

THREE DAY SHORT COURSE
**DESIGN OF RIVER ABSTRACTION/DIVERSION WORKS, HIGH LIFT
PUMPSTATIONS & BULK WATER SUPPLY PIPELINES 2021**
27 to 29 July 2021



SCOPE

This 3 day course on the **design, construction, operation and maintenance of river abstraction works, high lift pumpstations and bulk water supply pipelines** has been structured to give state-of-the-art theory and practise on pipeline design, the design of river abstraction/diversion works, weirs, high lift pumpstations, sand/silt traps/settlers, valves and control systems. The hydraulic design of run-of-river hydropower schemes is also part of the course. Case studies will be presented including planning, design, construction and environmental aspects. The course also presents the revised SA Water Research Commission (WRC) design guidelines (2019) of river abstraction/diversion works for potable water use, irrigation and hydropower.

Course presenters: Prof Gerrit Basson and expert presenters from government, consulting engineers, environmental companies and industry.

WHO SHOULD ATTEND

Engineers, Technologists and Project Managers in Municipalities, Local Government Councils, Public Service and Private Corporate, MSc and PhD Students, and organizations involved with the design, construction and operation of river abstraction/diversion works and pump-pipe systems for potable, industrial, agricultural or hydropower water uses.

COURSE OBJECTIVE

The objective is to provide participants with a thorough understanding of the design, construction and operation of river abstraction/diversion works, high lift pumpstations and bulk water pipelines for potable water use, irrigation and hydropower.

VENUE Online

NOTE: This course is a Category 1 activity and offers **3 CPD** credits

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)	R6600

PRELIMINARY PROGRAMME

	Time	Description	Presenter(s)	Organisation(s)
Tuesday 27 July 2021	8:30 to 8:35	Welcome	Prof Gerrit Basson	Stellenbosch Univ.
	8:35 to 9:15	<u>Small river abstraction works</u> layout and design specifications: types of abstraction works, hydrology and topo surveys, site inspection, general design, hoppers and jet pumps, construction, maintenance, environmental considerations	Prof Gerrit Basson	Stellenbosch Univ.
	9:15 to 10:00	<u>Case study</u> : Small river abstraction works: Tsomo River, Eastern Cape design, construction and commissioning (DWS)	Phillip Ravencroft	Maluti Water
	10:00 to 10:30	<u>Case study</u> : Caledon River proposed abstraction works and weir at Fouriesburg	Johann Steyn, Dr K Kiringu & Prof Gerrit Basson	Nakeni Projects & ASP Tech
	10:30 to 11:00	<u>Tea break</u>		
	11:00 to 11:45	<u>Medium to large river abstraction works</u> layout and design guidelines: design & case studies	Prof Gerrit Basson	Stellenbosch Univ.
	11:45 to 12:15	Case study: Construction of the Lower Thukela Abstraction works and weir (Umgeni Water)	Stephan Kleynhans	Zutari
	12:15 to 13:00	Environmental considerations during pipeline design and construction	Jonathan Crowther	SLR Consulting
	13:00 to 14:00	<u>Lunch break</u>		
	14:00 to 14:45	<u>Sediment traps</u> : Sand trap and settler designs, numerical simulations & case studies	Claudia Mc Leod	Stellenbosch Univ.
	14:45 to 15:30	<u>Case study</u> : Crocodile River West at Vlieëpoort proposed abstraction works, weir and sedimentation works hydraulic design, operation and environmental mitigation measures (TCTA)	Prof GR Basson, Dr K Kiringu, and Dr JK Vonkeman & Franz de Lange	ASP Tech & Nyeleti
	15:30 to 16:00	<u>Sediment traps</u> : Vortex Settling Basins design, physical and numerical model tests; compared to hydro cyclone trap efficiency and running cost, etc.	Dr Kuria Kiringu	Stellenbosch Univ.
16:00 to 16:30	<u>Case study</u> : Limpopo River at Musina proposed abstraction works	Matt Braune, Dr Kuria Kiringu and Prof Gerrit Basson	Bio Eng Solutions & ASP Tech	
Wednesday 28 July 2021	8:30 to 9:30	Bulk water supply pipeline design considerations	Schalk van der Merwe	Zutari
	9:30 to 10:30	Pipe material selection	Heinrich Mostert	Flowtite SA
	10:30 to 11:00	<u>Tea break</u>		
	11:00 to 11:30	Air valves on bulk water supply pipelines & design principles	Stephan Kleynhans	Zutari
	11:30 to 12:30	Pipeline corrosion causes & mitigation	Vanessa Sealy-Fisher	Isinyithi Catholic Protection
	12:30 to 13:00	<u>Case study</u> : Berg River at Voëlvele Dam Augmentation Scheme (BRVAS): Hydraulic design and Hydraulic model study	James Nyakale, Prof Gerrit Basson & Dr JK Vonkeman	TCTA & Stellenbosch Univ.
	13:00 to 14:00	<u>Lunch break</u>		
	14:00 to 15:00	Pump selection and pumpstation design (low lift and high lift)	Schalk van der Merwe	Zutari
	15:00 to 15:30	Inspection and supervision requirements: Steel vs GRP pipelines	Dr Mike Shand	Consultant to Zutari
	15:30 to 16:15	<u>Case study</u> : Umkhomazi River at Goodenough abstraction works: hydraulic design & physical modelling (Umgeni Water)	Chris Maine & Claudia Mc Leod	Gibb & Stellenbosch Univ.
Thursday 29 July 2021	8:30 to 9:15	Special pump design considerations including river abstraction works	Stephan Kleynhans	Zutari
	9:15 to 10:00	Control Valves: pressure, flow rate, water level, etc.	Andre Volschenk	Macsteel Fluid Control
	10:00 to 10:30	SU Hydraulics lab 3D model studies, CFD modelling capabilities and field work equipment	Dr Jeanine Vonkeman	Stellenbosch Univ.
	10:30 to 11:00	<u>Tea break</u>		
	11:00 to 12:00	<u>Case study</u> : River diversion works for irrigation case study: Holsloot at Rawsonville: design and construction (WC Dept of Agriculture)	Peter Keuck, Heinrich Mulder, Lourens Maass & Dr Jeanine Vonkeman	WC Dept of Agriculture, Ingerop & Stellenbosch Univ.
	12:00 to 13:00	Hydraulic Pressure Transients in pipelines: Modelling and field verification <u>case study</u>	Kobus Prinsloo	C2D Engineering
	13:00 to 14:00	<u>Lunch break</u>		
	14:00 to 15:00	Transient flow (Water Hammer) scenarios to consider in pump-pipe systems	Jacobus Krieglger	Zutari
	15:00 to 16:00	Advancement of Condition Assessment Techniques for Large Diameter Pipelines	Kobus Prinsloo	C2D Engineering
16:00 to 16:10	Closure	Prof Gerrit Basson	Stellenbosch Univ.	

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CLOSING DATE FOR REGISTRATION AND PAYMENT: Friday 23 July 2021

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

Enquiries can be directed to:

Admin/Financial aspects:

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