COURSE OVERVIEW PE0248
Process Plant Shutdown, Turnaround, Troubleshooting, Critical Activities, Isolation, Start Up & Commissioning

Course Title
Process Plant Shutdown, Turnaround, Troubleshooting, Critical Activities, Isolation, Start Up & Commissioning

Course Reference
PE0248

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

Course Date/Venue

Session(s)	Date	Venue
1	January 04-08, 2026	Safir Meeting Room, Divan Istanbul, Turkey
2	February 01-05, 2026	Olivine Meeting Room, Fairmont Nile City, Cairo Egypt

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.

The process industry is losing over a billion dollars of profits a year due to poor shutdown and startup results. The majority of shutdown and startup lacked strategic focus and front-end planning. In addition, shutdown & startup teams lacked leadership and were understaffed. The major negative factor is the growing gap between higher shutdown performance expectations and rapidly shrinking qualified resources to manage the shutdowns. As a result, the planning effort not only starts late, but it is also ineffective, and typically does not contribute in the shutdown success.

This course is designed to bridge the above-mentioned gap. It will provide participants with enough knowledge and skills to understand the purpose of the shutdown, to properly plan and manage the shutdown, and to achieve exponential results of their shutdown project. The course will teach participants how to establish a systematic shutdown management processes and procedures that incorporate the best shutdown practices, planning techniques and execution strategies.

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 ad 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

Istanbul	**US$ 6,000** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Cairo	**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

Haward's 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**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). 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:

Dr. Faysal Eliyan, PhD, MSc, BSc, is a **Senior Engineer** with extensive years of experience within the **Oil & Gas**, **Petroleum** and **Refinery** industries. His expertise widely covers in the areas of **Process Plant** Equipment, **Process Equipment Design**, Sizing, Selection, Applications & Troubleshooting, **Process Plant Optimization** Technology & Continuous Improvement, **Plant Operation**, **Troubleshooting & Optimization**, **Gas Conditioning & Processing**, **Plant Layout Optimization**, **Concrete Structural Design**, **Concrete Maintenance & Reliability Analysis**, **Civil Engineering** Drawings, Standards & Codes, **Civil Engineering** Design, Petrochemical Plant Structure Design & Remediation, Elements of **Applied Civil Engineering**, **Dynamic Analysis of Rotating Equipment** Foundations **& Structural Steel Piperacks**, **Concrete & Structural Steel Design**, **Steel Structure Design**, Advanced **Building Construction Technology**, **Structural Engineering** Techniques, **Structural Renovation of Buildings**, **Earthwork & Structural Maintenance**, **Surface Drainage**, **Drainage System**, **Building Envelopes & Finishes**, **Landscaping & Roofing** System, **Seismic Design** for Buildings, **AutoCAD**, Advanced **Seismic & Wind Design of Reinforced Concrete**, **Structural** Systems & Components, Design of **Concrete Columns & Beam Frames**, Design of **Foundations & Equipment Footings**, **Maintenance of Concrete Structure**s, **Structural Reliability Assessment**, **Codes & Structural Reliability**, Probabilistic Evaluation of Existing Structures, **Structural Steel**, **Precast Concrete** and **Reinforced Polymer Layered Steel**. Further, he is also well-versed in **Gas Turbines**, **Steam Turbines, Heat Exchangers** Inspection, Testing & Overhaul Cleaning, Heating, Ventilation & Air Conditioning (**HVAC**), **Fans & Blowers**, **Heaters** & **Boilers**, **Compressors**, **Maintenance Planning & Scheduling**, **Pumps & Compressors** Operation & Maintenance, **Valves Technology** Selection, Installation & Troubleshooting, **Cooling Towers**, **Rotating Equipment**, **Turbomachinery**, **Condition Monitoring** & **Diagnostics**, **Hydraulic** & **Pneumatic Systems** Maintenance & Troubleshooting, **Piping Systems**, **Corrosion Control** & **Materials Selection** in Oil and Gas and Water Systems, **Machinery Alignment** & **Balancing**, **Maintenance Management**, **Operational Problems & Failure Analysis**, **Energy Performance Assessment** of **Powerplants**, **Plant Operations**, **Project Management**, **Six Sigma** and **Health**, **Safety** & **Environment**.

