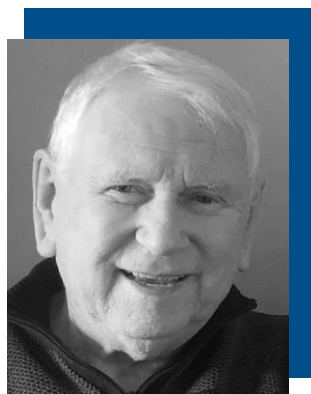


ADVANCES AND INSIGHTS INTO MODERN FLOW MEASUREMENT

A Virtual Instructor Led Training Programme



Principal Course Leader Mr. Mick Crabtree, MSc

- More than 50 years 'experience in the field of instrumentation and control systems
- Author of eight internationally published books covering the whole spectrum of instrumentation
- His books have been referenced by nearly 2½ thousand researchers internationally
- International trainer– attended by over 5000 engineers and technologists



Virtual, live



8th - 11th August, 2021



Early Bird Registration: 20th July, 2021

International Organizer



www.matgroup.org

ADVANCES AND INSIGHTS INTO MODERN FLOW MEASUREMENT

“Advances and Insights Into Modern Flow Measurement Course” has been designed to improve the scientific and professional level of engineers knowledge. This course will be held for two hours per day over 4 successive days starting on Sunday 8th August 2021 from 11:00 AM to 1:00 PM – Tehran time.

Course Objectives

This course, ‘**Advances and insights into modern flow measurement**’ is designed to acquaint users with the problems and solutions associated with a wide range of commonly used flow measurement technologies. At the same time there will look specifically at advances in custody transfer devices and are proving methods.

What You Will Learn

This course highlights alternative solutions to many problems:

- How the performance of the ubiquitous orifice plate can actually be improved.
- How the Coriolis meter can solve so many problems in in so many applications.
- How many of the limitations of different flow metering technologies can be overcome – but only if you know what the problems are in the first place.

Who Should Attend

This training course is suitable to a wide range of professionals but will greatly benefit:

- 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



COURSE OUTLINE

Fluid Mechanics

- Flow profiles
- Reynolds number
- Flow conditioning
- Media considerations

Measurement Considerations

- Volumetric flow vs. mass flow
- Accuracy vs. repeatability
- Data specifications

Positive Displacement Meters

- Rotary positive displacement meters

Turbine Meters

- Magnetic drag errors
- Prevention of flashing
- Installation recommendations

Orifice Plate Meters

- Bernoulli's equation
- Orifice plate configurations
- Tapping points
- Straight pipe run requirements
- Multiple leakage points

Electromagnetic Flow Meters

- Measuring principle
- Electrodes
- Conductivity considerations
- Capacitive coupled electrodes
- Empty pipe detection

Ultrasonic Flow Meters

- Doppler method
- Transit time meter
- Flow profile
- Multi-beam
- Application limitations



ADVANCES AND INSIGHTS INTO MODERN FLOW MEASUREMENT

Principal Course Leader Mick Crabtree, MSc

Formerly trained in aircraft instrumentation and guided missiles in the Royal Air Force, Michael 'Mick' Crabtree completed his service career seconded to the Ministry of Defence. 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 spent the last 16 years running industrial workshops throughout the world and, as an instructor and consultant, he has trained over 5,000 engineers, technicians scientists in the fields of: Process Control and Instrumentation; PLC and SCADA systems; Data Communications; Fieldbus; Emergency Shut-down Systems; Project Management; On-Line Analysis; Valve Technology; and Technical Writing and Communications.

SKILL SETS

His 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

PUBLISHED WORK

Apart from writing and publishing hundreds of articles, Mick has also authored the following 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'

FORMAL EDUCATION

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

TRAINING PROGRAMS

Mick Crabtree has developed a complete training program: the 'A to Z of Instrumentation and Control' – a macro-level competency development training program comprising a series of modular-based workshops that take an in-depth look at the multifaceted field of instrumentation and control. Using a building block approach, each program is a complete stand-alone module that may be attended individually. Alternatively, the modules may be attended back-to-back to provide an on-going and continuous training environment.