able training

ABLE Instruments Training Facility – Reading Headquarters

ABLE Instruments & Controls Ltd is constructing a state of the art training facility at their Reading headquarters. The purpose built rig offers a truly unique process environment for high impact, hands-on training.

The facility consists of connected industrial stainless steel vessels and ABLE, working together with leading manufacturers and suppliers, has fitted the rig with instrumentation ranging from the conventional to the very latest cutting edge measurement technologies for flow, level, pressure, temperature, density, gas and liquid analysis.

Different fluids can be pumped between the vessels by centrifugal pumps accommodating a wide span of variable flow rates regulated by both manual and pneumatically operated valves.

The rig also includes a bespoke Rockwell/Allen Bradley extreme environment control system incorporating their industry renowned ControlLogix PLC with scaleable integrated architecture, ATEX rated modules and SIL functionality.

The entire process is managed by Rockwell's flagship PlantPAx virtual DCS system, a full automation control package designed for managing process plant across the major industries, from the complexity of an offshore platform to the precision of a micro-brewery.

ABLE will be offering a comprehensive range of dynamic training courses for all levels with an appropriate balance of class room based theoretical content and hands-on practical elements, covering multiple measurement disciplines.

Reflecting the impartiality of ABLE's status as the UK's largest independent supplier, the rig incorporates over 100 process instruments, all providing real time data, offering a platform for customer equipment demonstration and a matchless showcase for our partner companies.

One of the many courses offered will be An Introduction to Process Control Instrumentation.
An overview of the course follows:

Registered Address
ABLE Instruments & Controls Ltd
Cutbush Park, Danehill, Lower Earley,
Reading, Berkshire, RG6 4UT. UK.

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ABLE Instruments & Controls Limited

Introduction to Process Instrumentation

Course GS001B: Two day; Instructor-Led

This two day instructor-led course offers a comprehensive review of process instrumentation to provide a broad understanding of the various types of commonly used instruments and their applications. Practical demonstrations of process instruments on a purpose built training rig are included in this course.

This course is suitable for those who would like an overview or refresher of process instrumentation and their applications but do not require in-depth knowledge of individual instrument technologies, which can be achieved on subsequent courses.

It is particularly suitable for:

- **Graduates**
- **Managers**
- **Non-engineers**
- **Instruments Engineers**
- **Design Engineers**
- **Buyers**

Course Structure

Module 1: **Terminology**
After completing this module, students will gain knowledge of industry standard terminology used with reference to process instrumentation and their respective applications.

Module 2: **International system of units (SI)**
After completing this module, students will understand the international system of units and methods for converting units.

Module 3: **Level Measurement – a comparison of typical level instruments, their principles of operation and main applications**
After completing this module, students will have a good understanding of the available technology to measure level in a process environment. A practical demonstration of level instrumentation will be provided in this module. This module also includes Nucleonic level instrumentation.

Module 4: **Flow metering – a comparison of typical flow metering techniques, their principles of operation and main applications**
After completing this module, students will have a good understanding of the available technology to measure flow in a process environment. A practical demonstration of flow instrumentation will be provided in this module.

Module 5: **Pressure Measurement – a comparison of pressure gauges, switches and transmitters, their principles of operation and main applications**
After completing this module, students will have a good understanding of the available technology to measure pressure or differential pressure in a process environment. A practical demonstration of pressure instrumentation will be provided in this module.

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Course Structure continued

Module 6: **Temperature Measurement – a comparison of different types of temperature gauges, switches and transmitters, their principles of operation and main applications**

After completing this module, students will have a good understanding of the available technology to measure temperature in a process environment. A practical demonstration of temperature instrumentation will be provided in this module.

Module 7: **Methods of communicating with instruments – installation, commissioning, data logging, diagnosis, inputs, outputs and protocols**

After completing this module, students will have a good understanding of available techniques for communicating with process instrumentation for installation, use, maintenance and diagnosis. This module includes:- Using local displays : Working with industry standard hand held communicators : Personal Computers : SMART devices : Remote connectivity techniques. This module also covers inputs, outputs and protocols such as Fieldbus, Profibus and Modbus.

Module 8: **Area Zones & Categories, Product Approvals and Safety**

After completing this module, students will have an understanding of safe and hazardous working zones and their classification. Students will also gain knowledge of product ratings, approvals, ingress protection (IP), and directives such as ATEX (Atmosphere Explosive). Offshore certification, work permits, fail safety, SIL ratings (Safety Integrity Level), emergency shut down and the importance of calibration, documentation, servicing and maintenance will be included in this module. Mean Time Between Failure (MTBF) or life expectancy of process instrumentation is also discussed.

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