

**FOUR DAY COURSE ON  
HYDRAULIC STRUCTURES 2019**  
**Sustainable design, construction, operation and maintenance of large hydraulic structures**  
**21 to 24 May 2019**  
**ECSA Continuing Professional Development (CPD) accredited course\***



**SCOPE**

This 4 day course on the **sustainable design, construction, operation and maintenance of large hydraulic structures** has been structured to give state-of-the-art theory and practise on dam site and dam type selection, geotechnical and structural dam design aspects, and hydraulic design: spillways, energy dissipation and outlet works, as well as on other large hydraulic structures such as run-of-river hydropower plant design, water transfer tunnel design and levees for flood protection.

Several case studies will be presented including design and construction aspects. Presenters are drawn from government, university, contractor and consulting engineering companies. This popular course was last presented in 2017.

**VENUE**

Department of Civil Engineering, Stellenbosch University, Stellenbosch, SOUTH AFRICA

**REGISTRATION**

**APPLICATION FOR THIS COURSE IS DONE ELECTRONICALLY. Kindly complete the on-line form:**

**<https://shortcourses.sun.ac.za/application-form.html?offeringid=dadfb9f1-e630-e911-9e6e-0050568000ff>**

On receipt of the electronic application, an invoice will be sent to participants as soon as possible. Payment details will be provided on the invoice.

**Stellenbosch University registered students: Do not register on-line.** Registration forms will be forwarded to all registered students.

**COURSE FEES** (exempt from VAT)

Description	FEE
Full delegate fee (Includes tea, lunch, digital notes and presentations)	<b>R11900</b>
MEng [Research] or PhD Stellenbosch University students fee (Includes tea, lunch, and presentations).	<b>R800</b>

Note: \*Participants who wish to register for fewer than four days: please **confirm your attendance dates** by e-mail to Janine at [civilcourses@sun.ac.za](mailto:civilcourses@sun.ac.za) **before** completion of the on-line application.

## PRELIMINARY PROGRAMME

21-May-19	Tuesday		
Start Time	Description	Presenter	Organization
7:30 to 8:30	Registration		
8:30 to 8:35	Welcome and introduction	Prof Gerrit Basson	Stellenbosch University
8:35 to 9:30	General introduction to dam engineering	Alan Shelly	Aurecon
9:30 to 10:30	Floods for safe dam design, risks and possible climate change impacts	Dr. James Cullis	Aurecon
10:30 to 11:00	Tea		
11:00 to 12:00	Spillway types, selection and hydraulics	Prof Chris James	Consultant
12:00 to 12:30	Stepped spillways and methods to safely increase the unit discharge	Jaco Koen/Ruben Saayman	CoCT/SU
12:30 to 13:00	Non Linear spillways	Frank Denys	SU/Aurecon
13:00 to 14:00	Lunch		
14:00 to 15:00	Energy dissipation at dams and the design of outlet works	Dr Mike Shand	Aurecon
15:00 to 16:00	Case study: LHWP Phase II - Design of Polihali Dam	Beyers Havenga	Gibb
16:00 to 17:00	Welcoming reception	All	SU
22-May-19	Wednesday		
8:00 to 8:30	Late Registration		
8:30 to 9:30	Mechanical Engineering aspects of dam outlet works	Volkmar Kohlmeyer	Consultant
9:30 to 10:00	Dam freeboard components and combinations; wind generated wave modelling	Prof Gerrit Basson/JK Vonkeman	Stellenbosch University
10:00 to 10:30	Keerom Dam raising design and construction	Odon Human	Aurecon
10:30 to 11:00	Tea		
11:00 to 12:00	Engineering Geological site evaluations and terrain investigations for dams	Dawid Mouton	Knight Piésold
12:00 to 13:00	Design of Concrete Dams	Dr Quentin Shaw	ARQ
13:00 to 14:00	Lunch		
14:00 to 15:00	Grouting of dam foundations	Gawie Steyn	GPAC Consult
15:00 to 15:30	Tea		
15:30 to 16:30	Design of RCC dams	Dr Quentin Shaw	ARQ
23-May-19	Thursday		
8:00 to 8:30	Late Registration		
8:30 to 9:00	Sediment yield calculation and reservoir sedimentation modelling	Prof Gerrit Basson	Stellenbosch University
9:00 to 10:00	Embankment Dam Design and Construction (part 1)	DJ Hagen	Ingerop
10:00 to 10:30	Tea		
10:30 to 11:30	Embankment Dam Design and Construction (part 2)	DJ Hagen	Ingerop
11:30 to 13:00	SU Hydraulics Lab visit (e.g. Lesotho Dam Spillway; PK weir & spillway flares)	Prof Gerrit Basson	Stellenbosch University
13:00 to 14:00	Lunch		
14:00 to 15:00	Flow gauging weir design	Dr Pieter Wessels	DWS
15:00 to 15:30	Tea		
15:30 to 16:30	Control gates at dams	Peter Townshend	Amanziflow Projects
24-May-19	Friday		
8:00 to 8:30	Late Registration		
8:30 to 9:30	HPP: Hydropower hydromechanical equipment selection and operation	Tinus Keyser	Eskom
9:30 to 10:15	HPP: Intake hydraulic design considerations	Ms JK Vonkeman/Ms C McLeod	Stellenbosch University
10:15 to 10:45	Tea		
10:45 to 11:45	Water Transfer Tunnel design: intake tower hydraulics, conduit and outlets	Dawid van Coller	SMEC
11:45 to 12:30	HPP: sediment control at HPP projects	Liam van der Spuy	Stellenbosch University
12:30 to 13:30	Lunch		
13:30 to 14:00	Case study: Ruo River Malawi flood levee design study	Martin Kleynhans	Aurecon
14:00 to 15:00	Clanwilliam Dam raising construction	Harry Swart	DWS
15:00 to 15:15	Closure	Prof Gerrit Basson	Stellenbosch University

Note: \* This course is a Category 1 activity and offers 4 CPD credits. For more details see [www.ecsa.co.za](http://www.ecsa.co.za)

### **CLOSING DATE FOR REGISTRATION: Tuesday 7 May 2019**

The fee for late registration after **7 May 2019** will be **20%** more than the above fees, but additional delegates will only be allowed depending on the availability of seats in the venue.

#### **Enquiries can be directed to:**

##### **Admin/Financial aspects:**

Ms Janine Myburgh  
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 Stellenbosch University  
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or

##### **Technical:**

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