

TRAINING TITLE

1080 TRICON SYSTEM INSTALLATION

Training Duration

5 days

Training Venue and Dates

Ref. No.	1080 TRICON SYSTEM IC051 INSTALLATION	5	10-14 Feb. 2025	\$5,500	Dubai, UAE
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In any of the 4 or 5-star hotels. The exact venue will be informed later.

Training Fees

- **\$5,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch**

Training Certificate

Define Management Consultants Certificate of course completion will be issued to all attendees.

TRAINING DESCRIPTION

This course focuses on the technical aspects of the **TRICON SYSTEM**, a highly reliable and redundant control system used in industries like oil and gas, chemical, and power generation. Participants will learn the step-by-step procedures for installing and configuring TRICON systems, including hardware setup, software configuration, and system integration.

The training will cover the core components of the TRICON system, including the **TRICON hardware platform, network configuration, and control modules**. Participants will also learn about system communication, safety protocols, and diagnostics tools available for troubleshooting. The course includes both theoretical knowledge and practical, hands-on experience with the system, allowing participants to perform real-world installation tasks.

TRAINING OBJECTIVES

By end of course participants will be able to understand

- Understand the TRICON system architecture
- Perform hardware installation
- Configure software for system setup
- Understand network configuration

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- Perform system diagnostics and troubleshooting
- Ensure system redundancy and reliability
- Implement safety protocols
- Complete the commissioning process

WHO SHOULD ATTEND

This course is intended for control and instrumentation engineers, Safety Engineers, supervisors, and technicians as well as project, commissioning, and process engineers and supervisors.

TRAINING METHODOLOGY

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions and motivating everybody to find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work & Practical Exercises
- 20% Videos & General Discussions

COURSE PROGRAM

Introduction to Control Systems

- Introduction to Instrumentation and Control
- Sensors Types Digital and Analogue
- Process Variable Types
- Controllers' types
- Open, Closed and cascade Loop Control systems
- Final Control Element

Chapter 1 Introduction 1

- Controller Features
- System Configuration
- Tricon Controller Chassis
- Tricon Controller Field Wiring
- TriStation Software
- Theory of Operation
- Hardware Components

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- Main Processor Modules
- Bus Systems and Power Distribution
- Power Modules
- System Diagnostics and Status Indicators
- Analog Input Modules
- Analog Output Modules
- Digital Input Modules
- Digital Output Modules
- Pulse Input Modules
- Thermocouple Input Modules
- Field Terminations
- Communication Modules
- International Approvals
 - Canadian Standards Association (CSA)
 - Factory Mutual (FM)
 - Wurldtech
 - ISASecure
 - Bureau Veritas (BV)
 - TÜV Rheinland
 - Nuclear Regulatory Commission (NRC)
 - European Union CE Mark .
 - Environmental Considerations
 - Harsh Environment Statement of Compliance - Class G3

Chapter 2 System Components

- Overview
- General Environmental and EMC Specifications
- Typical Weight of Components.
- Cable Flame Test Ratings
- Ground Systems
- Conformal Coating
- Main Chassis
 - Main Chassis Batteries
 - Expansion Chassis
- Power Modules
- Ground Terminals on Power Modules
- Alarm and Power Terminals on Power Modules.
- Main Chassis Alarm Behavior
- Expansion Chassis Alarm Behavior
- Alarm Contacts Specifications
- Main Processor Modules
- Diagnostics for Main Processors

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- RXM and SRXM Modules
- RXM Modules
- SRXM Modules
- Analog Input Modules
 - 32-Point Differential Analog Input Modules
 - 16-Point Isolated Analog Input Module.
 - 64-Point Single-Ended Analog Input Modules
 - Analog Output Modules
- Digital Input Modules
 - 115 VAC/VDC Digital Input Modules
 - 24 to 48 VAC/VDC Digital Input Modules.
 - 24 to 48 VDC Digital Input Modules
 - 24 VDC Single Digital Input Modules
- Digital Output Modules
 - 115 VAC Digital Output Modules.
 - 24 to 120 VDC Digital Output Modules.
 - 24 to 120 VDC Supervised Digital Output Modules
 - 115 VAC Supervised Digital Output Modules

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- Planning and Installation Guide for Tricon v9–v11 Systems
- 28 to 120 VDC Supervised Digital Output Modules
- 24 VDC Supervised or Non-Supervised Digital Output Modules
- 32-Point Relay Output Modules
- 24 VDC Dual Digital Output Modules
- Pulse Input Modules.
- Pulse Totalizer Input Module
- Thermocouple Input Modules
- 32-Point Thermocouple Modules
- 16-Point Isolated Thermocouple Modules
- HART Interface Modules
- Chassis Requirements for HART Communication
- HART Analog Input Interface Modules
- HART Analog Output Interface Modules
- Communication Modules
 - Advanced Communication Module (ACM)
 - Enhanced Intelligent Communication Module (EICM)
 - Hiway Interface Module (HIM).
 - Network Communication Module (NCM)
 - Safety Manager Module (SMM)
 - Tricon Communication Module (TCM)

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- Unified Communication Module (UCM)

Chapter 3 Installation and Maintenance

- Installation Guidelines
 - General Installation Guidelines
 - Electrostatic Discharge Recommendations
 - Plant Power and Grounding
 - Tricon Field, Power, and Ground Wiring
- Application-Specific Installation Guidelines
 - Class 1 Division 2 Hazardous Locations
 - Zone 2 European Hazardous Locations
 - European Union Applications
 - Marine Environment Applications
 - Fire and Gas Detection Applications
 - Functional Safety Applications
 - Planning and Installation Guide for Tricon v9–v11 Systems
 - Semiconductor Manufacturing - Health and Safety Applications
- Chassis and Module Installation.
- Rack-Mounting the Chassis
- Dimensions and Clearances for Installation
- Heat Management Instructions.
- Connecting Multiple Chassis
- I/O Bus Address of Chassis
- Power Module Installation
- Installing Modules
- Digital Output Field Wiring Precautions.
- Thermocouple Input Module Installation and Operation.
- Analog Output Module Installation
- Expansion Chassis.
- Installing HART Interface Modules in Systems Upgraded from v6–v8
- Controller Grounding

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Chapter 4 Fault and Alarm Indicators

- Overview
- Main Processor Status Indicators
- MP Communication Indicators.
- Power Module Status Indicators
- I/O and Communication Module Indicators
 - Status Indicators
 - Point Indicators.
 - Power Indicators on AO Module

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- Power Indicator on SDO Module
- Load Indicators
- Load/Fuse Indicator
- CJ (Cold Junction) Indicator
- Communication Module Indicators
 - ACM Indicators
 - EICM Indicators
 - HIM Indicators
 - NCM Indicators
 - SMM Indicators
 - TCM Indicators
 - UCM Indicators

NOTE:

Pre-& Post Tests will be conducted.

Case Studies, Group Exercises, Group Discussions, Last Day reviews, and assessments will be carried out.



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