





The course will cover the emerging industry trends, shutdown and startup benchmarking and the challenges to consistently achieve pacesetter results on plant shutdowns and startups. We will teach you how to fairly balance your business, marketing and financial goals with your plant needs for mechanical integrity and operational reliability. We will show you how to focus on risk areas, early work scope definition, high-performance initiatives, the assignment of qualified staff and the best practice contracting strategy.

The course will provide participants with a complete and up-to-date overview of the start-up of Process plants. It will also cover the troubleshooting of the start-up process. Upon the successful completion of this course, each participant will gain enough skills to anticipate and avoid problems associated with such start-up processes. Further, this course will provide participants with a satisfactory understanding of the organizational issues, estimation of required resources, CPM planning, mechanical integrity, troubleshooting, start-up operations, technical inspection, instrumentation/control systems, HSE and much other necessary knowledge associated with the process plant start-up. Actual case studies from around the world will be demonstrated to highlight the topics discussed.

### **Course Objectives**

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

- Apply systematic techniques in process plant shutdown, turnaround, troubleshooting, critical activities, isolation, start-up and commissioning
- Compile and define the scope of work and budget as well as operate and maintain inputs, identify pre-shutdown and start-up work and validate the work
- Illustrate the structure of shutdown including planning processes and their application
- Recognize shutdown team, materials and equipment
- Carryout shutdown organising, shutdown documentation, procurement and handover
- Execute shutdown and review feedback
- Control shutdown, apply starting up and handover and discuss health, safety and environment
- Employ process plant start-up, start-up operations, start-up progress monitoring and control
- Discuss instrumentation and control systems as well as apply performance and acceptance testing and preliminary tests
- Troubleshoot and solve problem in a professional manner
- Carryout change management covering the implementation of change, operational techniques and post commissioning audit



### 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 a complete and up-to-date overview of the process plant shutdown and start-up for those involved in the shutdown and start-up operations of a process plant. This includes refinery process engineers, team leaders, project managers, section heads, plant supervisors, refinery maintenance engineers, refinery maintenance supervisors, refinery maintenance planners, maintenance operations personnel, operational staff and contractor personnel involved in the shutdown and start-up process. Mechanical, electrical, instrumentation and control engineers and operators who are involved in process plant shutdown and start-up will definitely benefit from this course.

### 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 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 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 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, Piping Systems, 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's 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.



**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: Sunday, 18<sup>th</sup> of May 2025**

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Introduction to Shutdown</b> Compiling & Defining the Scope of Work and Budget • Operations & Maintenance Inputs • Kickoff Meeting Agenda - Structured Group Interviews • Identifying Pre-Shutdown & Start-up Work • Validating the Work
0930 – 0945	Break
0945 – 1100	<b>Structure of the Shutdown</b> Planning Lead Time – Planning Phase is Actually a Project on its Own • Project Work Hours and Shifts • Project Charter and Scope Control • Risks Assessment • Quality Control Requirements • Checklists and Action Item Lists • Class Task
1100 – 1215	<b>Planning Processes &amp; their Application</b> The Planning Tasks Cycle • Work Breakdown Structure, Organization Breakdown Structure • Activity Lists • Activity Information Determination-Duration, Resources, Costs • Dealing with Uncertainty in Job Estimates • Class Tasks
1215 – 1230	Break
1230 – 1420	<b>Shutdown Team, Materials &amp; Equipment</b> Organising the Shutdown Project Team-Selecting the Manager • Organising Contracts and Procurement • Tracking Shutdown Materials • Coordinating Support Equipment
1420 – 1430	<b>Recap</b> 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: Monday, 19<sup>th</sup> of May 2025**

0730 -0930	<b>Organising Shutdown</b> Organising the Shutting Down Meeting • Organising on Site Logistics • Organising Contract Work – Shifts, Labour and Technical Support
0930 – 0945	Break
0945 – 1100	<b>Organising Shutdown (cont'd)</b> Organising Tasks • Class Tasks
1100 – 1215	<b>Shutdown Documentation, Procurement &amp; Handover</b> Documentation Needed & its Organisation • Organising the Store & Procurement Processes (Before & During)
1215 – 1230	Break



1230 – 1420	<b>Shutdown Documentation, Procurement &amp; Handover (cont'd)</b> Organising Progress Feedback • Organising Start-up and Handover Work Packages
1420 – 1430	<b>Recap</b> Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today & Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day Two

**Day 3: Tuesday, 20<sup>th</sup> of May 2025**

0730 - 0930	<b>Shutdown Execution &amp; Feedback</b> Feedback Methods & Documentation • Meetings • Materials Management • Accounting – Time and Materials Systems for Feedback • Timeous Staging • Quality, Safety & Activity Completion • Class Tasks
0930 - 0945	Break
0945 - 1100	<b>Shutdown Execution &amp; Feedback (cont'd)</b> Accounting – Time & Materials Systems for Feedback • Timeous Staging • Tracking Shutdown Materials • Coordinating Support Equipment • Quality, Safety and Activity Completion • Class Tasks
1100 - 1215	<b>Control of Shutdown</b> Methods of Control • Time Control from Feedback • Money Control from Feedback • Class Tasks
1215 - 1230	Break
1230 - 1420	<b>Control of Shutdown (cont'd)</b> Scope Change & Impact Control • Project Acceleration • Contractor Controls & Safety Control
1420 – 1430	<b>Recap</b> Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today & Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day Three

**Day 4: Wednesday, 21<sup>st</sup> of May 2025**

0730 -0830	<b>Starting Up &amp; Handover</b> Schedules & Checklists • Completion Sign off Certificates • Payment Certificates (as Applicable) • Accounting Reports • Payment of Contractors
0830 - 0930	<b>Health, Safety &amp; Environment</b> Hazard & Operability Analysis (HAZOP) • Hazard Analysis (HAZAN) • Process Safety Management (PSM) • Root Cause Analysis and Why Trees • Risk Assessment • Hazard identification • Safety Training • HSE Problems and contingency plans • Safety Procedures and Implementation • Safety Manual
0930 – 0945	Break
0945 – 1100	<b>Process Plant Start-Up</b> Responsibilities & Authorities • Organizational Structure • Manpower & Staffing • Coordination Procedures • Leadership
1100 – 1215	<b>Start-Up Operations</b> Isolation of Vessels and Pipes • Types of Isolation • Initial Start-Up Activities • Steaming • Fuel Gas or Nitrogen Purge • Feed-in



1215 - 1230	Break
1230 - 1330	<b>Start-Up Progress Monitoring and Control</b> Planning for Success • Sequence by Units • Sequence by Systems • Recovery from False Starts
1420 - 1430	<b>Recap</b> Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today & Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day Four

**Day 5: Thursday, 22<sup>nd</sup> of May 2025**

0730 - 0930	<b>Instrumentation &amp; Control Systems</b> Instrument Commissioning • Start-up Problems and Causes
0930 - 0945	Break
0945 - 1100	<b>Performance Trials</b> Performance and Acceptance Testing, Preliminary Tests • Performance Test Runs
1100 - 1215	<b>Troubleshooting &amp; Problem Solving</b> Identification of Problems & Priorities • Resource Allocation & Teamwork • Data Collection & Solution Selection • Troubleshooting Techniques • RCFA & RCM • Murphy's Law
1215 - 1230	Break
1230 - 1300	<b>Change Management</b> Implementation of Change • Success Measures • Operational Techniques • Post Commissioning Audit • Close-out Certificates
1345 - 1400	<b>Course Conclusion</b> Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course
1400 - 1415	<b>POST-TEST</b>
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**

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