An Intensive 3-Day Seminar On

LabVIEW Level 1:
Instrumentation, Monitoring and Control (SCADA)

19 - 23 Nov 2017, Dubai
25 Feb - 01 Mar 2018, Dubai
01 - 05 Jul 2018, Dubai
25 - 29 Nov 2018, Dubai
INTRODUCTION

We live in a digitised representation of just about any enterprise thus making possible improvements, optimization, and correct functioning of many endeavors. Using concepts from the Internet of Things (IoT), it is possible to attach a digital interface to just about any object (or thing) and integrate this object into a much larger system with added value and capabilities. LabVIEW is one powerful tool that enables this integration of many components to build highly engineered systems.

This highly interactive EuroMaTech training course on LabVIEW has been designed so that delegates get involved on the practical aspects of building a modern SCADA system from scratch. Through a set of exercises, delegates will get a chance to design and program several components of a complete SCADA system including Internet communications using the Modbus protocol. We will use actual LabVIEW tools that will interface to actual sensors and actuators that correspond to a small (lab scale) water treatment process.

Participants attending the 5-day LabVIEW Level 1 training course will develop the following competencies:

- Update and improve their knowledge of LabVIEW, its components and applications
- Develop their skills in analysing existing LabVIEW applications
- Evaluate and assess existing LabVIEW applications at their organization
- Help their organizations with new applications of LabVIEW
- Help their organization in improving or optimizing the use of their LabVIEW resources.

WHO SHOULD ATTEND?

This training course is suitable for a wide range of professionals employed in Process, Chemical, and Petrochemical industries, but it will be particularly beneficial to:

- Instrument technicians
- Laboratory technicians and operators
- Process and instrumentation operators and engineers
- Process and control operators and engineers

PROGRAMME OBJECTIVES

EuroMaTech’s LabVIEW Level 1 training course aims to help participants to achieve the following objectives:

- Understand the importance, capabilities, and organization of LabVIEW applications
- Develop their skills in programming using LabVIEW
- Develop their skills in designing LabVIEW data acquisition applications
- Develop their skills in programming HMI and Internet communications using LabVIEW
- Complete the design and programming of an actual SCADA system

TRAINING METHODOLOGY

The LabVIEW Level 1 training course will combine presentations with instructor-guided interactive discussions between participants. Practical hands-on exercises, video material and the work on an actual SCADA system for a water treatment process will be completed on a daily basis.

PROGRAMME SUMMARY

This EuroMaTech training course will begin with a review of LabVIEW fundamentals and quickly covering LabVIEW programming and its applications to HMI design. Modern applications emphasize the Internet of Things (IoT) and the course will cover this capability by addressing interoperability of SCADA components using Modbus. The course continues with a coverage of sensors, instrumentation, and virtual instruments. On the last day, we put together all the components of a fully functional SCADA system.
DAY 01
LABVIEW FUNDAMENTALS

• LabVIEW terms
• Components of a LabVIEW application
• LabVIEW programming tools
• Creating an application in LabVIEW
• Architecture of LabVIEW applications: The SCADA project
• Exercise 1: Temperature GUI and unit conversion between C and F units
• Videos

DAY 02
INTRODUCTION TO LABVIEW PROGRAMMING AND HMI DESIGN

• Data acquisition (DAQ) basics
• Connecting Signals
• Simple DAQ application
• Loops and Charts
• Strings, Clusters, & Error Handling
• HMI design: usability, component layout, best practices
• Exercise 2: Interface to a temperature sensor and temperature monitor
• Videos

DAY 03
ADVANCED LABVIEW PROGRAMMING AND LABVIEW INTEROPERABILITY WITH MODBUS

• Arrays & File I/O
• Array Functions & Graphs
• Case & Sequence Structures
• Formula Nodes
• Modbus communication protocol
• Interoperability of LabVIEW components using Modbus
• Exercise 3: Interoperability of components using Modbus
• Videos

DAY 04
DATA ACQUISITION AND MONITORING: VIRTUAL INSTRUMENTATION

• Data acquisition (DAQ) techniques
• Review of applicable sensors: Temperature, water quality (pH, DO, ORP)
  » Remote data acquisition of sensors using Modbus
  » Design of a virtual instrument
• Exercise 4: Data acquisition for SCADA system
• Videos

DAY 05
LABVIEW APPLICATION: SCADA PROJECT

• SCADA project: Control and Monitoring of a water treatment process
• System architecture
• Monitoring and control programming: Manual and automatic modes
• SCADA GUI design
• Testing of components and system integration
• Course Summary
• Exercise 5: Monitoring, control, and GUI for SCADA system
• Videos
Seminar Registration Details

Please register me on the:
- 19 - 23 Nov 2017, Dubai
- 25 Feb - 01 Mar 2018, Dubai
- 01 - 05 Jul 2018, Dubai
- 25 - 29 Nov 2018, Dubai

YOUR DETAILS

Name (Mr/Ms): ........................................................................................................................................................................................................................
Position: Organisation: ..........................................................................................................................................................................................................
Address: ...................................................................................................................................................................................................................................
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City / Country: ..........................................................................................................................................................................................................................
Telephone / Fax: ......................................................................................................................................................................................................................

METHOD OF PAYMENT

☐ Please find enclosed a cheque made payable to EuroMaTech
☐ Please invoice me
☐ Please invoice my company as follows:
Contact Name: ........................................................................................................................................................................................................................
Company Name: ....................................................................................................................................................................................................................
Address: ..................................................................................................................................................................................................................................

SEMINAR DETAILS

Documentation
High Quality material has been prepared by the Seminar Leader for distribution to delegates. In addition a special note pad to facilitate note taking will be provided.

Certificates
A Certificate of Completion will be issued to those who attend & successfully complete the programme.

Schedule
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>07:30</td>
<td>Welcome</td>
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<tr>
<td>08:30</td>
<td>First Session</td>
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<tr>
<td>10:15</td>
<td>Coffee Break</td>
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<tr>
<td>10:30</td>
<td>Second Session</td>
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<tr>
<td>12:15</td>
<td>Third Session</td>
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<tr>
<td>12:30</td>
<td>Lunch</td>
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<tr>
<td>14:00</td>
<td>Open Session</td>
</tr>
</tbody>
</table>

Fees
The Fee for the seminar, including instruction materials, documentation, lunch, coffee/tea breaks & snack is:

US$ 4,750/ = per delegate

Hotel Accommodation
EuroMaTech has negotiated special rates for a limited number of rooms in the hotel. Early registration will help to secure a room at the reduced rate.

Registration & Payment
Please complete the registration form on this page & return it to us together with your cheque made payable to EuroMaTech.

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EASY WAYS TO REGISTER

Telephone: +971 4 4571800 to provisionally reserve your place.
Fax your completed registration form to: +971 4 4571801
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Complete & return the booking form with cheque to:
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Disclaimer
EuroMaTech reserves the right to alter the content, location of the Seminar, or the identity of the speakers in case of events beyond our control.

Cancellation Policy
Request for seminar cancellation must be made in writing & received at EuroMaTech three weeks prior to the seminar date. A U.S. $250/ processing fee will be charged per delegate for each cancellation. Thereafter, we regret that we are unable to refund any fees due, although in such cases we would be happy to welcome a colleague who would substitute for you.