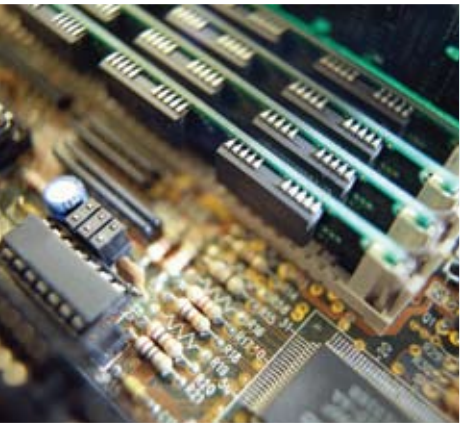
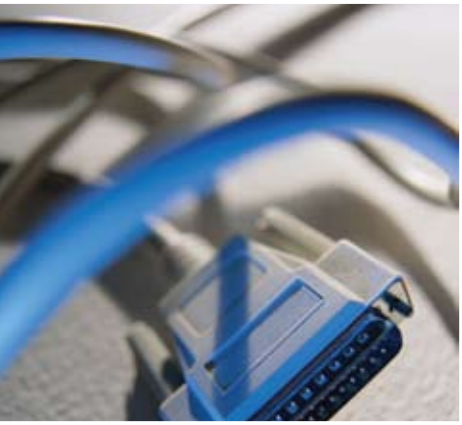
EIT ENGINEERING INSTITUTE OF TECHNOLOGY

LIVE, INTERACTIVE CLASSES OVER THE INTERNET

PROFESSIONAL CERTIFICATE OF COMPETENCY IN

INDUSTRIAL DATA COMMUNICATIONS





12 MODULES OVER 3 MONTHS

For upcoming commencement dates, please view our course schedule at:
http://www.eit.edu.au/schedule

Keep you and your company one step ahead with this comprehensive overview of Industrial Data Communications

Bring yourself up to speed in the latest trends and technologies

COURSE OBJECTIVES

By the end of this course you will be able to:

- Identify, prevent and troubleshoot industrial communications problems
- Fix over 60 of the most common problems that occur in industrial communications systems
- Gain a practical toolkit of skills to troubleshoot industrial communications systems
- Analyse, diagnose and fix problems

We have taken all the key troubleshooting and problem solving skills from experienced engineers and distilled these into one intensive course to enable you to solve real industrial communications problems.

Presented by

Deon Reynders

Pr Eng, B Sc Eng (Hons), MBA

ENROL NOW: Fax the enrolment form to us, or email enquiries@eit.edu.au

IEEE

BENEFITS OF LIVE E-LEARNING

- Attend lessons in an online classroom with your instructor and fellow students
- Upgrade your skills and refresh your knowledge without having to take valuable time away from work
- Receive information and materials in small, easy to digest sections
- Learn while you travel - all you need is an Internet connection
- Have constant support from your course instructor and coordinator for the duration of the course
- Interact and network with participants from around the globe and gain valuable insight into international practice
- Learn from international industry experts, based around the globe
- Live interactive webinars, not just a 'book on the web'
- Receive a certificate of completion for CPD purposes

PRESENTATION FORMAT

The certificate program features real-world applications and use a multi-pronged approach involving self-study, interactive on-line webinars and homework assignments with a mentor on call. The course consists of 12 modules, over a period of 3 months.

Some modules may involve a practical component or group activity. For each module there will be an initial reading assignment along with coursework or problems to be handed in and practical exercises in some cases. Participants will have ongoing support from their instructor and course coordinator.

Course reading material will be delivered in electronic (PDF) format in advance of on-line presentations. Presentations and group discussions will be conducted using a live interactive software system. Assignments will be submitted electronically and wherever possible, practical exercises will be conducted using simulation software and remote labs.

LIVE WEBINARS

During the program you will participate in 6 live interactive sessions with the instructor and other participants from around the world. Each webinar will last approximately 60 to 90 minutes, and we take student availability into consideration wherever possible before schedule webinar times. Contact us for details of webinar session scheduling. All you need to participate is an adequate Internet connection, speakers and a microphone. The software package and setup details will be sent to you prior to the course.

