



# Blaze Avenue

Empowering Business Ideas



## PROCESS INSTRUMENTATION: MEASUREMENT & SENSORS

4 DAYS WORKSHOP

27th - 30th NOVEMBER 2017

HOTEL STRIPES KUALA LUMPUR, MALAYSIA

MICHAEL CRABTREE

COURSE INSTRUCTOR



HRDF 1080526T

**In House Training Solutions :**

We provide training and development programs tailored to the needs of your organization. We pay attention to the course contents as well as enhanced delivery methods to ensure that your employees learning are transferred to the workplace.



## INTRODUCTION

Globalisation has placed increasing demands on modern process control in terms of quality, safety, flexibility and costs. However, more efficient control can only be achieved through better measurement – when the process instrumentation provides the correct information.

This workshop, 'Process Instrumentation – Measurement and Sensors', is designed to provide engineers and technicians with the basic theoretical and practical knowledge involved in the selection, application, installation and commissioning of industrial instrumentation and on-line analytical instrumentation. Designed for both novice and experienced engineers and technicians, this workshop provides an insight into modern instrumentation practices covering the elements of pressure measurement, level measurement, temperature measurement, flow measurement, and on-line analytical instrumentation practices – together with the elements of pH, conductivity, turbidity, dissolved oxygen, chlorine, IR spectroscopy and chromatography.

## COURSE OBJECTIVE

The course is based on a wealth of experiential knowledge gleaned from the author's experience working within a systems integration company and also feedback from more than 4000 technicians and engineers who have attended the author's workshops. On successful completion of this workshop delegates will be able to:

- Understand the fundamentals of process control
- Appreciate the major technologies used in the measurement of flow, temperature, pressure, and level
- Review the construction and operation of the most important process instruments
- Evaluate and select the appropriate instrumentation system
- Install process equipment correctly
- Optimise control with effective selection and installation of your process equipment
- Calibrate and troubleshoot instrumentation systems
- Isolate and rectify instrumentation faults
- Review the construction and operation of the most important analytical instruments
- Troubleshoot problems in the measurement of pH, conductivity, dissolved oxygen, and chlorine, etc.
- Implement procedures for testing and calibration of analytical instruments

## TAKE AWAYS

- "Process Instrumentation: Measurement and Sensors" – a 400 plus page reference book.
- "Periodic Table" – Interactive look-up table of all the elements on Flash Memory Drive.
- Acrobat copy of all PowerPoint slides used in the presentation on Flash Memory Drive.
- Certification of attendance: each delegate will receive a workshop certificate documenting their attendance

## TRAINING METHODOLOGY

Throughout the workshop, participants will learn through active participation using exercises, questionnaires, and practical sessions covering:

- Process calibration, span and zero
- Sizing and selection calculations
- Diagnostic tools
- 4 - 20 mA process simulation
- Troubleshooting

## WHO SHOULD ATTEND

Professionals involved in designing, selecting, sizing, specifying, installing, testing, operating and maintaining process instrumentation and control systems

- Automation Engineers
- Chemical Engineers
- Consulting Engineers
- Design Engineers
- Electrical Engineers
- Electricians
- Installation and Maintenance Technicians
- Instrument and Process Control Engineers
- Instrument Fitters
- Maintenance Engineers
- Mechanical Engineers and Technicians
- Operations Engineers
- Process Engineers
- Process Operators
- Production Managers
- Project Managers
- System Integrator

## WHAT PEOPLE SAY:

- “Mick has received excellent reviews and positive feedback for all his courses. His down-to-earth, practical, and entertaining approach makes him a sought-after speaker and lecturer in a wide variety of disciplines.”  
- IDC Technologies
- “Presented in an easily understood manner.” - E. Maughn, Eskom
- “Really knows his subject.” M. Radcliff, Houston Texas
- “I gained a full understanding for the first time.” - G. Duff, Krohne Instruments, Sedgefield

