



# PIC Engineering & Services

## Practical Training Course

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### **INSTRUMENTATION & PROCESS CONTROL**

**Entry Level: 3 Days**

**Intermediate Level: 3 Days**

**Advance Level: 5 Days**

***"This training course emphasize on***

- giving participants an overview, understanding and hands-on....."***
- Build on the basic knowledge and provide hands on start up commissioning...."***
- Design to teach skills for selecting, maintaining, calibrating and troubleshooting of instrumentation..."***



#### **You will learn :**

- ✓ Latest technological advances in process monitoring, control and automation.
- ✓ Understanding of control system in plant.
- ✓ Improve plant productivity.

#### **Specially designed to:**

- ✓ Understanding of automation control & process characteristics.
- ✓ Determine application of various type of measurement devices & control equipment.
- ✓ Determine relevant industry codes, standards, documents and guidelines to apply. i.e. Palm oil, oleo-chemical industries.
- ✓ Practical knowledge about instrumentation & Control valves.
- ✓ Install process equipment correctly.
- ✓ Troubleshoot instrumentation systems and control valves.
- ✓ Correctly select and size control valves for industrial use.
- ✓ Correct maintenance procedures.
- ✓ Establish & document calibration procedures
- ✓ Troubleshoot equipment.

#### **Who should attend :**

- ✓ Managers, Engineers
- ✓ Non Instrument related personnel
- ✓ Mechanical & Process Technicians
- ✓ Chemical & Process Trainee Engineer
- ✓ All personnel involved in the design, selection, operating, maintenance, troubleshooting, repair operations.
- ✓ All maintenance, engineering operations personnel involved in improving reliability, conditioning monitoring and maintainability of process equipment and systems.

**Contact us for a Free Proposal:**

**PIC Engineering And Services** (002110838-X)

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## Theory - Background - Basic Knowledge Entry Level: 3 Days

Day 1	
<b>1 Introduction</b>	<ul style="list-style-type: none"> <li>✚ Basic concepts in Instrumentation &amp; control</li> <li>✚ Overview of Pressure, levels, temperatures and flows</li> <li>✚ Control Valves</li> </ul>
<b>2 Introduction to Instrumentation &amp; Process Control</b>	<ul style="list-style-type: none"> <li>✚ Process Measurements</li> <li>✚ Evaluation &amp; Control</li> <li>✚ Examples of Drawings</li> </ul>
<b>3 Introduction to Process Control &amp; loops</b>	<ul style="list-style-type: none"> <li>✚ Block diagrams</li> <li>✚ Process controller</li> </ul>
<b>4 Process Characteristics</b>	<ul style="list-style-type: none"> <li>✚ Theoretical concepts of Physical systems</li> <li>✚ Electrical, liquid thermal</li> </ul>

Day 2	
<b>1 Pressure Measurements</b>	<ul style="list-style-type: none"> <li>✚ Gauge and absolutes Manometer</li> <li>✚ Pneumatic or mechanical Pressure Sensor &amp; Transmitter</li> <li>✚ Pressure Engineering units</li> </ul>
<b>2 Level Measurements</b>	<ul style="list-style-type: none"> <li>✚ Gauge glass level measurement</li> <li>✚ Electrical &amp; Electronic level sensor</li> <li>✚ Remote display level indicator</li> <li>✚ Level Engineering units</li> </ul>
<b>3 Temperature Measurements</b>	<ul style="list-style-type: none"> <li>✚ Temperature Gauges</li> <li>✚ Types of Sensors</li> <li>✚ Temperature Engineering Units</li> </ul>

Day 3	
<b>1 Flow Measurement</b>	<ul style="list-style-type: none"> <li>✚ Types of flow techniques</li> <li>✚ Flow Engineering units</li> </ul>
<b>2 Analytical Measurement</b>	<ul style="list-style-type: none"> <li>✚ Conductivity, pH, Do and humidity measurement</li> <li>✚ Gas Analysis</li> <li>✚ Measurement applications</li> </ul>
<b>3 Final Control Elements</b>	<ul style="list-style-type: none"> <li>✚ Control Valve</li> <li>✚ Pump Control</li> <li>✚ Agitator</li> <li>✚ Louver Control</li> <li>✚ Inverter</li> </ul>

