Certified PROFINET Network Engineering course

Learn the skills to design, install, commission, and troubleshoot PROFINET networks. This course illustrates practical installation issues, goes right down to the protocol/packet level, and includes detailed information on the bus parameters. You will also learn how to minimize the impact of EMC on the network and get hands-on experience with the latest PROFINET troubleshooting tools including; Wireshark, Netilities, and the permanent network monitor Atlas.

This course meets all the requirements of the Certified PROFINET Nework Engineering course and the Certified PROFINET Installers course. The course ends with a written and practical test. Successful students will be certified by PROFIBUS and PROFINET International as a Certified PROFINET Network Engineer and a Certified PROFINET Installer.

Upon completion of this course, the student shall be able to:

- Design a PROFINET network
- Install and setup a PROFINET network
- Set up a basic switch and router
- Decode a PROFINET packet and understand how the protocol works
- Understand the basic bus parameters
- Troubleshoot common and uncommon problems

Course outline

- Introduction to industrial Ethernet
- OSI 7-layer model
- Ethernet protocols
- Hubs, switches, routers, and firewalls
- Redundancy
- Network design
- Security
- Physical layer and installation
- Device model and profiles
- Setting up a PROFINET project
- IRT
- PROFINET theory
- Acyclic communications
- Diagnostic model
- Fault finding strategies
- Measurement tools (Wireshark)
- Introduction to other Industrial Ethernet protocols

Hands-on Exercises:

- IP addresses and ping
- Wiring lab
- Design lab
- Setting up a switch
- Configuring a PROFINET network
- Diagnostics lab
- Using Wireshark and other troubleshooting tools

Training Equipment:

- IO-Controller (Codesys software running on a Raspberry Pi)
- IO-Devices include; Helmholz TB-20 IO rack, Wago IO rack, Helmholz 4 port managed switch
- Helmholz WALL IE router
- PROCENTEC Atlas permanent monitoring system
- PROCENTEC Netilities IO-Supervisor/Monitor
- Wireshark Protocol Analyzer
- Ethermet cable tester

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Class Day Information

- Attendees will receive course notes and writing materials
- Students will receive a certificate of attendance and 37.5 verifiable professional development hours
- Certificates as a Certified PROFINET Network Engineer and Certified PROFINET Installer. The certificates are given only if the student passes the in-class written and practical test.
- Attendees will receive a copy of *'Catching the process Fieldbus – An introduction to PROFIBUS and PROFINET*' co-written by the instructor James Powell
- Attendees will receive a copy of '*Industrial communication with PROFINET'* by Manfred Popp
- Class size is limited to a maximum of 8 students (2 students per training rack).

Course duration

This course is delivered over five days. Each day requires 7.5 hours of instruction which includes two 15 minute breaks and one 30 minute lunch break.

Course cost

- $2,995 USD per person, plus applicable taxes

Scheduled Classes

- February 14 to 18, 2022 – instructor-led online
- September 26 to 30, 2022 – Peterborough, ON
- On-site classes are available upon request

Course code and Prerequisites

- Course code: C-PROFINET-03
- There are no prerequisites for this course. However, it is highly recommended that the student has been introduced to PROFINET before.

Instructor

James Powell, P.Eng., is the principal engineer and owner of JCOM Automation Inc. He has written many articles and two books: *HART Communication Protocol – a practical guide,* and *Catching the process fieldbus – An introduction to PROFIBUS and PROFINET*. James is a certified PROFIBUS DP, PA, and PROFINET network engineer, PROFIBUS System Design Engineer and has over 20 years of experience with PROFIBUS, PROFINET, EtherNet/IP, Modbus, and HART installations.

JCOM Automation is a member of PROFIBUS PROFINET North America and is a certified PROFIBUS and PROFINET training center and Competence Center.

To book this course for yourself or your team, please contact JCOM Automation at jamesp@jcomautomation.ca or +1-705-868-8745.

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