Hands-On Practical Training
4 HALF-DAY COURSES

Hands-on practical sessions in 70% of each course to maximise the learning experience!

Course 1: **PRACTICAL PROCESS INSTRUMENTATION**

Course 2: **PROCESS CONTROL AND LOOP TUNING**

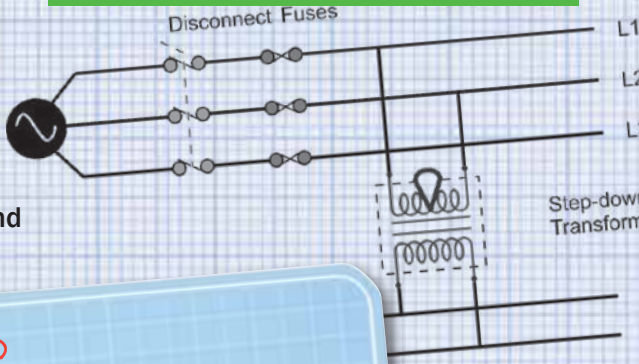
Course 3: **TROUBLESHOOTING OF INDUSTRIAL ETHERNET**

Course 4: **PLCs AND SCADA SYSTEMS**

Adelaide
25 & 26 November 2013

BENEFITS TO YOU

- Book any or all courses (courses 1, 2, 3 and/or 4) and receive the comprehensive, detailed +300 page manuals, in both hard-copy and electronic version, for each course
- Hands-on practical labs
- Minimum time away from work – you decide which sessions to attend
- Network with experienced experts and your peers
- 4 hour intensive courses



Day One

COURSE ONE (Morning):

Practical Process Instrumentation

You will learn how to:

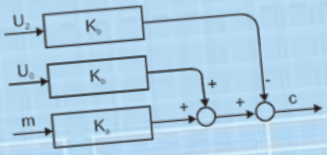
- Specify and design instrumentation systems for:
  - temperature
  - flow measurement
  - pressure
  - level
- Troubleshoot instrumentation systems

COURSE TWO (Afternoon):

Practical Process Control and Tuning of Industrial Control Loops

You will learn how to:

- Apply the fundamentals of process control
- Tune process control loops



Day Two

COURSE THREE (Morning):

Setting up, Understanding and Troubleshooting of Industrial Ethernet

You will learn how to:

- Apply a practical toolkit of know-how on latest data communications technologies
- Use design tips and tricks for your own operational industrial data communications systems

COURSE FOUR (Afternoon):

PLCs and SCADA Systems

You will learn how to:

- Quickly interpret, isolate and fix common hardware problems related to PLC input/outputs
- Troubleshoot PLC software (especially ladderlogic)
- Identify typical SCADA problems and fix them

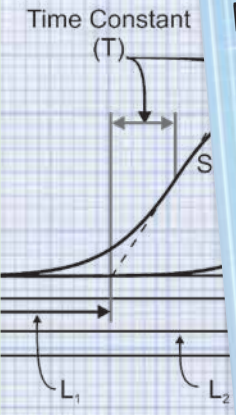


Figure 7.1
Reaction curves showing

EARLY BIRD BOOKING OFFER

Book by 28 October and you will receive 10% OFF the full registration price!

IDC TECHNOLOGIES
Technology Training that Works

AUSTRALIA • CANADA • INDIA • IRELAND • MALAYSIA • NEW ZEALAND • SINGAPORE • SOUTH AFRICA • UNITED KINGDOM • UNITED STATES • VIETNAM

Register NOW: Fax the registration form to us on **1300 138 533**

HANDS-ON PRACTICAL TRAINING

Intensive, practical half-day courses presented by

John Piperides

John is a professional electrical engineer with over 25 years experience in industrial maintenance, production, management, sales and improvement. He has held management positions in several manufacturing and sales companies. His diverse responsibilities have included contract negotiation, authoring and responsibility of departmental budgets, daily management of over 20 reports, practice of cGMP, auditing in a pharmaceutical plant, and system administration and programming of diverse IT and embedded systems. He has been directly involved with industries including building management, pest control, mining, power utilities, food, pharmaceutical, steel, building products, sugar, paper and pulp, rail and airports.

