

Green Hydrogen Technology



CENTRE FOR RENEWABLE &
SUSTAINABLE ENERGY STUDIES



Stellenbosch
UNIVERSITY
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UNIVERSITEIT

DATE	5 - 9 Dec 2022
VENUE	Engineering Faculty, Stellenbosch University
ACCREDITATION	Certificate of attendance (5 CPD points) REGISTER HERE Certificate of competence (5 CPD points) REGISTER HERE
DEADLINE	Certificate course registration closes 14 calendar days before the course starts. The number of attendees is limited. Bookings will be taken on a first come, first served basis. For academic module registration deadlines, please contact the relevant academic programme coordinator.



COORDINATOR AND PRESENTER

Prof Robbie Pott completed his PhD in chemical engineering at the University of Cambridge, focussing on biological hydrogen production. He currently holds a position as associate professor in chemical engineering at Stellenbosch University in the department of process engineering, where his research focusses on bioprocess engineering, bioreactor design, and biological hydrogen production.

PRESENTER

Prof Prathieka Naidoo is a professor in chemical engineering at Stellenbosch University, in the Department of Process Engineering. Her research focus is in the areas of separation technology, and chemical thermodynamics, i.e., phase equilibria measurement and modelling. In particular, the research themes include waste management and processing, natural gas processing and the implementation of hydrate-based technology.

OTHER PRESENTERS

Prof Erik van Steen (University of Cape Town)



Synopsis

This module will introduce the fundamental concepts related to green hydrogen, for both technologists and policy makers. It begins with production of green energy, the conversion of electrons to hydrogen through several production technologies, the storage, transportation and handling of hydrogen, how hydrogen can be directly used or finally converted to other valuable products downstream.

Green electricity

- Characteristics of renewable produced electricity
- Requirements from a renewable energy grid on hydrogen production

Hydrogen production technologies

- Source of electricity
- Feedstock
- Electrolysis
- Alternative routes

Storage, Transportation and Handling

- Storage (pressure, cryogenics, solids)
- Transportation (rail, pipeline, liquid, carriers)

Direct hydrogen use

- Energetic use (fuel cells, FCEV, gas-steam, combustion)
- Material use (steel, concrete, chemicals)

Downstream processing

- Energy carrier (Ammonia, syn fuels, LOHC)
- Green products (PtX, green ammonia, methanol)
- Calculation of process efficiency

Qualification and accreditation

The module is accredited for a variety of outcomes, depending on what the attendee registers for. Module contact time (40 hours) are shared by all attendees, but additional assessments, assignments, and projects will be specific to the outcome that the attendee registered for.

- The module is accredited for ECSA Continuous Professional Development (CPD) credits, and attendees can obtain a certificate of attendance (if all lectures have been attended) or competence (if all lectures have been attended and various assessments have been successfully passed).
- Unless otherwise stated, the module is also accredited for 15 academic credits at both NQF8 level (Post-graduate diploma) and NQF9 level (Masters), as part of various [academic programmes](#). This requires a total time investment of 150 hours.

Delivery Model

- The module will be delivered over five days. Pre- and post-module assignments and projects are applicable depending on the outcome the attendee registered for.
- Certificate of competence and academic attendees are required to attend the full module in person. Certificate of attendance attendees have the option of attending the module in person, online only, or a mixture of these.

Who should attend

Engineers, technologists and technicians active in the energy sector. Government and local authority officials. Managers, planners and developers. Investors. Academic students.

Travel and Accommodation

All travel and accommodation arrangements are the attendee's own responsibility.

Prerequisites

Certificate of attendance: none

Certificate of competence / Post-graduate diploma at NQF8: NQF7 engineering qualification

Masters at NQF9: NQF8 engineering qualification

IT infrastructure: For online attendees, adequate internet connectivity to connect reliably via Teams for the duration of the module. For Certificate of competence, Diploma and Masters attendees, a computer capable of running Windows 10 with user rights to install new software.

Module Fees

- The standard fee for the five-day module is **R12 900 for a certificate of attendance**, and **R15 000 for a certificate of competence**. Please refer to the University's latest study cost information for academic fees.
- From time to time funding is sourced to subsidise module fees for specific modules for attendees from specific areas of industry. Please refer to CRSES's short courses website for the latest information.
- Cancellations made up to 21 days before the module starts will be subject to a 15% handling fee. No refunds will be made after this date; however, substitutions will be accepted.
- Payment is mandatory for attendance.
- In the case of unforeseen circumstances, Stellenbosch University reserves the right to cancel the module or change the presenter/s, in which case all fees will be reimbursed in full on request.

Contact

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