



CENTRE FOR RENEWABLE &
SUSTAINABLE ENERGY STUDIES

Hydro & Ocean Energy

DATE 1 – 5 August 2022

VENUE K406, Knowledge Centre, Engineering Faculty, Stellenbosch University

ACCREDITATION Certificate of attendance (4 CPD points) [REGISTER HERE](#)
Certificate of completion (4 CPD points) [REGISTER HERE](#)
15 academic credits at NQF 8 or 9 level [READ MORE](#)

DEADLINE 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.



PRESENTER

Dr James Joubert is a qualified civil engineer with a MSc in Coastal Engineering and PhD in Mechanical Engineering. His postgraduate studies focused on ocean wave energy conversion, resource mapping on the South African coast and the design of a novel wave energy converter. He has conducted various consultation projects for device inventors and companies such as De Beers Marine and Eskom. He is currently employing his renewable energy and engineering expertise to the green building industry.



COURSE COORDINATOR

Prof Jaap Hoffmann (Stellenbosch University)





Synopsis

Hydro energy is one of the oldest forms of renewable energy utilised to produce mechanical and electrical work. To better understand the potential of this energy resource, the local and global hydrological resource magnitude will be presented, as well as example hydro installations across the world and in Africa. Other topics that will be covered include:

- turbine selection criteria: specific speed and specific power parameters.
- Hydraulic design, hydraulic losses and pipe friction.
- Basic operational constraints.
- Economic feasibility.
- Micro hydro power systems.
- Environmental impacts and future scenarios.

Ocean Energy: it is possible to extract energy from ocean waves, currents, tides, salinity- and temperature gradients and use it to generate electricity. In this section of the course the different ocean energy resources will be studied as well as the conversion technologies applicable to each. In addition, aspects such as resource measurement and assessment, technology readiness, environmental concerns and the economics of ocean energy projects will be addressed, with particular emphasis on the available resource along the South African coast.

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).
- 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.
- A blended classroom/online model will be followed, with students being offered the options to attend in person (covid dependent), online only, or a mixture of these.

Who should attend

Engineers, technologists and technicians active in the energy sector. Government and local authority officials. Architects, 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 000 for a certificate of attendance**, and
- **R14 000 for a certificate of competence**. Please refer to the University's latest study cost information for academic fees.
- 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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