COURSE OVERVIEW PE1045
Central Control Room Operations

Course Title
Central Control Room Operations

Course Reference
PE1045

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

Course Date/Venue

Session(s)	Date	Venue
1	May 11-15, 2025	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
2	July 28-August 01, 2025	Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
3	September 21-25, 2025	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
4	November 17-21, 2025	Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Description

This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.

This course is designed to provide participants with a detailed and up-to-date overview of Central Control Room Operations. It covers the central control rooms (CCR), key responsibilities of control room operators and basic operational control systems; the central control room equipment, safety and emergency protocols and workplace ergonomics and environment; the supervisory control and data acquisition (SCADA) systems and distributed control systems (DCS); and the control room automation and remote monitoring, alarm management systems, data logging and reporting tools and cybersecurity in central control rooms.

Further, the course will also discuss the process control and optimization, monitoring and supervising multi-unit operations and maintenance and equipment monitoring; the shift and logbook management, incident management, root cause analysis and communication and coordination with other departments; the advanced alarm and event management, energy management and efficiency and emergency shutdown systems (ESD); and the control room decision-making and problem solving, advanced system diagnostics and troubleshooting and process safety management (PSM).

During this interactive course, participants will learn to manage critical incidents, deal with plant shutdowns and emergencies and apply crisis management frameworks and post-crisis review and improvement; the emerging technologies in control room operations, artificial intelligence and machine learning in control rooms; the predictive analytics and data-driven decision-making; the future of human-machine collaboration in control rooms; the impact of human factors on control room operations and techniques to improve operator performance and efficiency; reducing operator error through training and awareness; and the continuous professional development for control room operators.

Course Objectives

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

- Apply and gain a comprehensive knowledge on central control room operations
- Discuss central control rooms (CCR), key responsibilities of control room operators and basic operational control systems
- Explain central control room equipment, safety and emergency protocols and workplace ergonomics and environment
- Recognize supervisory control and data acquisition (SCADA) systems and distributed control systems (DCS)
- Carryout control room automation and remote monitoring, alarm management systems, data logging and reporting tools and cybersecurity in central control rooms
- Employ process control and optimization, monitoring and supervising multi-unit operations and maintenance and equipment monitoring
- Apply shift and logbook management, incident management, root cause analysis and communication and coordination with other departments
- Implement advanced alarm and event management, energy management and efficiency and emergency shutdown systems (ESD)
- Carryout control room decision-making and problem solving, advanced system diagnostics and troubleshooting and process safety management (PSM)
- Manage critical incidents, deal with plant shutdowns and emergencies and apply crisis management frameworks and post-crisis review and improvement
- Discuss the emerging technologies in control room operations, artificial intelligence and machine learning in control rooms
- Apply predictive analytics and data-driven decision-making and discuss the future of human-machine collaboration in control rooms
- Recognize the impact of human factors on control room operations and apply techniques to improve operator performance and efficiency
- Reduce operator error through training and awareness and apply continuous professional development for control room operators

Exclusive Smart Training Kit - H-STK®

*Participants of this course will receive the exclusive "Haward 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 central control room operations for control room operators, panel operators, shift supervisors and team leaders, field operators, operations engineers, maintenance engineers, process engineers and other technical staff.

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.

Accommodation

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

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.

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 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. Mervyn Geoffrey Frampton, BSc, PMI-PMP, CSSBB, is a **Senior Process Engineer** with over **30 years** of industrial experience within the **Oil & Gas**, **Refinery**, **Petrochemical** and **Utilities** industries. His expertise lies extensively in the areas of **Process Unit Operations & Maintenance**, **Operations Asset Process Plant** Start-up & Commissioning, **Process Plant** Monitoring, **Process Plant** Optimization, **Revamping & Debottlenecking**, **Process Plant** Troubleshooting & Engineering Problem Solving, **Integrity**, **Flare**, **Blowdown & Pressure Relief Systems** Operation, Maintenance & Troubleshooting, Dynamics of the **Petrochemicals Industry**, Understanding the **Global Petrochemical Industry**, **Petrochemicals** Analysis, **Naphtha & Condensate** in **Petrochemicals**, **Feedstock** Handling & Storage, **Natural Gas Liquids & Petrochemical Industry** and **Markets**, **Refinery & Process Industry**, **Refinery** Optimization, **Refinery** Operations Troubleshooting, **Refinery** Production Operations, **Refinery Process Safety**, **Process Safety Design**, **Petroleum Refinery** Process, **Asset Operational Integrity**, **Refinery Induction**, **Crude Distillation**, **Crude Oil Properties**, **Distillation Column** Operation & Control, **Oil Movement** Storage & Troubleshooting, Root Cause Analysis (**RCA**) for **Process & Equipment Failures**, **Process Equipment** Design, Applied **Process Engineering** Elements, **Catalyst** Selection & Production Optimization, Operations Abnormalities & Plant Upset, **Clean Fuel** Technology & Standards, **Oil & Gas Field Commissioning** Techniques, **Pressure Vessel** Operation, **Gas Processing**, **Chemical** Engineering, **Process Reactors** Start-Up & Shutdown, **Gasoline Blending** for Refineries, **Urea Manufacturing** Process Technology, Continuous Catalytic Reformer (**CCR**), **De-Sulfurization** Technology, Advanced Operational & Troubleshooting Skills, Principles of Operations Planning, **Rotating Equipment** Maintenance & Troubleshooting, **Hazardous Waste Management & Pollution Prevention**, **Heat Exchangers & Fired Heaters** Operation & Troubleshooting, **Energy Conservation** Skills, **Catalyst Technology**, **Chemical Analysis**, **Process Plant**, **Commissioning & Start-Up**, **Alkylation**, **Hydrogenation**, **Dehydrogenation**, **Isomerization**, **Hydrocracking & De-Alkylation**, **Fluidized Catalytic Cracking**, **Catalytic Hydrodesulphuriser**, **Kerosene Hydrotreater**, **Thermal Cracker**, **Catalytic Reforming**, **Polymerization**, **Polyethylene**, **Polypropylene**, Pilot Water Treatment Plant, **Gas Cooling**, **Cooling Water Systems**, Effluent Systems, Material Handling Systems, **Gasifier**, **Gasification**, Coal Feeder System, **Sulphur Extraction Plant**, **Acid Plant Revamp** and **Crude Pumping**. Further, he is also well-versed in HSE Leadership, Project and Programme Management, Project Coordination, Project Cost & Schedule Monitoring, Control & Analysis, Team Building, Relationship Management, Quality Management, Performance Reporting, Project Change Control, Commercial Awareness and Risk Management.

