



SMART Communication

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COURSE CONTENT

Aim

To provide a detailed knowledge of the operation and application of process plant instrumentation used for the transmission of the signals of the main process variables of pressure, level, flow and temperature.

Pre-requisites

Ideally suited to those personnel who require instrumentation training as part of a multi-discipline engineering programme.

Course Duration

The course is of five day's in duration.

Optimum Number

Maximum of six delegates per course.

Training Aids

OHP, Information hand-outs.

COURSE SYLLABUS

Introduction	Measurement System. Transmission Signals.
Pneumatic Transmission Systems	Pneumatic Transmitter (Force Balance). Flapper and Nozzle Mechanism. Feedback Bellows and Pneumatic Relay Amplifier. Pneumatic Transmitter (Motion Balance). Set Point Transmitter. Volume Booster. Pressure Regulator. Pneumatic Display Devices.
Electronic Transmission Systems	Electronic Transmitter (Force Balance). Detector Armature (LVDT). Smart Transmitters. Transmission Signal Converters (I to P and P to I). Electronic Display Devices. Transmission Medium Comparisons.
Current and Voltage Transmission	Conditioning Resistor. Live Zero and Two Wire System. Potentiometer. Linearity, Conformity and Noise.
Transmission Lines	The Basic Line Concept. RC Circuit Operation. Transient Response Waveforms.
Electrical Transmission Wiring and Noise	Noise Sources and how to suppress them. Signal/Noise Ratio. Common Mode Rejection.

**Data
Communication**

Communication Principles and Modes.
Asynchronous Systems.
Synchronous Systems.
Data Coding.
Transmission Speed.
Balanced and Unbalanced Transmission.
Interface Standards.
Multiplexing.
Fibre Optic Transmission.

Dates available on request