

Sprinkler Design and Calculation Course 2026

This course is split into 10 modules which are spread out at 1 module per month over the period of one year.

We firmly believe that the learning experience should be enjoyable. The courses are formulated around actual experience and they have an extensive visual impact. It is important to us that the delegate leaves each class with a thorough understanding and full working ability.

Hydraulic design is complex and little understood in general. The ability to plug numbers into a computer program designed for sprinkler hydraulic calculation means very little unless you know what is being achieved and can read the resultant print out. The modules provide the candidate with the required information in order for them to make informed decisions when undertaking hydraulic design. We aim to provide a thorough grounding and through actual application, the candidate will come away with a proper grasp of the requirements of fixed fire protection.

The material covered has many practical exercises built into them from both an individual and networking point of view. It is through these that invaluable experience is gained. Delegates are kept to manageable limits, which enables personal attention to be given as required. Networking consists of small groups who will collectively solve the problem given by sharing knowledge gained either in the course or within their working environment.

Lectures move through the phases that have been experienced by South Africa and the broader global sprinkler industry for the past two-hundred-years or more. They include past rules and their application through to the very latest.

- The modules run concurrently whereby it is not possible to miss modules or to select individual modules unless the level of understanding of the individual is regarded as competent.
- The cost of the course includes all learning materials such as Rule Books and stationery.
- We are often asked how the course is invoiced.
- Our preference, and the method that we use as a standard for this course, is that the deposit is invoiced first, which is equivalent to two modules payment.
- Then, before each module an invoice is sent for the cost of the module.
- The deposit pays for the last two modules, and therefore you are not invoiced for module 9 and 10
- However, some companies prefer to pay the full amount of R 79,950.00 excluding VAT upfront, and we can accommodate you accordingly. If this is your preference, please inform ASIB when the course application form is handed in.

The following pages detail each module's content, its duration as well as the expected outcome.

MODULE 1	
TOPIC COVERED	OUTCOME
The origins of sprinkler systems	
The history of sprinkler systems	This section will enable the candidate to gain an understanding of the origins of sprinkler installations and how rules, standards and codes
Original design parameters	started to evolve and what level of importance needs to be placed upon past experience
Lessons learned from early systems	needs to be placed upon past experience
Basic sprinkler operation	Promote an understanding of how a sprinkler operates
Control valve assemblies	This section provides an understanding of the differing types of installation control valves and their operational functions as well as suitability for differing risks
Sprinkler heads	This section provides an understanding of the differing types of sprinkler heads and what has an effect on their operation as well as suitability for differing risks
Fire venting	Promotes the importance and place of fire venting in sprinkler protected structures
Drencher systems and water curtains	The essential difference and understanding between drencher systems and water curtains are achieved in this section
Ninth Edition Systems	Promotes an understanding and appreciation of the basic design parameters behind the design of Ninth Edition Sprinkler Systems and the water supply requirements
Duration	Three days
Daily Starting Time	08:30 - 09:00
Daily Finish	16:00 - 16:30
Dates	Tuesday, Wednesday and Thursday 10, 11 and 12 February 2026
Cost	R 7,995.00 Excluding VAT

MODULE 2	
TOPIC COVERED	OUTCOME
Tenth Edition Systems - Overview	Promotes an understanding of the origins of the Tenth Edition Rules and the unique aspects of as well as the importance of these due to the number in existence within South Africa
Tenth Edition - Categorisation	Creates an awareness of the way in which products were categorised and the basis behind this
Tenth Edition pipe size tables	Promotes an understanding and awareness of what pipe size table are
Extra Light Hazard	Enables the candidate to recognise, size and calculate an Extra Light Hazard Tenth Edition pipe size sprinkler installation
Ordinary Hazard	Enables the candidate to recognise size and calculate an Ordinary Hazard Tenth Edition pipe size sprinkler installation. Provides the ability to size and calculate an Ordinary Hazard sprinkler installation pumped water supply for differing heights of building using predetermined pump characteristics
Extra High Hazard	Enables the candidate to recognise size and calculate an Extra High Hazard Tenth Edition pipe size sprinkler installation. Provides the ability to size and calculate a High Hazard sprinkler installation pumped water supply for differing design densities of discharge when using predetermined pump characteristics Provides the ability to use the pro-rata system
	There allows
Duration	Three days
Daily Starting Time	08:30 - 09:00
Daily Finish	16:00 - 16:30
Dates	Tuesday, Wednesday and Thursday 10, 11 and 12 March 2026
Cost	R 7,995.00 Excluding VAT