*Note : Intermediate and Advanced Level Courses are available as per request.*

Process Instrumentation, Calibration & Verification 3 Days	
Day 1	
<b>1 Introduction</b>	<ul style="list-style-type: none"> <li>✚ Process Instrumentation &amp; measurement</li> <li>✚ Why Calibration ?</li> <li>✚ What is Metrology?</li> <li>✚ Calibration Standards &amp; Procedures</li> </ul>
Day 2	
<b>2 Calibration(s)</b>	<ul style="list-style-type: none"> <li>✚ Calibration of Temperature</li> <li>✚ Calibration of Pressure</li> <li>✚ Calibration of Flow</li> <li>✚ Calibration of Electrical Signal</li> </ul>
Day 3	
<b>3 Calibration(s)</b>	<ul style="list-style-type: none"> <li>✚ Calibration of Weight</li> <li>✚ Calibration of Humidity</li> <li>✚ Wet &amp; Dry Calibration</li> <li>✚ Verification</li> <li>✚ Calibration Management &amp; Software</li> </ul>

Control Valve Theory Maintenance & Testing 3 Days	
Day 1	
<b>1 Introduction</b>	<ul style="list-style-type: none"> <li>✚ Control Valve</li> <li>✚ Control Valve Terms, Codes and Standards</li> <li>✚ Control Valve Body &amp; trim Material Selection</li> <li>✚ Control Valve Actuators</li> </ul>
Day 2	
<b>2 Accessories &amp; Selection</b>	<ul style="list-style-type: none"> <li>✚ Hand Wheel, Solenoid Valve</li> <li>✚ Sizing, Noise, Cavitation</li> <li>✚ Application &amp; Safety</li> <li>✚ Installation &amp; Commissioning</li> </ul>
Day 3	
<b>3 Service &amp; Troubleshooting</b>	<ul style="list-style-type: none"> <li>✚ Body &amp; Seat Leakage Testing</li> <li>✚ Positioner Calibration</li> <li>✚ Maintenance</li> </ul>

Boiler Instrumentation Operation & Maintenance 4 Days	
Day 1	
<b>1 Introduction</b>	<ul style="list-style-type: none"> <li>✚ Basics &amp; Various Types</li> <li>✚ Types of Steam &amp; its Application</li> <li>✚ Heat Transfer &amp; its applications</li> <li>✚ Identifying Boiler Auxiliary or Support Equipment.</li> </ul>
Day 2	
<b>2 Boiler Utilities</b>	<ul style="list-style-type: none"> <li>✚ Feed water system Instrumentation &amp; Control</li> <li>✚ Draft &amp; Combustion Instrumentation &amp; Control</li> <li>✚ Local Indicators &amp; Control Equipment</li> </ul>
Day 3	
<b>3 Operation</b>	<ul style="list-style-type: none"> <li>✚ Steam Boiler Instrumentation Operation</li> <li>✚ Boiler Safety &amp; Protection</li> <li>✚ Maintenance &amp; preparation for inspection</li> <li>✚ Conversion Steam Boiler</li> </ul>
Day 4	
<b>4 Operation</b>	<ul style="list-style-type: none"> <li>✚ Deaerator For Feedwater instrumentation &amp; Control</li> <li>✚ Conventional Condensate Recovery instrumentation &amp; Control</li> <li>✚ Steam Regeneration, Flash Vessel, Boiler blowdown instrumentation &amp; Control</li> </ul>

**Mr. Wang Gee Kiang** has more than 25 years of vast industry experience in instrumentation & process control. He started out as an instrument & electrical technician with Mobil Oil Refinery in Singapore (currently known as ExxonMobil) before moving on to various engineering companies as a project & service engineer/manager, taking care of a wide range of projects in process control & automation packages.

He was then assigned to market various instrumentation products from Japanese controller & recorder to a broad range of European & US manufacturers' instruments and control valves. With his extensive knowledge & experiences in instrumentation, he was appointed by a German MNC to set up their Malaysia operation branch dealing with full range of instrumentation products & services.

Mr Wang started his own firm in 1991, initially dealing with instrumentation and control equipment. He then slowly ventured into receiving contracts in service & calibration of mission-critical equipment. He also started his regional consultancy projects with overseas manufacturers who are interested to expand their operation into South East Asia (SEA), using Malaysia as their base. With his know-how in the instrumentation industry, plus extensive regional market experience, he had helped few MNCs in developing their SEA market-share by securing various total-package-solution projects in instrumentation & control system.