During his career life, Mr. Frampton held significant positions as the **Site Engineering Manager**, **Senior Project Manager**, **Project Engineering Manager**, **Construction Manager**, **Site Manager**, **Area Manager**, **Procurement Manager**, **Factory Manager**, **Technical Services Manager**, **Senior Project Engineer**, **Project Engineer**, **Assistant Project Manager**, **Handover Coordinator** and **Engineering Coordinator** from various international companies such as the **Fluor Daniel**, **KBR** South Africa, **ESKOM**, MEGAWATT PARK, CHEMEPIC, PDPS, CAKASA, **Worley Parsons**, Lurgi South Africa, **Sasol**, **Foster Wheeler**, **Bosch** & **Associates**, **BCG** Engineering Contractors, Fina Refinery, Sapref Refinery, Secunda Engine Refinery just to name a few.

Mr. Frampton has a **Bachelor's** degree in **Industrial Chemistry** from **The City University** in **London**. Further, he is a **Certified Project Management Professional** (**PMI-PMP**), a **Certified Six Sigma Black Belt** (**CSSBB**) from **The International Six Sigma Institute**, a **Certified Internal Verifier/Trainer/Assessor** by the **Institute of Leadership & Management** (**ILM**), a **Certified Instructor/Trainer** and has delivered numerous trainings, courses, workshops, conferences and seminars internationally.

Course Program

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

Day 1

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Overview of Central Control Rooms (CCR)*** *Role & Significance in Industrial Operations • History & Evolution of CCRs • Types of Control Rooms: Traditional versus Modern • Organizational Structure of a CCR*
0930 – 0945	*Break*
0945 – 1030	***Key Responsibilities of Control Room Operators*** *Monitoring of Systems & Processes • Ensuring Operational Safety & Efficiency • Incident Response & Troubleshooting • Communication & Coordination with Field Teams*
1030 – 1130	***Basic Operational Control Systems*** *Control Loops & Feedback Systems • SCADA Systems in Control Rooms • PLCs & Remote Terminal Units (RTUs) • Data Acquisition & Analysis*
1130 – 1215	***Central Control Room Equipment*** *Control Panels & HMIs (Human-Machine Interfaces) • Alarm Systems & Emergency Shutdowns • Communication Systems (Radios, Intercoms) • Environmental Monitoring Equipment*
1215 – 1230	*Break*
1230 – 1330	***Safety & Emergency Protocols*** *Emergency Response Procedures • Safety Drills & Practice Scenarios • Risk Assessment & Hazard Identification • Safety Culture in Control Room Operations*
1330 – 1420	***Workplace Ergonomics & Environment*** *Design Considerations for Control Rooms • Ergonomics & Operator Comfort • Lighting & Acoustic Management • Technological Aids for Reducing Operator Fatigue*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day One*

Day 2

0730 – 0830	***Supervisory Control & Data Acquisition (SCADA) Systems*** *SCADA Architecture & Components • Role of SCADA in Monitoring & Control • Integration with Other Systems (DCS, PLC) • SCADA Security & Troubleshooting*
0830 – 0930	***Distributed Control Systems (DCS)*** *Overview of DCS versus SCADA • DCS Architecture & Components • Applications in Process Control • DCS Troubleshooting & Maintenance*
0930 – 0945	*Break*

