

COURSE OVERVIEW IE0088
1080 Tricon System Installation

Course Title

1080 Tricon System Installation

Course Date/Venue

Session 1: February 02-06, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Session 2: August 04-08, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

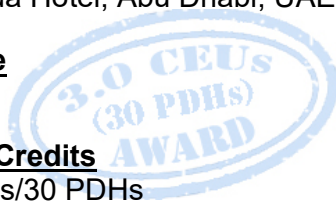


Course Reference

IE0088

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs



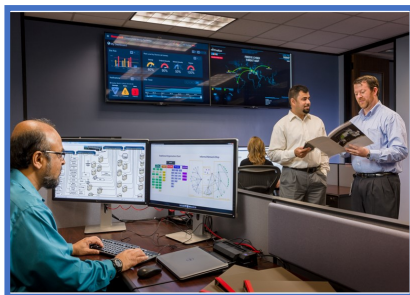
Course Description



This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.



This course is designed to provide participants with a detailed and up-to-date overview of Tricon System and TriStation 1131 configuration and implementation. It covers the principles of triconex and the operation of tricon's TMR architecture; the principles of tricon design and triple modular redundancy; the triconex tricon system and the attributes of tricon TMR system; the hardware basic components, I/O modules, field termination panels and communication modules; and configuring the controller and the tricon system components, power supply, main processors, input and output modules and terminations and communications modules.



During this interactive course, participants will learn the installing and wiring of a tricon system, connecting to a DCS and operating the tricon; enabling, disabling and forcing points; the maintenance of the tricon, detailed diagnostics and setting-up tristation communication; and replacing modules, maintenance procedures, collection of tricon events for maintenance and tristation diagnostic monitoring.

Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain an in-depth knowledge on tricon system and tristation 1131 configuration and implementation
- Discuss the principles of triconex and the operation of tricon's TMR architecture
- Explain the principles of tricon design and triple modular redundancy
- Implement triconex tricon system and recognize the attributes of tricon TMR system
- Identify the hardware basic components, I/O modules, field termination panels and communication modules
- Configure the controller and recognize the tricon system components, power supply, main processors, input and output modules and terminations and communications modules
- Install and wire a tricon system, connect to a DCS and operate the tricon
- Illustrate enabling, disabling and forcing points as well as the maintenance of the tricon, detailed diagnostics and setting-up tristation communication
- Employ replacing modules, maintenance procedures, collection of tricon events for maintenance and tristation diagnostic monitoring

Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive "Howard Smart Training Kit" (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes **electronic version** of the course materials, conveniently saved in a **Tablet PC**.

Who Should Attend

This course provides an overview of all significant aspects and considerations of tricon system and tristation 1131 configuration and implementation for instrument project engineers, instrument and DCS maintenance engineers, DCS and ESD technical support engineers and instrument and DCS technicians.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures
- 20% Practical Workshops & Work Presentations
- 30% Hands-on Practical Exercises & Case Studies
- 20% Simulators (Hardware & Software) & Videos


In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Certificate(s)


Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations: -

- 
British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

- 
The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units (CEUs)** in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

Course Fee

US\$ 5,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.



Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



Mr. Barry Pretorius is a **Senior Instrumentation Engineer** with almost **45** years of extensive experience within the **Oil, Gas, Petrochemical, Refinery & Power** industries. His expertise widely covers in the areas of **Cyber Security** Practitioner, **Cyber Security** of Industrial Control System, **IT Cyber Security** Best Practices, **Cybersecurity** Fundamentals, **Ethical Hacking & Penetration Testing**, **Cybersecurity** Risk Management, **Cybersecurity** Threat Intelligence, **OT Whitelisting** for Better Industrial Control System Defense, **NESA** Standard and Compliance Workshop, **OT, Cyber Attacks** Awareness - Malware/Ransom Ware / Virus /Trojan/ Phishing, **Information Security Manager**, **Security System** Installation and Maintenance, Security of Distributed Control System (**DCS**), Process Control, Instrumentation, Safeguarding & Security, Programmable Logic Controller (**PLC**), **Siemens PLC** Simatic S7-400/S7-300/S7-200, **PLC & SCADA** for Automation & Process Control, **Artificial Intelligence**, **Allen Bradley PLC** Programing and Hardware Trouble Shooting, **Schneider SCADA System**, **Wonder Ware**, **Emerson**, **Honeywell**, **Honeywell** Safety Manager PLC, **Yokogawa**, Advanced **DCS Yokogawa**, **Endress & Hauser**, Field Commissioning and Start up Testing Pre Operations, System Factory Acceptance Test (**FAT**), System Site Acceptance Test (**SAT**), **SCADA HMI & PLC** Control Logic, Implementation, Systems Testing, Commissioning and Startup, **Foxboro DCS & Triconics**, **SIS** Systems, **Drives**, Motion Control, **Hydraulics**, **Pneumatics** and **Control Systems** Engineering, **Electrical & Automation Control Systems**, **HV/MV Switchgear**, **LV & MV** Switchgears & Circuit Breakers, **High Voltage Electrical Safety**, **LV & HV Electrical System**, **HV Equipment** Inspection & Maintenance, **LV Distribution Switchgear & Equipment**, **Electrical Safety**, **Electrical** Maintenance, **Transformers**, **Medium & High Voltage Equipment**, **Circuit Breakers**, **Cable & Overhead Line** Troubleshooting & Maintenance, **Electrical Drawing & Schematics**, **Voltage Distribution**, **Power Distribution**, **Filters**, **Automation System**, **Electrical Variable Speed Drives**, **Power Systems**, **Power Generation**, **Diesel Generators**, **Power Stations**, Uninterruptible Power Systems (**UPS**), **Battery Chargers**, **AC & DC Transmission**, **CCTV** Installation, **Data & Fire Alarm System**, **Evacuation** Systems and **Electrical Motors & Variable Speed Drives**, & Control of Electrical and Electronic devices.

During Mr. Pretorius’s career life, he has gained his practical experience through several significant positions and dedication as the **Senior Technical Analyst**, **Team Leader**, **Pre-operations Startup Engineer**, **Automation System’s Software Manager**, **Automation System’s Senior Project Engineer**, **PLC Specialist**, **Site Manager**, **Senior Project & Commissioning Engineer**, **Technical Director**, **Project Engineer**, **Radio Technician**, **A T E Technician** and **Senior Instructor/Trainer** from various companies like the **ADNOC Sour Gas**, **Ras Al Khair Aluminum Smelter**, **Johnson Matthey Pty. Ltd**, **Craigcor Engineering**, **Unitronics South Africa Pty (Ltd)**, **Bridgestone/Firestone South Africa Pty (Ltd)** and **South African Defense Force**.

Mr. Pretorius’s has a Higher Diploma in **Electrical Engineering Heavy Current**. Further, he is a **Certified Instructor/Trainer** and delivered numerous trainings, courses, workshops, seminars and conferences internationally.





Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1

0730 – 0800	<i>Registration & Coffee</i>
0800 – 0815	<i>Welcome & Introduction</i>
0815 – 0830	PRE-TEST
0830 – 0930	<i>Introduction-Principles of Triconex</i>
0930 – 0945	<i>Break</i>
0945 – 1030	<i>The Basic Theory of Operation of the Tricon's TMR Architecture</i>
1030 – 1130	<i>Overview of Tristation</i>
1130 – 1215	<i>Principles of Tricon Design</i>
1215 – 1230	<i>Break</i>
1230 – 1330	<i>What is Tolerance?</i>
1330 – 1420	<i>How does Triple Modular Redundancy Work?</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2

0730 – 0830	<i>How are Faults Masked?</i>
0830 – 0930	<i>Triconex Tricon System Implementation</i>
0930 – 0945	<i>Break</i>
0945 – 1030	<i>Attributes of Tricon TMR System</i>
1030 – 1130	<i>Hardware Basic Components</i>
1130 – 1215	<i>I/O Modules</i>
1215 – 1230	<i>Break</i>
1230 – 1330	<i>Field Termination Panels</i>
1330 – 1420	<i>Communication Modules</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day Two</i>