John has completed many years of further education including developing, writing and delivering many work based courses and seminars. He has spent 10 years as a part time teacher at TAFE in electrical engineering, and 15 years delivering structured courses in thermography, power quality, instrument safety, motor drive theory, PLC, SCADA, and pest inspection.

FREE REFERENCE MANUALS

(VALUED AT $223.90ea)

Our delegates don't just receive photocopied notes!

Book for any course (Courses 1, 2, 3 and/or 4) and you will receive the relevant comprehensive fully illustrated reference manual/s, as a hard-copy and eBook version, filled with hundreds of pages of tables, charts, figures and handy hints.

ABOUT IDC TECHNOLOGIES

With a portfolio of over 300 workshops specialising in the fields of industrial data communications, telecommunications, automation and control we have trained over 300,000 engineers, scientists and technicians over the last 20 years.

We have an enthusiastic team of professionals in offices conveniently located around the world, who are committed to providing the highest quality of engineering and technical training.

Visit our WEB SITE
www.idc-online.com to download
FREE software and technical information

THE PROGRAM - DAY ONE – 25 November 2013

COURSE ONE (08.00 – 12.00)

Practical Process Instrumentation

The Practical Process Instrumentation course is for engineers and technicians who need to have a practical knowledge of selection, installation and commissioning of industrial instrumentation and control valves.

The workshop focuses on real applications, with attention to special installation considerations and application limitations when selecting or installing different measurement or control equipment.

INTRODUCTION
- Basic concepts
- Definitions
- Overview of pressure, level, temperature and flow
- Overview of valves

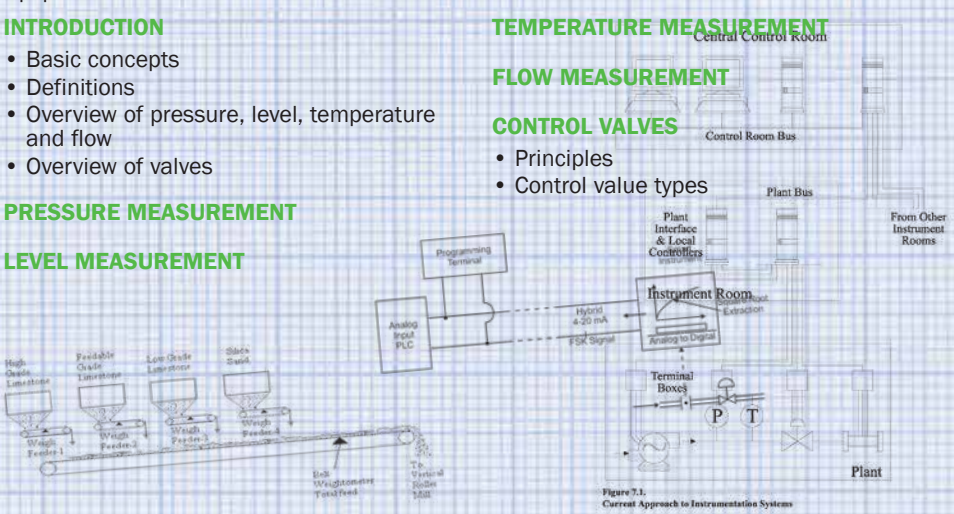
PRESSURE MEASUREMENT

LEVEL MEASUREMENT

TEMPERATURE MEASUREMENT

FLOW MEASUREMENT

CONTROL VALVES
- Principles
- Control value types



COURSE TWO (13.00 – 17.00)

