



2KG TRAINING

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A PRACTICAL GUIDE TO PUMP OPERATION & MAINTENANCE

ABOUT THE PRESENTER: HARRY ROSEN



Harry Rosen has over 30 years of experience in the pumping industry, his company TAS Online is an international market leader in engineering software and consulting services for both users and manufacturers of pumps

He is one of only two International Pump Experts contracted by the United Nations Industrial Development Organisation (UNIDO) to deliver expert pump training programs in South Africa, Malaysia, Indonesia, Thailand, Philippines, Russia and Colombia. He is also the lead facilitator in the 'Train the Trainer' program, whereby groups of pump experts are selected and developed as pump trainers themselves.

He recently presented a pumping systems course on behalf of the Massachusetts Energy Efficiency Partnership in Boston and is internationally recognised as one of the leading experts in promoting the system approach to pumping system optimisation.

He presents both a 3 day workshop on improving the efficiency and reliability of pumping systems, and a 4 day course on pump operation and maintenance. Drawing on his wealth of experience, both courses address both the theoretical and practical aspects of pumping systems. The courses have been supported by UNIDO, NCPD, Eskom (local power utility) and the National Energy Efficiency Agency as a valuable tool to help industry achieve their targeted 15% savings in electricity.

Number of days: 4

CPD Points: 4

Live Virtual Classroom

2KG Training Live Virtual Courses offer participants the same instructors, training systems, course materials, personal support, and face-to-face engagement with instructors and other participants that they would expect to find in a conventional classroom.

The Pump Operation & Maintenance Live Virtual Course brings participants together in a virtual classroom, where they receive training from an expert via a live video link. Participants are interconnected via audio and video, enabling them to interact both with the instructor and with their classmates. Learners can speak to their instructor at any time to ask questions, request assistance, and instructors can provide hands-on support.

DISCOVER THE KEY ELEMENTS NECESSARY TO AVOID

- Unnecessary capital expenses
- Large long-term energy losses
- Reduced pump reliability
- Elevated maintenance costs
- Reduced operation time
- Poor hydraulic performance

WHO CAN BENEFIT FROM THIS TRAINING COURSE?

- Pump Operators, Artisans, Technicians, Instrumentation Technicians
- Mechanical Foremen, Maintenance Engineers, Reliability Engineers, Mechanical Engineers
- Operations Managers, Technical Managers, Process Engineers

SPECIFIC INDUSTRY CLIENTS

- AngloGold Ashanti, BHP Billiton, Exxaro (Mining industry)
- Sasol , BP, Shell, Chevron, Petronas (Refineries)
- Toyota, Mercedes, VW, Proton (car manufacturers)
- Rand water, Lepelle, Midvaal, Umgeni water , Transco, Manila Water (bulk water supply companies)
- TWP, GEC Alston, Murray and Roberts, Aurecon (consulting engineers)
- SAPPI, MONDI (paper mills)
- ILLOVO, BISCOP, Lopez Sugar (sugar mills)
- ESKOM, Lesedi Nuclear Services, BUI (power utility)
- SAB Miller, San Miguel (Breweries)
- BISW, Arcelor Mittal, Steel Asia, Engtex, CADP (Iron and Steel)

COURSE OUTLINE

1. Basic Pump Principles

- How Pumps Work
- Head vs. Pressure
- Absolute and Gauge Pressures
- Work & Efficiency
- Flow & Head, Efficiency, Power

2. Pump Classification

- PD, Centrifugal types
- Impellers, Liquids
- ANSI / API
- Specific Speed

3. Pump Curves

- Head, Eff. & Power
- NPSHr
- Family Curves
- The Affinity Laws
- Speed & Diameter
- Practical Application

4. System Curves

- Total Dynamic Head
- Elevation, Pressure & Losses
- Static head, friction head curve
- Pumps in Series & Parallel

5. NPSH and Cavitation

- NPSH required
- NPSH available
- Vapor Pressure
- Types of Cavitation
- Effects & Prevention

6. Bearings

- Types & Services
- Lubrication
- Maintenance & Seals

7. Pump Packing

- Components
- Packing Procedures
- Failure & Leakage

8. Mechanical Seals

- Components
- Single & Double
- Support Systems

9. Pump- Motor Alignment

- Types of Misalignment
- Alignment Techniques

10. Pump Operation / Pump Reliability

- Definitions
- Operating away from BEP
- Energy savings, Increased MTBF
- Bearing and Seal Life
- Shaft deflection
- Maintenance Operation & Design

11. Troubleshooting

- Why duties change
- Identifying problem applications
- Where do your pumps operate
- Instrumentation (reading from gauges)
- Fault finding and Failure Analysis
- Interpreting the Evidence

CLIENT TESTIMONIALS

Process Engineer, Petrochemical plant

- "The instructor has vast experience in pump operation and troubleshooting. His practical experience and the pictures he showed helped to explain the course content."

Senior Manager, Steel plant

- "The course was extremely valuable, and applicable to my environment. It will assist me as Senior manager, I am in a much better position to challenge my team."

Area Manager, Petrochemical Plant

- "Extremely knowledgeable about subject- A Pump expert. Shared a lot of useful tips, processes and case studies relevant to our industry."

Mechanical Technician, Power station

- "The Instructor is very knowledgeable not only from a theoretical point but as well from a practical point of view. He could answer all questions and explained them in an easy to understand manner."

Registration Form

How to register for the course:

1. Complete this registration form and fax it to Phindi Chauke: Tel: 011 325 0686 Fax: 011 325 0488 Email: phindi@2kg.co.za
2. Acknowledgement will be emailed to you.
3. Final confirmation and details will be faxed or emailed to you approximately 7 days before the commencement of the seminar.

Cancellation Policy:

By signing and returning the registration form, the authorizing signatory on behalf of the stated company is subject to the following terms and conditions.

- All cancellations must be received in writing
- Any cancellations received less than 3 working days before the date of the event, the full fee will be payable and no refunds or credit notes will be given.
- If a registered delegate does not cancel and fails to attend the Workshop, this will be treated as a cancellation and no refund or credit note will be issued.

Delegate information:

Title: _____ Surname: _____ Name: _____
 Full Company name: _____ Job Title: _____
 Postal Address (to which invoice must be sent): _____

Code: _____ VAT number: _____
 Tel: () _____ fax: () _____
 Cell: _____ Email: _____

Contact/ Accounts information:

Title: _____ Surname: _____ Name _____
 Tel: () _____ fax: () _____
 Cell: _____ Email: _____

Please tick the course that you would like to attend:

Conventional Classroom

- | | | |
|--|---|---|
| <input type="checkbox"/> 02 – 05 February 2026 (4 Days) Secunda R18 480.00 (excl VAT) | <input type="checkbox"/> 23– 26 February 2026 (4 Days) Sasolburg R18 480.00 (excl VAT) | <input type="checkbox"/> 25– 28 May 2026 (4 Days) Johannesburg R18 480.00 (excl VAT) |
| <input type="checkbox"/> 2 – 5 November 2026 (4 Days) Secunda R18 480.00 (excl VAT) | <input type="checkbox"/> 23 – 26 November 2026 (4 Days) Johannesburg R18 480.00 (excl VAT) | |

Live Virtual Classroom

- 25 – 28 August 2026 (4 Days)
Live Virtual classroom
R14 784.00 (excl VAT)

I have read and agreed to all the conditions of registration as stipulated in this brochure.

Signature Date

For more info and to register contact Phindi Chauke on tel: 011 325 0686 or cell: 071 125 6188 and email: phindi@2kg.co.za or visit www.2kg.co.za