



Process Analysis

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COURSE CONTENT

Aim

To provide the skills and knowledge of the operation, calibration and industrial application of Analytical Instrumentation used for measurement and control of the chemical composition of liquids and gases.

Pre-requisites

Ideally suited to those personnel who are or will be involved in maintaining process analysis equipment as part of their job.

Course Duration

The course is of five days in duration.

Optimum Number

Maximum of 6 delegates per course.

Training Aids

OHP, Information hand-outs and practical exercises.

COURSE SYLLABUS

Process Sampling Systems	Typical Sampling System. Sampling Requirements for Liquids and Representative Samples. Typical Sample Probes. Flue Gas Sample Probes. Sample Transport System. Sample Conditioning. Location of Analysers. Sample Disposal. Multistream Sampling.
Measurement of Density	Definition of Absolute and Relative Density. Buoyancy Type Methods of Measurement. Measurement by Differential Pressure. Measurement by Weighing Methods. Measurement by Boiling Point Cell.
Measurement of Viscosity	Definition of Viscosity and Basic Units. Classification of Fluids (Newtonian and Non Newtonian). Temperature Effects. Viscosity Measurement in Industry. Falling Sphere Viscometer. Capillary Viscometer. Redwood Viscometer. Rotating Disc Viscometer.

Measurement of Humidity

Definition of Humidity, Relative Humidity and Dew Point.
Wet and Dry Bulb Hygrometers (Psychrometers).
Hair Hygrometers.
Cellulose Hygrometers
Solution Resistance Elements.
Polystyrene Surface Resistivity Hygrometers.
Thin Film Capacitance Elements.
Solution Conductivity Dew Point Hygrometers.
Condensation on Chilled Surface (Surface Conductivity and Chilled Mirror) Dew Point Hygrometers.

Measurement of Electrical Conductivity

Definition of Conduction and Electrolysis.
Units for Conductivity Measurement.
Conductivity Cells and Cell Constant.
Range of Measurement.
Installation and Applications for Conductivity Analysers.

Measurement of Ph

Definitions of Ph and the Ph Scale.
Ph Papers and Liquid Indicators.
Glass Measuring Electrodes.
Reference Electrodes.
Temperature Compensation.
Installation and Calibration Techniques.

Dates available on request