Practical Process Control and Tuning of Industrial Control Loops

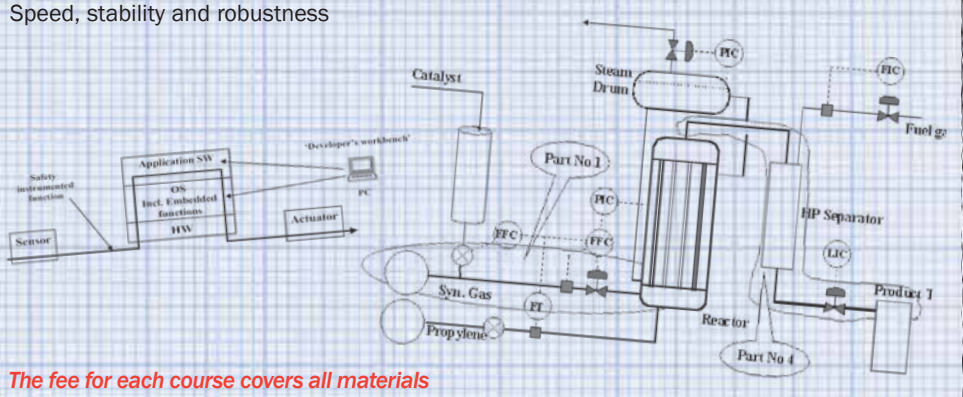
This workshop is designed to give you a solid understanding of the essentials of Process Control and skill you and/or your staff, in the latest procedures for the tuning of Industrial Control Loops using a minimum of mathematics and formulas.

The aim of this workshop is to provide and/or enhance the skills required to tune a controller for optimum operation. An optimally tuned processed loop is critical for a wide variety of industries ranging from food processing, chemical manufacturing, oil refineries, pulp and paper mills, mines and steel mills.

BASIC CONTROL CONCEPTS
- Typical manual control
- Feedback and feedforward control
- Block diagrams

FUNDAMENTALS OF PROCESS CONTROL
- Processes, controllers and tuning
- PID controllers - P, I and D modes of operation
- Load disturbances and offset
- Speed, stability and robustness
- Gain, dead time and time constants
- Process noise
- Feedback controllers
- How to select feedback controller modes

THE DIFFERENT TUNING RULES
- Ten different rules compared
- Tables of typical tuning settings
- When to use them/when not to use them
- Rules of thumb in tuning



The fee for each course covers all materials including workshop manual/s and refreshments

4 HALF-DAY COURSES OVER TWO DAYS

THE PROGRAM - DAY TWO – 26 November 2013

COURSE THREE (08.00 – 12.00)

Setting up, Understanding and Troubleshooting of Industrial Ethernet

Ethernet is becoming the obvious choice for automation networks. It is a rugged, versatile technology. While its basic frame structure has not changed, technologies such as fast and gigabit Ethernet, industrial Ethernet, VLANs, redundant rings and real-time Ethernet have increased the complexity and choices available. Consequently some misconceptions have arisen as to how Ethernet functions and how the system should be optimally configured. The workshop addresses these issues in a clear and practical manner.

Finally we will look at every system manager's nightmare, security, and will suggest some simple common-sense and internationally-accepted measures to keep the hackers at bay.

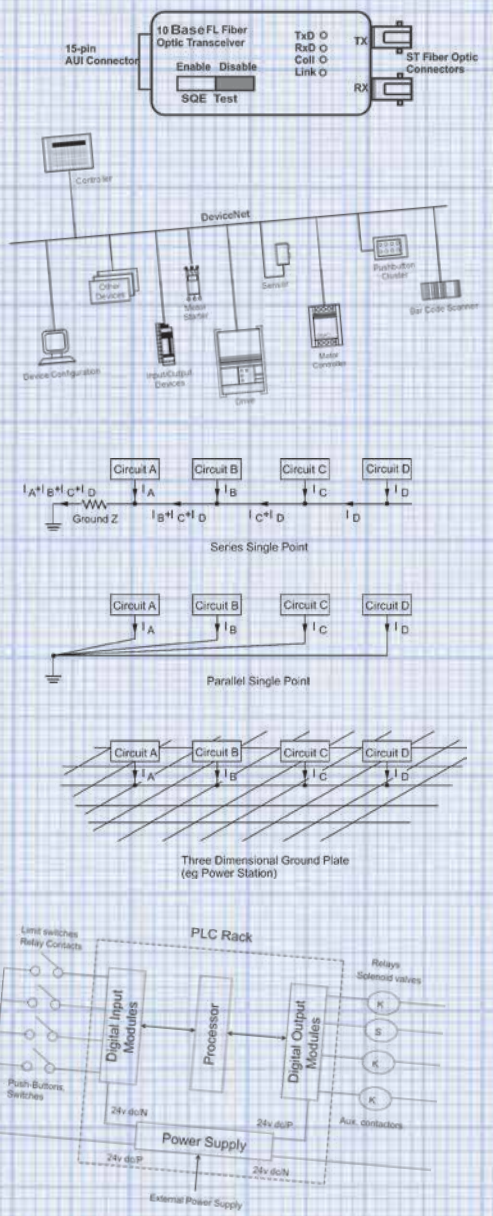
INTRODUCTION
- The OSI model and client/server paradigm
- The overall picture: where do all these technologies fit in?
- Current trends

