

## COURSE OVERVIEW PE0127 Operations Abnormalities & Plant Upset

### Course Title

Operations Abnormalities & Plant Upset

### Course Date/Venue

Session 1: May 11-15, 2025/Al Khobar Meeting Room, Hilton Garden Inn, Al Khobar, KSA

Session 2: September 14-18, 2025/ Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

### Course Reference

PE0127

### Course Duration/Credits

Five days/3.0 CEUs/30 PDHs



### 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.***



Managing Manpower effectively and assess risk properly during plant upset are key effective factors when reacting with incidents. Incidents may start minor and become major by wrong reaction and wrong decisions. The aim of this course is to make everybody involved in the operations know exactly what to do. The incident itself may cause a certain loss, but with wrong reaction it became a massive loss. Understanding operation, effective emergency/contingency plan, rules of each one within emergency plan and makes emergency tools ready and in operational condition are the main aims of this course. One approach to overcome any incident development is to prepare yourself and emergency team to treat incidents situation professionally.



Upon review of several incidents, two common causes were identified that contributed to those incidents. The causes are improper management of manpower during upset conditions and improper risk assessment of activities to be executed or stop doing. However, on close examination the trained emergency team and correct managing of the incident besides using correct emergency tools will minimize the loss and accidents consequences.



Effective training is the necessary foundation for the successful implementation of optimum emergency managing condition and optimum consequences minimizing. This course will train participants on managing risk & manpower during plant upset to save lives, assets and company reputations.

### Course Objectives

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

- Manage manpower effectively and assess risk properly during the abnormalities of the operations and plant upset
- Assess staffing level in abnormal situations and distribute manpower during plant upset conditions
- Manage shift teams, assess risk of non-routine activities and manage operational crisis
- Identify risks in the process and describe the roles, responsibilities and procedures in emergency management
- Use the risk assessment process and have enough skills in monitoring and auditing the emergency tools
- Recognize the training requirements for process emergency handling including emergency team building
- Discuss the various skills that will be acquired in controlling emergency management using different scenarios and matrix
- Identify the common mistakes during emergencies and employ the preventive measures

### 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 operations abnormalities and plant upset for superintendents, supervisors and foremen in various departments of process plants (production, operations, maintenance, utility, etc.). Further, the course is suitable for emergency teams, managers, supervisors and other technical staff.

### 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: -

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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.

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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.

### 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. Mervyn Frampton** 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 Troubleshooting, Distillation Towers, Fundamentals of Distillation** for Engineers, **Distillation Operation and Troubleshooting, Advanced Distillation Troubleshooting, Distillation Technology, Vacuum Distillation, Distillation Column Operation & Control, Oil Movement Storage & Troubleshooting, Process Equipment Design, Applied Process Engineering Elements, Process Plant Optimization, Revamping & Debottlenecking, Process Plant Troubleshooting & Engineering Problem Solving, Process Plant Monitoring, Catalyst Selection & Production Optimization, Operations Abnormalities & Plant Upset, Process Plant Start-up & Commissioning, Clean Fuel Technology & Standards, Flare, Blowdown & Pressure Relief Systems, 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, Refinery & Process Industry, 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, Crude Distillation Unit, 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, Process Engineering Manager, Project Engineering Manager, Construction Manager, Site Manager, Area Manager, Procurement Manager, Factory Manager, Technical Services Manager, Senior Project Engineer, Process 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 degree in Industrial Chemistry** from **The City University in London**. Further, he is a **Certified Instructor/Trainer, a Certified Internal Verifier/Trainer/Assessor** by the **Institute of Leadership & Management (ILM)** and has delivered numerous trainings, courses, workshops, conferences and seminars internationally.

### 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 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 &amp; Coffee</i>
0800 – 0815	<i>Welcome &amp; Introduction</i>
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Introduction</b>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Understanding Operational Principles &amp; Why Plants Get Upset</b>
1100 – 1230	<b>Roles &amp; Responsibilities</b>
1230 – 1245	<i>Break</i>
1245 – 1420	<b>Emergency Team Buildings &amp; Responsibilities of Each Member - Case Study</b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day One</i>

#### **Day 2**

0730 – 0900	<b>How Incidents Develop &amp; Common Reasons</b>
0900 – 0915	<i>Break</i>
0915 – 1100	<b>Review of Several Incidents</b> <i>Two Common Causes were Identified that Contributed to those Incidents</i>
1100 – 1230	<b>Improper Management of Manpower During Upset Conditions</b>
1230 – 1245	<i>Break</i>
1245 – 1420	<b>Improper Management of Manpower During Upset Conditions (cont'd)</b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day Two</i>

#### **Day 3**

0730 – 0930	<b>Root Cause Analysis (RCA)</b>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Risk Register</b>
1100 – 1215	<b>Incidents Development Scenarios - Discussion</b>



1215 – 1230	Break
1230 – 1420	<b>Incidents Development Scenarios – Discussion (cont’d)</b>
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Three

**Day 4**

0730 – 0930	<b>Emergency Team Building &amp; Improper Management of Manpower During Upset Conditions</b>
0930 – 0945	Break
0945 – 1100	<b>Improper Risk Assessment of Operation Conditions During Plant Upset</b>
1100 – 1215	<b>Risk Assessment &amp; Risk Evaluation</b> Risk Matrix
1215 – 1230	Break
1230 – 1420	<b>Recognizing Key Points &amp; Controlling Elements in Different Process</b>
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Four

**Day 5**

0730 – 0930	<b>Building Successful Emergency Team &amp; Each One Roles &amp; Responsibilities</b>
0930 – 0945	Break
0945 – 1100	<b>Closing Gaps &amp; Correcting Scenarios</b>
1100 – 1215	<b>Closing Gaps &amp; Correcting Scenarios (cont’d)</b>
1215 – 1230	Break
1230 – 1345	<b>Case Study &amp; Discussion</b>
1345 – 1400	<b>Course Conclusion</b>
1400 – 1415	<b>POST-TEST</b>
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course





### Simulator (Hands-on Practical Sessions)

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using our state-of-the-art “QRA System” simulators and “ASPEN HYSYS” simulator.

The screenshot displays the QRA System Simulator interface. It features a fault tree diagram on the right side, showing various failure events and their interrelationships. On the left, there is a tree view of the system components, including Engine System, Fuel System, Propeller, Wings System, Avionics, and Tires. In the center, a CDF (Cumulative Distribution Function) graph is shown, plotting CDF against Quantities. A table of statistics is also visible, providing numerical data for the simulation results.

STATISTIC	VALUE
Mean	0.3501
1st	0.183
5th	0.2262
10th	0.2544
50th	0.3513
90th	0.4439
95th	0.469
99th	0.5157

**QRA System Simulator**

The screenshot shows the ASPEN HYSYS V12.1 Simulator interface. The main window displays a process flow diagram (PFD) with a central boiler unit. The boiler is connected to a compressor (Com.) and a steam stream. Other components like BFW (Boiler Feed Water) and Air-I are also shown. The interface includes a navigation pane on the left and a model palette on the right, which contains various process units and equipment icons for building the simulation.

**ASPEN HYSYS V12.1 Simulator**

### Course Coordinator

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