Due to his wide exposures & involvement working with these MNCs regional business expansion, he had developed a series of specialized training modules for their SEA distributors to strengthen their product knowledge in instrumentation & process control. To date, Mr Wang had conducted numerous technical seminars, workshops & road shows, both locally & regionally.

***Dear Value Customer,***

***For further enquiry, please do not hesitate to contact us directly call to: +6019 338 8819 or fax to:+603 3343 8819 or e-mail to: [sales@picengineering.com.my](mailto:sales@picengineering.com.my)***



# IPC Customer Reference



**TENAGA NASIONAL BERHAD**  
 +Sultan Iskandar Power Station,  
 Pasir Gudang  
 +Power Station Gelugor, P.Pinang



**YTL POWER**  
 IPP, Pasir gudang



**CAHYA MATA SARAWAK**

**CMS Clinker Sdn Bhd**  
 A Sarawak's sole clinker manufacturer and trader. Owned by CMS Cement Sdn Bhd, which is part of the Cahya Mata Sarawak Group of companies



**Engineering and Technological University**



**Western Digital**  
 US based hard disk drive (HDD) manufacturer



**FPSO ventures**  
 a subsidiary of *mt sc*



**CABOT**  
**Cabot (Malaysia) Sdn Bhd** A company that serving the carbon black needs of tire, industrial rubber manufacturers in Malaysia and Asia Pacific markets.



**Esterol Sdn Bhd**  
 Food emulsifiers Manufacturer, subsidiary of Kerry Group plc.



**POLIMAS**  
 INSTITUSI KEKILANGAN, TEKNOLOGI, HALAL DAN MELAKSANA MELAKSANA



**Institut Latihan Perindustrian, Kepala Batas**



**RIKEVITA (MALAYSIA) SDN BHD**  
 The first overseas plant of RIKEN VITAMIN of Japan



**IOI GROUP**  
 IOI Edible Oils Sdn Bhd  
 IOI Bio Energy Sdn Bhd



**Norsechem (Sabah) Sdn. Bhd**



**KERTIH TERMINALS**  
 Leading tank terminal company for PETRONAS Petrochemical Integrated Complex



**Ranhill**  
 A oil and gas production, infrastructure investment, power plant design & engineering & industrial water treatment company



**JIMAH O & M SDN BHD**  
 IPP Port Dickson, Negeri Sembilan



**GAB**  
 Produce of beer & Stout include Tiger and Heineken brand



**Cyctec Industries**  
 US-based specialty chemicals manufacturer



**CHEMICAL COMPANY OF MALAYSIA**



**Kemaman Bitumen Company Sdn Bhd**  
 operating an oil refinery in Kemaman, Terengganu, primarily to produce bitumen and other oil products



**PETRONAS GAS BERHAD**



**Continental Tyres**  
 A wholly owned subsidiary of Continental AG & 4th largest tyre manufacturer worldwide



**Technip**  
 take it further. is a world leader in project management, engineering and construction for the energy industry.



**Sarawak Shell Berhad**



**Dupont Danisco**  
 Specialty for Bioprotein Food Industry



**Southern Acids (M) Berhad**  
 Oleochemical producer and a Southern Group of companies.



**Palm Oleo Rawang Sdn Bhd**  
 a leading global player in oleochemical industry, producing a wide range of vegetable oil-based.



**UEM ENVIRO**  
 A member of UEM Group  
**Kualiti Alam-Seremban**  
 The Trusted Partner in Environmental Solutions



**Lynas CORPORATION LTD**



**MNFSB** is a subsidiary fertilizer company of NAFAS (Pertubuhan Peladang Kebangsaan)



**Royal Australian Air force**



**Malayan Sugar Manufacturing Co Bhd**  
 incorporated with the mission to set up a sugar refinery in Malaysia.



**B. Braun Medical Industries Sdn Bhd**  
 a worldwide company that supplying surgical, pharmaceutical and healthcare management products.



**Emery**  
 Oleochemicals  
 One of the world's largest Oleochemicals producer with a worldwide distribution.



**Huntsmans**  
 Enriching lives through innovation  
**Huntsman Pigments**



**M3ENERGY FPSO Perintis**  
 Oil & Gas Exploration and Production services Company