

Electronic Instrumentation and Control

3-Day Practical Training on



Course Overview

Electronic measurements are essential for use in various stages of product development, which include circuit design verification, troubleshooting, quality control, as well as failure analysis. Instrumentation control is a PC-based approach that provides connectivity for automating measurement acquisition from instrumentation. This course highlights the fundamentals of electronic measurement and instrument control, and provides hands-on exercise on how to use various types of basic instruments.

Who will benefit from this course

This course is specially designed for technicians and engineers interested in Basics of electronic instrumentation

- Practical measurement techniques
- Instrumentation control
- Exposure to usage of measurement equipments
- Exposure to usage of instrument programming tools
- Instrument control of National Instruments devices

About Go Training

Go Training applies effective pedagogical methodologies that demonstrate case studies and hands-on practical skills, in addition to explaining clearly how things work in principle. Every course that we conduct is delivered by a subject matter expert who holds the academic qualification and working experience in that specialization. On the days when they are not teaching, our trainers work on consultancy projects and technical deliveries. Their work has received numerous recognition and awards in the industry. Our team of trainers has been invited as keynote speakers at numerous international conferences, and as principal consultants for various industries.

Date: 20-22 Jul 2015
(Monday - Wednesday)

Time: 0900 - 1700

Venue: Unit No. 501, Fourth Floor, Blok A,
Pusat Perdagangan Phileo Damansara 1,
Off Jalan Damansara, 46350 Petaling Jaya,
Selangor.

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Course Outline

Day 1 Basic Instruments

Measurement Fundamentals

- Overview of basic electronic instruments
- Measurement quality
- Measurement uncertainty and calibration

DC Power Supply and Digital Multi-Meter (DMM)

- What exactly is a DC power supply
- Overview of digital multi-meter
- Measurement using digital multi-meter

Hands-on Session: DC Power Supply and Digital Multi-Meter

Arbitrary Waveform Generator (AWG) and Digitizer

- Overview of AWG
- Low frequency signal generation using AWG
- Time-domain measurement using modern digitizer

Hands-on Session: Time-Domain Measurement

Day 2 Advanced Instruments

Vector Signal Generator and Vector Signal Analyzer

- High frequency signal synthesis
- Frequency domain measurement using signal analyzer

Hands-on Session: Frequency-Domain Measurement

Vector Network Analyzer

- VNA fundamental
- VNA measurement
- Time-domain analysis

Hands-on Session: VNA Measurement

Day 3 Control and Automation

Instrument Control

- Overview of instrument control
- Hardware connectivity: GPIB, USB, Ethernet, Serial
- Application and driver software

Hands-on Session: Instrument control

Measurement Automation

- Overview of measurement automation
- Measurement automation using instrument control

Hands-on Session: Measurement Automation

About the Instructors

Mr Chai Ched Chang received his B.Eng (Hons) from University of Malaya, and M.EngSc from Multimedia University, Malaysia. Mr Chai began his career as a Signal Integrity engineer in 2001, specialized in designing High Speed PCB. He had delivered many consumer electronics PCB designs, where he is specifically experienced in analyzing signal quality issues associated with high-speed memory (SDRAM, DDR, DDR2, DDR3), differential signaling (LVDS, HDMI, USB, PCI Express, Ethernet), and other digital interfaces (FPGA interface, FLASH memory, Video bus, ADC & DAC). He also has vast experience in high speed signal simulation and electronics instrumentation. In 2012, Mr Chai left his former company as Chief Technical Officer, and started his own company. With 15 years of combined experience in both research and industry, he continues to strive to provide the best signal analysis advice to his clients.



Mr. Chua Ming Yam graduated with M. Eng. Sc in 2007 from Multimedia University Malaysia. He received his first degree B. Eng. (Hons) Electronics from the same university in 2003. Upon graduation, he embarked on his research career in Multimedia University. He is currently a senior lecturer and pursuing his PhD. He has accomplished numerous projects in Field Programmable Gate Array (FPGA), specializing in digital design using Verilog HDL. His current PhD research topic is on real-time radar signal synthesis using FPGA. Other than that, he is also specialized in RF test and measurement, and PCB design. During his 10 years career, he has published 6 international journal papers and successfully filed a patent. He is also a Certified LabView Associate Developer (CLAD).



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No. 36, Jalan IMJ 1, Taman Industri Malim
Jaya, 75250 Melaka, Malaysia.
t +606 336 6016
f +606 252 3059
w www.gotraining.com.my
[f] fb.com/gotraining.com.my
[in] linkedin.com/company/gotraining

To register, please contact:
m +6010 663 1852
e yiwei@gotraining.com.my