FOUR DAY SHORT COURSE

HYDRAULIC STRUCTURES 2021

Design, Construction, Operation and Maintenance of Dams

17 to 20 May 2021

ECSA Continuing Professional Development (CPD) accredited course*

SCOPE

This 4 day course on the **design, construction, operation and maintenance of dams** 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, as well as hydraulic design: spillways, energy dissipation and outlet works. 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 2019.

VENUE Online via MS Teams

REGISTRATION

APPLICATION FOR THIS COURSE IS DONE ELECTRONICALLY. Kindly complete the online form:

REGISTER HERE

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 online but contact civilcourses@sun.ac.za
Registration forms will be forwarded.

COURSE FEES (*exempt from VAT*)

Description	**FEE**
Full delegate fee (Includes papers, notes and presentations)	**R8800**

PRELIMINARY PROGRAMME

17-May-21	Monday
Start Time	**Description**
8:30 to 8:35	*Welcome*
8:35 to 9:30	General introduction to dam engineering
9:30 to 10:30	Floods for safe dam design, risks and possible climate change impacts
10:30 to 11:00	*Tea break*
11:00 to 12:00	Spillway types, selection and hydraulics
12:00 to 12:30	Stepped spillways and methods to safely increase the unit discharge
12:30 to 13:00	Plunge pool scour prediction
13:00 to 14:00	*Lunch break*
14:00 to 15:00	Energy dissipation at dams and the design of outlet works
15:00 to 15:30	Roberts splitters: apron aerated vs gallery aerated designs
15:30 to 16:00	Stellenbosch Univ Hydraulics Lab model studies and 3D CFD modelling lab
18-May-21	**Tuesday**
8:30 to 9:30	Mechanical Engineering aspects of dam outlet works
9:30 to 10:00	Dam freeboard components and combinations; wind generated wave modelling
10:00 to 10:30	Non Linear spillways
10:30 to 11:00	*Tea break*
11:00 to 12:00	Engineering Geological site evaluations and terrain investigations for dams
12:00 to 13:00	Introduction to Concrete Dams
13:00 to 14:00	*Lunch break*
14:00 to 14:45	Flow gauging weir design
14:45 to 15:15	Case study: Upgrade of dam spillway
15:15 to 16:00	Lesotho Highlands Water Project Phase 2: background and current status
19-May-21	**Wednesday**
8:30 to 9:00	Sediment yield calculation and climate change impacts
9:00 to 10:00	Embankment Dam Design and Construction (part 1)
10:00 to 10:30	Reservoir survey techniques
10:30 to 11:00	*Tea break*
11:00 to 12:00	Embankment Dam Design and Construction (part 2)
12:00 to 13:00	HPP: Hydropower hydromechanical equipment selection and operation
13:00 to 14:00	*Lunch break*
14:00 to 14:30	HPP: Intake hydraulic design
14:30 to 15:15	Control gates at dams
15:15 to 16:15	Case study: Hydraulic model study of new spillway with plunge pool
20-May-21	**Thursday**
8:30 to 9:30	Design of RCC dams
9:00 to 10:00	Grouting of dam foundations
10:00 to 10:30	*Tea break*
11:00 to 11:45	Nqweba Dam at Graaff-Reinet sedimentation and mitigation measures to increase the firm yield
11:45 to 12:30	HPP design case studies
12:30 to 13:00	Hydraulic design and construction of the spillway and stilling basin of Xhora Dam in the Eastern Cape
13:00 to 14:00	*Lunch break*
14:00 to 14:30	Riprap design for wind wave erosion protection at embankment dams & at currents in rivers
14:30 to 15:15	Case study: Dam raising by gates
15:15 to 16:00	Case study: hydraulic design of new PKW spillway design
16:00 to 16:15	*Closure*

Note: * This course is a Category 1 activity and offers 4 CPD credits. For more details see *www.ecsa.co.za*

CLOSING DATE FOR REGISTRATION AND PAYMENT: Thursday 13 May 2021

Please note: Full payment is due before the start of the course - payment confirms attendance

Enquiries can be directed to:

Admin/Financial aspects:
Ms Janine Myburgh
Department of Civil Engineering
Stellenbosch University
Tel: +27 21 808 2080
email: civilcourses@sun.ac.za

or

Technical:
Prof Gerrit Basson
Department of Civil Engineering,
Stellenbosch University
email: grbasson@sun.ac.za