INDUSTRIAL ETHERNET
- Background: IEEE 802.3 CSMA/CD
- Fast, gigabit and ten gigabit Ethernet
- Switched Ethernet networks, redundant rings and VLANs
- Industrial Ethernet components
- Real-time (deterministic) Ethernet and IEEE1588
- Implementation and troubleshooting

INDUSTRIAL WIRELESS
- Wi-Fi (IEEE802.11a/b/g/n)
- Wireless mesh networks (IEEE 802.15.4)
- Wireless sensor networks (IEEE 1451)

TCP/IP
- The TCP/IP protocol suite
- Network layer protocols (IPv4, ICMP, ARP)
- Host-to-host layer protocols (TCP, UDP)
- Application layer protocols (FTP, HTTP, Telnet)
- Configuration and troubleshooting

SECURITY FOR INDUSTRIAL NETWORKS



COURSE FOUR (13.00 – 17.00)

PLCs and SCADA Systems

The objective of this workshop is to help you troubleshoot, identify, prevent and fix common PLC and SCADA problems. The emphasis is on practical hard hitting information that goes beyond typical theory, focusing unerringly on providing you with the necessary skills to solve your problems whether it is a PLC, SCADA system, or indeed communications system linking the two together.

The automation system on your plant underpins your entire operation. It is thus critical that you have the knowledge and tools to quickly identify and fix problems as they occur to ensure you have a safe, secure and productive system. No compromise is obviously possible here. This workshop distils all the tips and tricks learnt over many years.

INTRODUCTION TO PLCS AND SCADA SYSTEMS
- PLC block diagram of components
- PLC processor module and memory organisation
- PLC input/output modules
- SCADA hardware
- Good installation practice

FUNDAMENTALS OF PLC SOFTWARE
- Boolean algebra
- Instruction code
- Graphical representation: functional logic diagrams and ladderlogic
- Ladderlogic instruction set (coils and contacts/timers/counters)
- Advanced instructions (program flow/ arithmetic/data transfer and PID)
- Good programming habits

SCADA SOFTWARE
- Communication architectures
- HMI interface
- SCADA software blocks

BASICS OF TROUBLESHOOTING AND DIAGNOSING EQUIPMENT
- Overall basic steps
- Communications issues
- Earthing, shielding and noise
- Review of the key PLC troubleshooting issues
- Visual inspection
- Power supply test
- Earthing and screening/shielding
- Internal memory status against the field activity
- Digital input/output status
- Leaky inputs and outputs
- Isolation problems

SCADA TROUBLESHOOTING ROAD MAP
- Review of the key SCADA troubleshooting issues
- SCADA system troubleshooting
- PLC/SCADA interfacing problems

SUMMARY, OPEN FORUM AND CLOSING

ON-SITE TRAINING

All IDC Technologies training workshops are available on an on-site basis, presented at the venue of your choice, saving delegates travel time and expenses, thus providing your company with even greater savings.

SAVE MORE THAN 50% OFF
the per person cost!

CUSTOMISE the training to YOUR WORKPLACE!

Have the training delivered **WHEN AND WHERE** you need it!

For more information or a FREE detailed proposal contact:
Kevin Baker on **1300 138 522** or
e-mail: training@idc-online.com

HANDS-ON PRACTICAL TRAINING - 4 HALF-DAY COURSES OVER TWO DAYS

DELEGATE DETAILS

Contact: Company Name:

Company Address:

Suburb: State: Post Code:

Phone: Fax: Email:

ATTENDEE:

Mr/Ms:

Job Title:

Email:

Please Note: One delegate booking per registration form – should you have more people interested in attending these courses please complete a separate registration form and email it to: idc@idc-online.com

WORKSHOP DETAILS

ADELAIDE, SA *(please tick)*

25 November 2013

- ☐ **Course 1 – PRACTICAL PROCESS INSTRUMENTATION**
- ☐ **Course 2 – PRACTICAL PROCESS CONTROL AND TUNING OF INDUSTRIAL CONTROL LOOPS**

26 November 2013

- ☐ **Course 3 – SETTING UP, UNDERSTANDING AND TROUBLESHOOTING OF INDUSTRIAL ETHERNET**
- ☐ **Course 4 – PLCs AND SCADA SYSTEMS**

Venue: Mercure Grosvenor Hotel

HOW DID YOU HEAR ABOUT THIS WORKSHOP?