MODULE 3	
TOPIC COVERED	OUTCOME
Introduction to sprinkler design calculation	Creates an understanding of what is to be achieved when calculating a hydraulic design Provides the required understanding of design density of discharge, assumed maximum area of operation, density decay
Sprinkler K Factors	Enables the candidate to develop an understanding of a coefficient of discharge through the K-Factor of a sprinkler and the use of "K" in order to determine flow and pressure through an orifice
Friction loss in pipe work	Forms part of the understanding required of laminar and turbulent flow, pipe diameters and how to calculate friction loss using the Hazen-Williams formula and the shortened "K"method. Provides a rudimentary understanding of the Darcy-Weisbach formula and its uses, finding Reynolds Numbers and the use of the Moody Diagram
Method of calculating a sprinkler range	Provides an understanding of the process for basic progressive steps in the calculation of multiple sprinklers on a range
Average spacing and actual spacing	Initiates the required understanding, the use and application of the actual spacing of a sprinkler against the average spacing of a sprinkler system
Static gain	Provides an understanding of how to calculate sprinkler systems where static gain is a factor
Basic pipe sizing	Creates an initial and basic understanding of how to size pipes in hydraulically designed sprinkler systems when undergoing, for example, multiple changes in direction
Flow correcting	Creates an awareness and understanding of when and how to correct flows at junctions or splits where the pressure differs
Duration	Throa days
Duration	Three days
Daily Starting Time	08:30 - 09:00
Daily Finish	16:00 - 16:30
Dates	Tuesday, Wednesday and Thursday 14, 15 and 16 April 2026
Cost	R 7,995.00 Excluding VAT

MODULE 4	
TOPIC COVERED	OUTCOME
Calculation of risers	Provides an understanding of how to calculate a sprinkler system range that utilises risers or rise pipes
Calculation of main distribution pipe risers	Provides an understanding of how to calculate multiple main distribution pipe risers using either flow corrections or substituting "K" values for flow and pressure
Calculation of droppers	Provides an understanding of how to calculate a sprinkler system range that utilises drop pipes
Calculation of extreme static gain	Creates an awareness of situations where static gain influences sprinkler performance and methods of overcoming this
Pipe size versus hydraulic design	Develops an understanding of the differences in calculating sprinkler systems against using pipe sizes and thereby provides the candidate with a thought process based on comparison
Full calculation	An extensive exercise is given to the candidate to utilise the overall knowledge gained at this stage in order to pipe size and calculate a complete sprinkler systems remote area of operation
Duration	Three days
Daily Starting Time	08:30 - 09:00
Daily Finish	16:00 - 16:30
Dates	Tuesday, Wednesday and Thursday 12, 13 and 14 May 2026

R 7,995.00 Excluding VAT

Cost

MODULE 5	
TOPIC COVERED	OUTCOME
Ring Mains	Provides an understanding and appreciation of how to calculate a ring main supply and to balance the flows and pressures A calculation is provided incorporating all accumulated knowledge and applied to a ring main
Pipe diameter manipulation	Creates an understanding and ability of how to equate differing diameters and incorporate these into, at this stage, ring main calculations
Looped mains	Gives the candidate the required knowledge of the interaction of looped mains in system friction losses Creates an understanding of the use of differing pipe diameters in looped main systems
Multiple loop or pipe compression	Provides the ability to reduce extensive lengths of pipe, loops or ring mains to single lengths of pipe for ease of calculation
Introduction to gridded systems	Provides a basic introduction to the calculation of multiple loops with practical exercises
Note: Intensive exercises	This course has a more than the average number individual and networking exercises
Duration	Three days
Daily Starting Time	08:30 - 09:00
Daily Finish	16:00 - 16:30
Dates	Tuesday, Wednesday and Thursday 9, 10 and 11 June 2026
Cost	R 7,995.00 Excluding VAT