PRESENTED BY DEON REYNDERS

Pr Eng, B Sc Eng (Hons), MBA
Senior Engineer, IDC Technologies

Deon is a registered professional engineer with over 30 years postgraduate experience encompassing middle management, engineering consulting, management consulting, hardware and software development, electronic component manufacturing, systems engineering, project management, marketing and industrial relations. He has experience of both large and small business environments. He also is an experienced teacher with HOD and Governing Board experience at Postgraduate level.

His current areas of specialisation include Information Technology (IT) with an industrial focus, Radio Telemetry Systems, Industrial Networking (LAN technology), and Internet technologies and applications including TCP/IP, the use of Web technologies for process control and OPC. Over the past 10 years he has provided consulting and training services to clients in the USA, Canada, Ireland, the UK, South Africa, Botswana, Trinidad, Australia, New Zealand and Indonesia.

He is co-author of several technical books, of which two (Industrial Data Networks and Modern SCADA Protocols) have already been published by Butterworths (Newnes).

Deon has prepared course material and presented to thousands of engineers and technicians all over the world. Topics include industrial data communications, industrial networking (including fieldbuses and device networks), radio telemetry systems, Ethernet, TCP/IP, OPC, network security, and financial management for engineers and technicians.

12 MODULES OVER 3 MONTHS

OVERVIEW

Modern industrial control and information systems employ a proliferation of technologies, including various hardware standards and protocols. For many of the personnel working with these systems the technologies are 'plug and play' and are just there to be used. The problems arise when decisions have to be made regarding the most suitable technologies for a given application, or when things go wrong and troubleshooting has to be performed. Without a thorough grasp of the working of the technologies involved, and without the availability of (and the ability to use) suitable diagnostic tools, this becomes a formidable challenge.

The world of industrial communications abounds with three-letter acronyms, protocols, layered communication systems, fieldbuses and device networks. There are numerous networking and industrial bus standards, synchronous and asynchronous protocols, baseband and broadband systems, bus and star topologies, connection-oriented and connectionless protocols. In addition, there is a pronounced migration towards the use of Ethernet and TCP/IP. No wonder some of us are feeling a little confused. To complicate matters, many technicians and electricians who were initially trained in process instrumentation or electrical maintenance are now expected to perform network maintenance - truly a major challenge.

This program demystifies the jargon and places the most popular systems, technologies, hardware standards and protocols in an OSI (Open Systems Interconnection) perspective. It explains how these technologies operate, and equips participants with the tools and skills to do basic hardware and protocol-related troubleshooting on both serial (RS-485) and Ethernet type networks.

INCLUDES 4 FREE REFERENCE MANUALS

VALUED AT OVER US$400

YOU WILL RECEIVE 4 OF OUR UP-TO-DATE TECHNICAL E-BOOKS TO ADD TO YOUR LIBRARY.

- Best Practice in Industrial Data Communications
- Practical TCP/IP and Ethernet Networking for Industry
- Practical Troubleshooting and Problem Solving of Modbus Protocols
- Practical Radio Telemetry Systems for Industry

Received upon completion.
All materials required for the course will be provided electronically, in smaller, easy-to-read sections.

Please Note: e-Books are available in hard copy at 50% of the recommended retail price. Contact us for pricing details.

COURSE OUTLINE

MODULE 1: Data Communications Basics
- Overview of industrial data communications
- Basic data communications principles
- Error detection
- Dealing with noise

MODULE 2: Serial Communications
- RS-232 overview
- RS-232 troubleshooting
- RS-485 overview
- RS-485 troubleshooting

MODULE 3: Introduction to Protocols
- Protocol concepts
- Bi-Sync
- HDLC
- File transfer protocols

MODULE 4: Networking Basics and System Components
- OSI model
- Topologies
- Medium access control
- Repeaters, hubs, bridges, switches, routers

MODULE 5: Industrial Ethernet
- CSMA/CD (half-duplex) Ethernet
- Fast Ethernet
- Gigabit Ethernet
- Industrial Ethernet components and techniques