- ☐ Received a brochure in the mail
- ☐ Received an email from IDC
- ☐ Searched online (Google, Yahoo etc)
- ☐ Recommended by a friend/colleague
- ☐ Other (please specify) _____

_____

PAYMENT DETAILS

Note: Prices are INCLUSIVE of GST

Please register by 4 November to avoid disappointment

Please Note: Full payment is required prior to the commencement of the workshop.

- ☐ BOOKING FOR **ONE** course: $400 = $ _____
- ☐ BOOKING FOR **TWO** courses: $800 = $ _____
- ☐ BOOKING FOR **THREE** courses: $1200 = $ _____
- ☐ BOOKING FOR **FOUR** courses: $1600 = $ _____

☐ EARLY BIRD BOOKING OFFER: (If booking on or before 28 October 2013)

YES, I qualify to receive 10% OFF the full registration price: Less 10% = $ _____

TOTAL = $ _____

I wish to pay by ☐ Cheque, made payable to IDC Technologies

☐ Company Order Number: _____

Please charge my ☐ Mastercard ☐ Visa Expiry Date: ____/____

Cardholder's Name:

Cardholder's Signature

On the reverse of your card, above the signature, is a security number. In order to authorise your card transaction, we require the last 3 digits:

If the Cardholder's address is not the same as shown above please tick this box: ☐

REGISTER NOW:

Fax: 1300 138 533

Mail: IDC Technologies, PO Box 1093, West Perth WA 6872

E-mail: idc@idc-online.com

Web Site: www.idc-online.com

ABN 78 003 263 189

ENQUIRIES: **Phone:** 1300 138 522

WORKSHOP DETAILS

- Courses start at 8:30am (morning courses) and 1:00pm (afternoon courses) each day.
- Registration is from 8:00am (morning courses) and 12:30pm (afternoon courses) on each day.
- The workshop fees are per delegate and include course reference manual/s, handouts and refreshments.
- Full payment is required prior to the commencement of the courses.

CONFIRMATION

Confirmation will be sent upon receipt of registration. Full details and workshop instructions will be sent to you prior to the workshop date.

EARLY BIRD BOOKING OFFER

Please note that the Early Bird Booking Offer is only available to those registrations received by 28 October 2013 and paid prior to the commencement of the workshop.

CANCELLATION

A fee of 20% will apply for written cancellations received 7-14 days prior to the commencement of the workshop. Cancellations received less than 7 days prior to the workshop are not refundable however substitutes are welcome.

PLEASE NOTE

Venues to be confirmed upon registration. Venues are subject to change. Instructors may change without notice.

IDC Technologies has no affiliation with suppliers or manufacturers and therefore presents a completely unbiased factual view of the industry.

100% MONEY BACK GUARANTEE

IDC Technologies' engineers have put considerable time and experience into ensuring that you derive the maximum value from each workshop. If you feel by mid-way through any course session that the course is not appropriate, please let us know so that we can arrange a 100% refund of your fee.

PRIVACY INFORMATION

If your address details are incorrect, or you wish to remove your name from our mailing list, please contact us by phone, fax or e-mail.

At times we make use of lists that cannot be cross-checked against our own database and you may receive a duplicate. If so, please pass this on to an interested colleague.

CONTINUING PROFESSIONAL DEVELOPMENT (CPD)

This program is designed to meet your continuing professional development requirements. A certificate documenting your attendance will be awarded at the end of the workshop. This serves as important evidence of your continuing professional commitment to your career. This workshop may count towards fulfilling your Engineers Australia CPD obligations – Engineers Australia's CPD Policy can be found at their website: http://www.engineersaustralia.org.au/

www.idc-online.com