

## **PROFIBUS DP/PA Training Offer**

**Prepared for:**

**Prepared by:**

Industrial Technologies S.A.L

**Description:**

The purpose of this document is to describe the intent of Industrial Technologies S.A.L (ITEC) to provide technical training courses.

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## Course Level 1: PROFIBUS (BUS100)

### Who Should Attend?

- Commissioning Engineers
- Electrical Engineers
- Configuring Engineers
- Service Personnel
- Maintenance Personnel

### Prerequisites

- Good PC skills are required, with a basic understanding of inverter principles and electronics knowledge would be beneficial but is not essential
- Knowledge of Electrical Drawing would be advantageous but be not essential

### Aims and Objectives

On completion of the course the student will be able to:

1. The road to PROFIBUS
  - Development of PROFIBUS
  - Overview of the PROFIBUS technology
2. Basics Principles
  - OSI model
  - Topology
  - Addressing
  - Communication relations
  - Token passing
  - Baudrates
3. Profibus DP (part 1)
  - Class 1 and 2 masters
  - Cyclical data-exchange
  - GSD files
  - Configuration tools
  - Cycle times
4. PROFIBUS PA (part1)

5. RS 485 and PROFIBUS DP
  - The technology of RS485
  - Signaling
  - Cable specification, contraction and variants
  - Topology (cable lengths, subs)
  - DB9 connectors
  - M12 connectors
  - Termination
  - Repeaters, ProfiHubs and DP/DP couplers
6. PROFIBUS FDL
  - Messages types
  - SAPs
  - Token passing state machine
7. Grounding and shielding
  - External influences on the bus cable
  - IEC 61000-5-2
  - Grounding and shielding between cabinets
  - Distances between high voltage cables
8. Test- and measurements tools
  - Handheled tools
  - Oscilloscopes
  - Analyzers
9. Busparameters
  - Overview of the busparameters (Slot time, HAS, Max\_TSDR, ect)
  - Examples of settings
10. PROFIBUS DP (part 2)
  - Diagnostic procedures
  - DP slave state machine
  - Analyzing diagnostics
  - Analyzing parameters
  - Analyzing configuration
11. GSD files
  - Construction

- Important keywords
12. PROFIBUS DP (part 3)
- Master modes (off-line, stop, clear, operate)
  - Global Control Command
  - Sync/Freeze
  - Class 2 functions (Read Inputs/Outputs, Set slave Address)
  - Master-Master commands
13. Try-Out Exam

## Contents

- Product Overview
- Hands-On:

## Duration

Four Days

## Training center

ITEC operates a Proof of Concept Automation Center, Live Demo & Training Facility, all for the purpose of educating our engineers and clients on the latest industrial automation technologies.

Itec teams are happy to share their knowledge.

We are offering different training courses in the following subjects:

- BECKHOFF embedded PLC and new automation design, using TWINCAT software.
- ETHERCAT, PROFINET and PROFIBUS training courses
- LAD, FBD, CFC, SFC and STL programming on different types of PLC's
- CAD solutions, using Engineering Base (EB) from AUCOTEC
- SIEMENS S7 200 training courses
- SIEMENS Step 7 - S7 300 and S7 400 Training courses
- SIEMENS WinCC flexible, for machine visualization solutions
- SIEMENS WinCC SCADA course
- DRIVES (VFD), to include SIEMENS and TOSHIBA drives courses
- Machine Safety courses, using PILZ products

Please send us a support request - [support@iteclb.com](mailto:support@iteclb.com) -; stating what kind of training you would like to attend.



## Pricing

Course	Price	Attendees	Totals
BUS100	2,000 \$	4	8,000 \$

\* In order to open the class a minimum of 4 students is required

## Payments

- 100% upon Purchase

## Validity

This offer can be changed or amended or canceled by ITEC without any prior notice.

ITEC sincerely appreciates the opportunity to be of service to the trainees

This offer is prepared by

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**Should you have any questions or comments, please do not hesitate to contact us:**

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