

Manchester Metropolitan University Automation Systems Centre System Design Course



A one-day course covering the optimal design of networked automation and control systems. Centred on PROFIBUS and PROFINET technology, but also covering the use of Ethernet & AS-i technology and system software.

The need for this course

Good quality PROFIBUS, PROFINET and AS-i training has been widely available for installers, maintenance technicians and engineers for many years. Unfortunately, key decision makers – managers, system designers and system integrators are quite often less well trained than others who are involved in the engineering.

Many of the errors that can be seen in installations are traceable to fundamental decisions that were taken at the early stages of the project. For example, use of inappropriate fieldbus for an application, lack of awareness of maintenance and fault-finding facilities, over-complex or inappropriate system architecture, design decisions based on equipment purchasing cost rather than whole life-cycle costs etc.



Because the course is centred on the use of fieldbus (in particular PROFIBUS), a necessary pre-requisite for the course is the one-day Certified PROFIBUS Installer course. This gives an excellent introduction to PROFIBUS technology and how to properly lay out and install networks.

The System Design Course builds on the basic knowledge of the Certified Installer and provides additional knowledge on designing not only PROFIBUS systems, but also how to use Ethernet, PROFINET and other technologies appropriately.

Why not do the Certified Engineer course?

The Certified PROFIBUS Engineer, Certified AS-i Engineer and Certified OpenPLC Engineer are flagship courses that provide an “in-depth” training for the relevant technology. These courses deal with the details of the technology and its application.



Who should attend?

This course is aimed at anyone who is dealing with the specification, design or procurement of modern automation and control systems at the engineering or technical level. The course is also suitable for device manufacturers, system integrators and technical sales/marketing people who want to know the best way to put systems together.

Prerequisite training

The course is aimed at the professional engineer level and a basic familiarity with control system terminology is assumed.

This new System Designer Course provides a different approach, showing the benefits and pitfalls of each technology. It deals with the overall architecture of the control system and how to use different technologies appropriately to design an optimised system that is reliable, maintainable and flexible for future expansion and modification. It covers the complete control system design from hardware through to software and shows how open technologies can be used to future-proof your plant.

What does the course cover?

The course provides a top-down approach to designing a modern automation and control system and helps managers and designers to make the correct decisions from the project beginning. Examples and case-studies used on the course are from a wide range of industries including manufacturing, process plant water-treatment, materials handling and automated storage and retrieval.

The course covers the optimal use of networking and communications systems including Ethernet, PROFINET, PROFIBUS DP and PA, AS-i, and IO-Link. Connection technologies are evaluated and compared including copper, fibre-optic and wireless solutions. The course also covers the use of open and distributed programming standards based on IEC61131-3 and IEC61499 and the use of SCADA systems and OPC (Object Linking and Embedding for Process Control).

Course outline

- Control system architecture – characteristics and comparison of PROFIBUS DP, PA, Ethernet, PROFINET, AS-i and IO-Link.
- System reliability and safety – redundancy concepts, UPS systems, functional safety

Booking Information

For dates and booking information contact:

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The PROFIBUS Group

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Download booking form and further details: www.uk.profibus.com

For on-site course costs and arrangements please contact:

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requirements, intrinsically-safe systems, security issues.

- Environmental issues – electromagnetic compatibility (EMC) requirements, lightning protection and IP ratings.
- System design overview – compatibility and appropriate use of technologies. Maintenance and fault-finding techniques on complex systems.
- Open programming standards IEC61131-3, IEC61499, Centralised and distributed control.
- Tying it all together – The user interface, process management functions, integration with office and IT systems, SCADA systems and OPC. FDT/DTM and EDD tools and techniques.
- Documentation requirements – standards for network drawings, programming standards and documentation, additional requirements for safety-related systems.
- Case studies and examples – from a range of industries including pitfalls and solutions.

On-site delivery

The course can be delivered at our purpose-built Automation Systems Centre training room in central Manchester. Alternatively the course can be cost effectively delivered on-site for up to 12 people.