Day 3

0730 – 0830	<i>Configure the Controller</i>
0830 – 0930	<i>Tricon System Components</i>
0930 – 0945	<i>Break</i>
0945 – 1030	<i>Power Supply Modules</i>
1030 – 1130	<i>Main Processors</i>
1130 – 1215	<i>Input & Output Modules</i>
1215 – 1230	<i>Break</i>
1230 – 1420	<i>Input & Output Terminations</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day Three</i>





Day 4

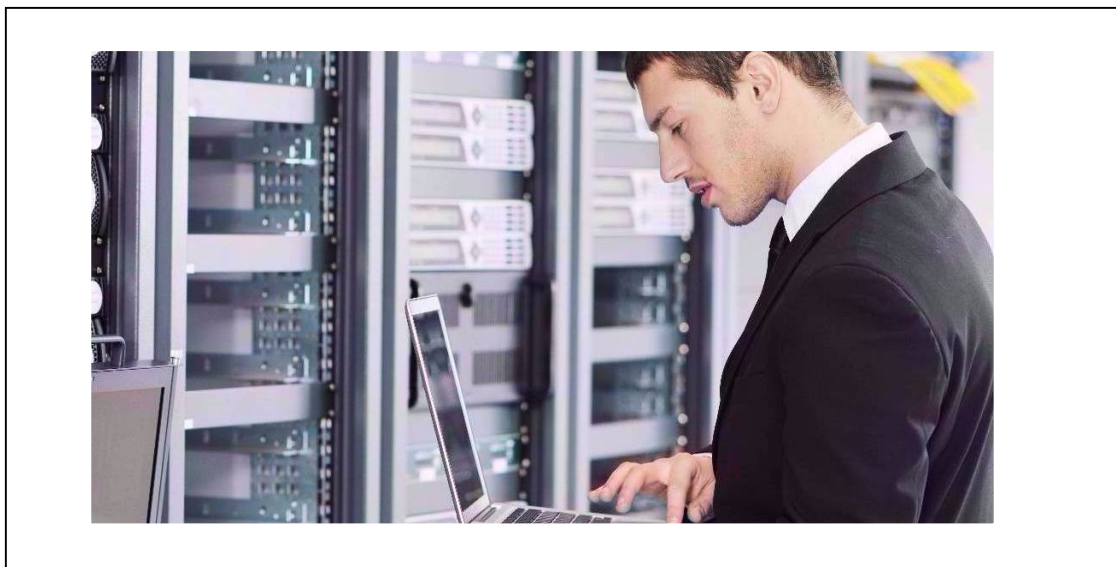
0730 – 0830	<i>Installing the Tricon</i>
0830 – 0930	<i>Install & Wire a Tricon System</i>
0930 – 0945	<i>Break</i>
0945 – 1030	<i>Grounding Requirements</i>
1030 – 1130	<i>Connecting to a DCS</i>
1130 – 1215	<i>Operating the Tricon</i>
1215 – 1230	<i>Break</i>
1230 – 1330	<i>Overview of TriStation MSW</i>
1330 – 1420	<i>Enabling, Disabling & Forcing Points</i>
1420 – 1430	<i>Recap</i>
1430	<i>Lunch & End of Day Four</i>

Day 5

0730 – 0815	<i>Maintenance of the Tricon</i>
0815 – 0900	<i>Detailed Diagnostics</i>
0900 – 0930	<i>Set-Up TriStation Communication</i>
0930 – 0945	<i>Break</i>
0945 – 1030	<i>Replacing Modules</i>
1030 – 1130	<i>Maintenance Procedures</i>
1130 – 1215	<i>Collection of Tricon Events for Maintenance</i>
1215 – 1230	<i>Break</i>
1230 – 1345	<i>Tristation Diagnostic Monitor</i>
1345 – 1400	<i>Course Conclusion</i>
1400 – 1415	<i>POST-TEST</i>
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

Mari Nakintu, Tel: +971 2 30 91 714, Email: mari1@haward.org