## OUR PAST CLIENTS

- Kenya Power & Lighting Co. Ltd - Kenya
- PT Bekasi Power - Indonesia
- PT Perusahaan Listrik Negara (PLN) - Indonesia
- Sarawak Energy Berhad - Malaysia
- Hong Kong Electric Company - Hong Kong
- National Electric Power Regulatory Authority (NEPRA) - Pakistan
- Saudi Electricity Company - Saudi Arabia
- National Grid Corporation Philippines (NGCP) - Phillipines
- Emirates SembCorp Water & Power Company - UAE
- Tenaga Nasional Berhad (TNB) - Malaysia
- DNV GL Private Limited - Singapore
- Ceylon Electricity Board (CEB) - Sri Lanka
- Sabah Electricity - Malaysia
- Lanka Electricity Company (Pvt) Ltd - Sri Lanka
- NamPower Corporation (Proprietary) Ltd - Namibia
- Kenya Generation (Kengen) - Kenya
- Transmission Company of Nigeria (TCN) - Nigeria
- Niger Delta Power Holding Company Limited (NDPHC) - Nigeria
- Metropolitan Electricity Authority (MEA) - Thailand
- Singapore Power (SP Group) - Singapore

## OUR POWER SECTOR TRAINING LIST (PARTIAL LIST)

- Smart Grids - Platform of the Smart Cities
- Power System Stability & Control
- Renewable Resources : From Planning To Operations
- PLC, SCADA and AC Drives for Industry
- SCADA and the Impact of Smart Grid
- SCADA Systems - Transitioning from Beginner to Advanced
- SCADA, IEC 61850 and Substation Automation workshop
- Uncertainty and Risk Management in Electricity Markets
- Modern Power System Analysis
- Reliability Centered Maintenance
- Demand Side Management
- Energy Markets Strategic Planning
- Economic Dispatch and Power System Planning
- Power Systems Planning and Operations
- Energy Trading and Energy Markets
- Energy Markets, Risk Assessment and Financial Management
- Reliability and Risk Applied to Physical Assets
- Economic Dispatch & Grid stability Constraints in Power Plants
- Power System State Estimation
- Communication Interfaces in Smart Grid
- Distributed Generation
- Distributed Wind Generation and its Impacts on the Network
- Modelling Analysis for Modern Electrical Systems
- Power Systems Economic Operation
- Reactive Power and Voltage Control on Electrical Networks
- Real Power & Control on Power System
- Substation Automation Systems
- Power System Reliability
- Power System Restoration
- Methodologies & Implementation Strategies
- Fundamentals of Power Systems

## **COURSE INSTRUCTOR**

### **MICHAEL CRABTREE**

Mick Crabtree is a senior professional trainer and consultant and has spent the last 16 years presenting hundreds of in-house and public seminars and workshops throughout the world. His travels have taken him as far afield as Namibia, Alaska, Canada, the USA, the UK, the Middle East, South Africa, Australia, New Zealand, South Korea, Angola, Nigeria, Malaysia, Bolivia and Trinidad.

Moving to South Africa in 1966, he worked for many years for a local manufacturing and systems integration company, involved in industrial process control, SCADA and PLC-based systems. Later, as editor and managing editor of 'Pulse', a leading monthly engineering journal he developed his writing and authoring skills.

Mick Crabtree has trained over 5,000 engineers, technicians and scientists in the fields of: Process Control and Instrumentation; Data Communications; Fieldbus; Emergency Shut-down Systems; Project Management; On-Line Analysis; Valve Technology; and Technical Writing and Communications.

As a professional communicator Mick has also written and published eight technical resource books:

- **Flow Measurement**
- **Temperature Measurement**
- **Analytical On-line Measurement**
- **Pressure and Level Measurement**
- **Valve technology**
- **Industrial Communications**
- **The Complete Profibus Handbook**
- **Smart grid communication systems**

Mick's skill sets include:

- **Technical and non-technical authoring**
- **Course development**
- **Face-to-face training facilitation**
- **One-on-one mentoring**
- **Development of mentoring programs**
- **Distance and e-learning**

Completing his studies in Electrical, Electronic and Instrumentation engineering he holds an MSc in Industrial Flow Measurement from Huddersfield University.