MODULE 6	
TOPIC COVERED	OUTCOME
Balancing looped systems	Creates the ability to calculate the split of flows in a looped systems or small grids
Application of the Hardy-Cross formulae	Creates an ability in the use of the Hardy-Cross formulae relating to ring mains, looped systems or small grids
Note: Intensive exercises	This course has intensive exercises that tend to be exhaustive
Duration	Three days
Daily Starting Time	08:30 - 09:00
Daily Finish	16:00 - 16:30
Dates	Tuesday, Wednesday and Thursday 7, 8 and 9 July 2026
Cost	R 7,995.00 Excluding VAT

MODULE 7	
TOPIC COVERED	OUTCOME
Grid systems	Provides the candidate with an understanding of the concept and application of grid systems Provides exercises in respect of the calculation of a mini-grid system in order to understand the split of flows and balancing of pressures
Duration	Three days
Daily Starting Time	08:30 - 09:00
Daily Finish	16:00 - 16:30
Dates	Tuesday, Wednesday and Thursday 4, 5 and 6 August 2026
Cost	R 7,995.00 Excluding VAT

MODULE 8	
TOPIC COVERED	OUTCOME
Storage risks	Provides an understanding of how to generally assess storage risks in terms of the current rules
Categorisation methodology	Creates a basic understanding of how to categorise packaging materials and assessing the risk
Shelves	Provides an understanding of the protection of shelves and shelving and allowances for differing configurations
Racking	Provides an understanding of the protection of racks and allowances for differing configurations
Balancing of systems	Creates an awareness of the need to balance the roof and rack sprinkler installations
Duration	Three days
Daily Starting Time	08:30 - 09:00
Daily Finish	16:00 - 16:30
Dates	Tuesday, Wednesday and Thursday 8, 9 and 10 September 2026
Cost	R 7,995.00 Excluding VAT

MODULE 9	
TOPIC COVERED	OUTCOME
Town main water supplies	Provides an understanding of the requirements for a town main water supply and how to extrapolate known quantities into a water supply curve from the point of connection or point of sprinkler supply Creates an understanding of the requirements relating to the installation of a town main supply and the allowable usable quantities
System curves	Gives the candidate the ability to calculate and understand what a resistance curve is in relation to a sprinkler system
Elevated private reservoir	Provides an understanding of the requirements of an elevated private reservoir
Gravity tank	Provides an understanding of the requirements of a gravity tank
Calculation of available water	Enables the candidate to calculate a friction loss resistance curve and to estimate the quantity of water available from an elevated water supply
Calculation of junction points	Enables the candidate to calculate an intercept point of a water supply against a system demand point and an awareness of its use
Gravity and velocity	Creates an awareness of gravity and the effect this has on velocity in relation to a water supplies and sprinkler systems
Overview of pumps	Provides an introduction into pumps and enables the candidate to calculate pumps running in parallel and in series and the effect this has on sprinkler systems Provides useful definitions of common terms Provides the ability to determine the differences between types of pumps and creates an understanding of how to read a composite characteristic pump curve
Duration	Three days
Duration Daily Starting Time	Three days 08:30 - 09:00
Daily Starting Time Daily Finish	16:00 - 16:30
Dates	Tuesday, Wednesday and Thursday 6, 7 and 8 October 2026
Cost	R 7,995.00 Excluding VAT

MODULE 10	
TOPIC COVERED	OUTCOME
Centrifugal fire pumps	Provides an understanding of a pump impeller and how to calculate peripheral velocities Provides an understanding and application of the pump affinity laws Provides an understanding of a pumps power requirements
Pump suction tanks	Creates an awareness of the requirements for a suction tank feeding a sprinkler system
Suction line and NPSH	Provides an understanding of the requirements for a pump suction line and NPSH requirements Creates an awareness of cavitation
General	Provides the required knowledge in respect of the general requirements relating to a pumped water supply feeding a sprinkler system
Orifice plate calculation	Provides the candidate with the ability to calculate and size an orifice plate within a sprinkler system or proving test pipe and where to apply them
Duration	Three days
Daily Starting Time	08:30 - 09:00
Daily Finish	16:00 - 16:30
Dates	Tuesday, Wednesday and Thursday 3, 4 and 5 November 2026
Cost	R 7,995.00 Excluding VAT