The following table provides guidelines on common English language test acceptable for meeting English requirement:

IELTS (Academic)	TOEFL (Internet based test)	Pearson Test (Academic)
Overall: 6.5 (min 6.0 in each subset)	Overall: 90 (min 23 in writing, 22 in reading, listening and speaking)	Overall 64 (min. 54 in each subset)

*please check individual institutions' requirement for English language. For UNSW, check out: https://www.international.unsw.edu.au/english-language-requirements?field_english_language_tid=4018

Selection Criteria

- Bachelor (honours) or Masters degree from relevant disciplines include chemical engineering, mechanical, electrical engineering, computer science and social policy; at 1st class or upper second class level, or equivalent
- A prior experience with Life Cycle Assessment, System of System Modelling and Hydrogen Value Chain will be desirable.
- Proficiency in computer programming/modelling is required for some of the projects.
- In assessing applications, preference will be given to applicants who can demonstrate an ability to work across disciplines, have excellent interpersonal, communication and management skills
- When applying for a particular project, please state briefly and clearly the relevance of your degree and/or your experience to the project description

PhD Stipend

PhD scholarships will be available for a maximum period of three and half (3.5) years
The PhD stipend rate is \$33,413 per annum tax-free. International applicants are

encouraged to apply and maybe eligible for Tuition Fee Scholarship. [See International Research Scholarship \(for UNSW applicants\)](#).

Application Process

Interested applicant must email the following to be considered for Scholarship:

- CV
- Academic transcripts for all completed/pending completion degree
- Testamurs of previous study
- Statement addressing interest relevant to selection criteria
- Name of referees (can be academic or former employer)

For UNSW application, applicants are encouraged to use the HDR Self-assessment Tool: <https://selfassessment.research.unsw.edu.au/> to give indication of eligibility and competitiveness for a scholarship (please also send the outcome of this self assessment).

Closing date:

Scholarship application outcomes are released progressively from the 'Offers Released' date. To find out more on 'Offers Released' date for your application round, visit [Key Dates](#) for specific Universities. Please note that there are different deadlines for Domestic and International applicants.

For those wanting to start studies in 2021/2022 – [UNSW scholarship application](#):

- Domestic applicants closed on [9th July 2021 \(T3 2021 start\)](#)
- International applicants closed on [27 August 2021 \(T1/T2 2022 start\)](#)

Enquiries

For general enquiries regarding the Training Centre, please contact Professor Rose Amal: r.amal@unsw.edu.au, Professor Francois Aguey Zinsou Kondo: f.aguey@unsw.edu.au

For enquiries on PhD project, please contact Professor Sami Kara: s.kara@unsw.edu.au