MODULE 6: TCP/IP Internet Layer Protocols
- The TCP/IP protocol suite
- IP addressing techniques and routing concepts
- IPv4/IPv6
- ICMP
- ARP

MODULE 7: TCP/IP Host-to-Host and Application Layer Protocols
- Host-to-Host layer protocols: TCP and UDP
- FTP, DHCP, HTTP and other application layer protocols
- PING, ARP, TRACERT and other TCP/IP utilities

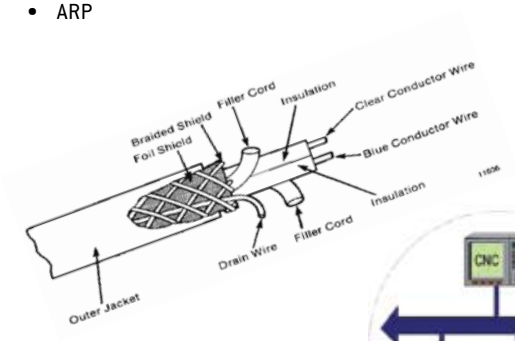
MODULE 8: Fieldbuses
- Fieldbus concepts
- HART
- DeviceNet
- ProfiBus
- Foundation Fieldbus

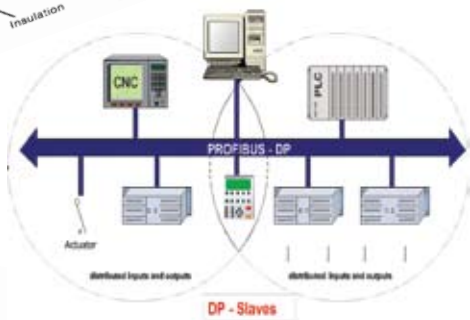
MODULE 9: Modbus
- The Modbus messaging protocol
- Modbus Serial RTU
- Modbus Serial ASCII
- Modbus TCP/IP

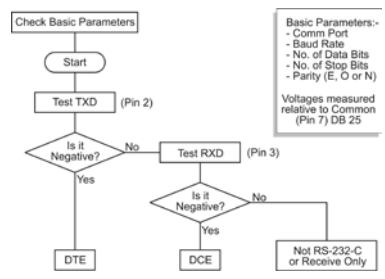
MODULE 10: Wireless Communications and Networking
- Microwave basics
- Antennas
- Wireless networking components
- IEEE802.11 WLANs

MODULE 11: OPC
- OPC concept
- Overview of OPC specifications
- DCOM
- OPC DA3.0 data access
- Tunneling

MODULE 12: Network Security
- Access control
- Authentication and encryption
- Firewalls
- VPNs
- WLAN vulnerabilities and solutions







HARDWARE AND SOFTWARE REQUIREMENTS

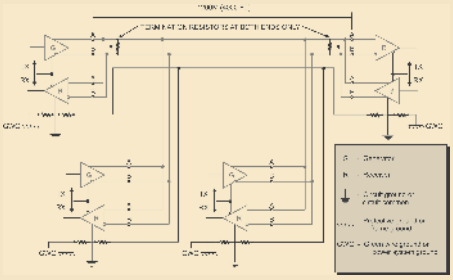
All you need to participate is an adequate Internet connection, PC, speakers and a microphone. The software package and setup details will be sent to you prior to the course.

PRACTICAL EXERCISES

Throughout the course you will participate in hands-on exercises using simulation software, which will help you put theory to practice immediately!

ENTRANCE REQUIREMENTS

Some practical work experience in some of these topics would obviously be advantageous



CERTIFICATION

Participants completing all the assignments, and achieving 60% or more for their final mark, will receive the EIT Professional Certificate of Competency in Industrial Data Communications.

ON-SITE TRAINING

We can provide our training at the venue of your choice. On-site training can be customised and by bringing the trainer to site the dates can be set to suit you!

"The Customer is Always Right" – so tell us what you need and we will design a training solution at your own site.

For a FREE detailed proposal please contact Kevin Baker via e-mail: training@idc-online.com