0945 – 1100	***Control Room Automation & Remote Monitoring*** *Automation Technologies in CCR • Benefits & Challenges of Automation • Remote Monitoring & Control Strategies • Integrating Automation into Human Operator Workflows*
1100 – 1215	***Alarm Management Systems*** *Alarm Prioritization & Classification • Alarm Response Protocols • Alarm Fatigue & Management Techniques • Best Practices for Alarm Configuration*
1215 – 1230	*Break*
1230 – 1330	***Data Logging & Reporting Tools*** *Importance of Data Logging in CCR Operations • Tools for Real-Time Data Collection • Historical Data Analysis & Reporting • Data-Driven Decision-Making & Optimization*
1330 – 1420	***Cybersecurity in Central Control Rooms*** *Cyber Threats & Vulnerabilities • Securing Control Room Systems & Networks • Cyberattack Detection & Response Strategies • Compliance with Cybersecurity Standards*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Two*

Day 3

0730 – 0830	***Process Control & Optimization*** *Understanding Process Variables & Parameters • Basic Process Control Strategies • Optimization Techniques in Process Industries • Troubleshooting Common Control Issues*
0830 – 0930	***Monitoring & Supervising Multi-Unit Operations*** *Managing Multiple Systems from Control Room • Coordination Across Different Units or Plants • Identifying Operational Inefficiencies • Multi-Tasking & Prioritizing Tasks*
0930 – 0945	*Break*
0945 – 1100	***Maintenance & Equipment Monitoring*** *Predictive Maintenance Techniques • Condition Monitoring of Critical Equipment • Performance Tracking & Diagnostics • Integrating Predictive Data into Operation*
1100 – 1215	***Shift & Logbook Management*** *Best Practices for Shift Handovers • Use of Logbooks for Communication & Documentation • Shift Schedule Optimization & Team Coordination • Reducing Human Error During Transitions*
1215 – 1230	*Break*
1230 – 1330	***Incident Management & Root Cause Analysis*** *Identifying & Responding to Incidents • Root Cause Analysis Methodologies • Incident Reporting & Follow-Up • Continuous Improvement through Incident Review*

1330 – 1420	***Communication & Coordination with Other Departments*** *Effective Communication with Field Operators • Coordinating with Maintenance, Engineering & Safety Teams • Reporting & Escalation Procedures • Building Inter-Departmental Cooperation*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Three*

Day 4

0730 – 0830	***Advanced Alarm & Event Management*** *Techniques for Advanced Alarm Management • Event Correlation & Incident Detection • Managing & Optimizing Alarm Floods • Best Practices for Alarm System Design*
0830 – 0930	***Energy Management & Efficiency*** *Overview of Energy Management in Control Rooms • Tools for Monitoring Energy Consumption • Identifying Energy-Saving Opportunities • Implementing Energy Efficiency Programs*
0930 – 0945	*Break*
0945 – 1100	***Emergency Shutdown Systems (ESD)*** *Principles & Functions of ESD Systems • ESD Sequence & Triggers • Design & Operation of ESD Systems • Testing & Maintenance of ESD Systems*
1100 – 1215	***Control Room Decision-Making & Problem Solving*** *Decision-Making Models in High-Pressure Environments • Cognitive Factors in Decision-Making • Problem-Solving Techniques for Operators • Simulation & Scenario-Based Decision Training*
1215 – 1230	*Break*
1230 – 1330	***Advanced System Diagnostics & Troubleshooting*** *Advanced Techniques for Troubleshooting Control Systems • Diagnosing & Solving Control Loop Issues • Understanding System Fault Indicators • Hands-On Troubleshooting Exercises*
1330 – 1420	***Process Safety Management (PSM)*** *Key Elements of Process Safety in Control Rooms • Integrating PSM into Day-to-Day Operations • Identifying Process Safety Hazards • Safety Case Management & Documentation*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Four*

Day 5

0730 – 0830	***Control Room Operator Certification*** *Overview of Certification Requirements • Operator Competency & Training Programs • Exam Preparation & Assessment Criteria • Certification Authority & Standards*
0830 – 0930	***Simulation of Control Room Scenarios*** *Role of Simulations in Control Room Training • Types of Simulation Tools & Software • Running Full System Simulations & Drills • Analyzing & Reviewing Simulation Performance*

0930 – 0945	*Break*
0945 – 1100	***Handling Critical Situations & Crisis Management*** *Techniques for Managing Critical Incidents • Dealing with Plant Shutdowns & Emergencies • Crisis Management Frameworks • Post-Crisis Review & Improvement*
1100 – 1215	***Future Trends in Control Room Technology*** *Emerging Technologies in Control Room Operations • Artificial Intelligence & Machine Learning in Control Rooms • Predictive Analytics & Data-Driven Decision-Making • The Future of Human-Machine Collaboration in Control Rooms*
1215 – 1230	*Break*
1230 – 1345	***Human Factors & Operator Performance*** *Impact of Human Factors on Control Room Operations • Techniques to Improve Operator Performance & Efficiency • Reducing Operator Error through Training & Awareness • Continuous Professional Development for Control Room Operators*
1345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about t Topics that were Covered During the Course*
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

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