



**Gauteng Branch
Po Box 1317
Randpark Ridge
2156**

Advanced irrigation design course

This course is a continuation of the Rescom and is designed to provide experienced irrigation designers with the methodology and technical expertise to design large sports turf and commercial irrigation systems.

Emphasis is placed on an “out of the box” approach to system design as opposed to rote use of previous work. Delegates are encouraged to perform critical analytical evaluation of their designs to produce the most efficient yet cost effective systems.

Attention is given to the design and analysis of complex ringmains. In addition to the prevention of water hammer, case studies are investigated to ascertain the causes and ultimate effects of the phenomenon on pipeline integrity.

In addition to understanding the operation of pressure regulating control valves, delegates will learn to apply the selection and design criteria for these valves and their placement in a mainline reticulation.

Basic surveying theory and the techniques to ascertain the various height differentials on a large site will be practically implemented

Delegates will learn to construct and evaluate system curves for single and multiple pump stations. The usage of pump affinity laws and their application in the modification of a pump’s operational parameters are used to illustrate the most energy efficient methods of operating a pump.

Upon completion of the pump station design theory, delegates will be tasked with the design of a pump station utilising the methodology and principles of pipeline routing for the suction and delivery piping and their correct coupling to 4 pumps. The selection of the appropriate valves and their location in the manifolds will be included in the design.

The various methods of motor control, including the sequential starting and control of multiple pumps in proportion to the irrigation demand are covered.

The principles of 3 phase and single phase electrical supplies will be utilised in the determination of current loads and the calculation of the volt drop in armoured cables. The delegates will learn the correct methodology and procedures for the routing and sizing of

cables to operate a central – satellite control system. Selection of both the low voltage solenoid cabling and high voltage satellite supply cables will be covered.

Delegates will be tasked with the location and interfacing of encoders and controllers in a large irrigation scheme. The selection of adequate earthing and surge protective equipment is required.

Final assessment of the delegate's competency is gauged through two exams, theory and design.

Prerequisites:

- Successful completion of the Rescom course
- A minimum of 5 years' experience in the design of irrigation systems

Please note

Due to its specialization, the course is only presented bi annually in each region

Delegates receive a comprehensive training manual that covers all the subject material covered in the course. In addition, an electronic version of the notes and irrigation catalogues are provided on a CD.

During the course, time is allocated to practice and apply the design elements for each section of the course. To ensure that delegates attain the required competency, they will be mentored and guided in these sessions.

Final assessment of the delegate's competency is gauged through two exams, theory and practical.

Successful candidates will receive the LIA's certificate in "Advanced Irrigation Design".