During his career life, Dr. Faysal has gained his practical and field experience through his various significant positions and dedication as the **Assistant Professor**, **Senior Consultant**, **Laboratory Instructor**, **Lecturer**, **Tutor**, **Mentor**, **Advisor**, **Trainer**, **Engineering Manager**, **Senior Engineer**, **Senior Project Engineer**, **Engineer** and **Adjudicator** from various institutions and universities such as the Community College of Qatar, American University of the Middle East, McMaster University, The University of British Columbia, The University of British Columbia, Qatar University and General Electric, just to name a few.

Dr. Faysal has **PhD**, **Master** and **Bachelor** degrees in **Engineering** from the **University of British Columbia** (**Canada**). He is a **Certified Instructor/Trainer**, a member of the **Chamber of Civil Engineers**, **Structural Stability Research Council**, **American Institute of Steel Construction** and **American Society of Civil Engineers** (**ASCE**), **USA**. He also **published numerous books**, **researches** and **scientific papers** and received several awards and recognitions for **Journal of Materials Engineering and Performance** and has further delivered numerous trainings, courses, seminars, workshops 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	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Introduction to Shutdown*** *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	***Structure of the Shutdown*** *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	***Planning Processes & their Application*** *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	***Shutdown Team, Materials & Equipment*** *Organising the Shutdown Project Team–Selecting the Manager ● Organising Contracts and Procurement ● Tracking Shutdown Materials ● Coordinating Support Equipment*
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 -0930	***Organising Shutdown*** *Organising the Shutting Down Meeting ● Organising on Site Logistics ● Organising Contract Work – Shifts, Labour and Technical Support*
0930 – 0945	*Break*
0945 – 1100	***Organising Shutdown (cont'd)*** *Organising Tasks ● Class Tasks*
1100 – 1215	***Shutdown Documentation, Procurement & Handover*** *Documentation Needed & its Organisation ● Organising the Store & Procurement Processes (Before & During)*
1215 – 1230	*Break*

1230 – 1420	***Shutdown Documentation, Procurement & Handover (cont'd)*** *Organising Progress Feedback ● Organising Start-up and Handover Work Packages*
1420 – 1430	***Recap*** *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

0730 - 0930	***Shutdown Execution & Feedback*** *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	***Shutdown Execution & Feedback (cont'd)*** *Accounting – Time & Materials Systems for Feedback ● Timeous Staging ● Tracking Shutdown Materials ● Coordinating Support Equipment ● Quality, Safety and Activity Completion ● Class Tasks*
1100 - 1215	***Control of Shutdown*** *Methods of Control ● Time Control from Feedback ● Money Control from Feedback ● Class Tasks*
1215 - 1230	*Break*
1230 - 1420	***Control of Shutdown (cont'd)*** *Scope Change & Impact Control ● Project Acceleration ● Contractor Controls & Safety Control*
1420 – 1430	***Recap*** *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

0730 -0830	***Starting Up & Handover*** *Schedules & Checklists ● Completion Sign off Certificates ● Payment Certificates (as Applicable) ● Accounting Reports ● Payment of Contractors*
0830 - 0930	***Health, Safety & Environment*** *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	***Process Plant Start-Up*** *Responsibilities & Authorities ● Organizational Structure ● Manpower & Staffing ● Coordination Procedures ● Leadership*
1100 – 1215	***Start-Up Operations*** *Isolation of Vessels and Pipes ● Types of Isolation ● Initial Start-Up Activities ● Steaming ● Fuel Gas or Nitrogen Purge ● Feed-in*

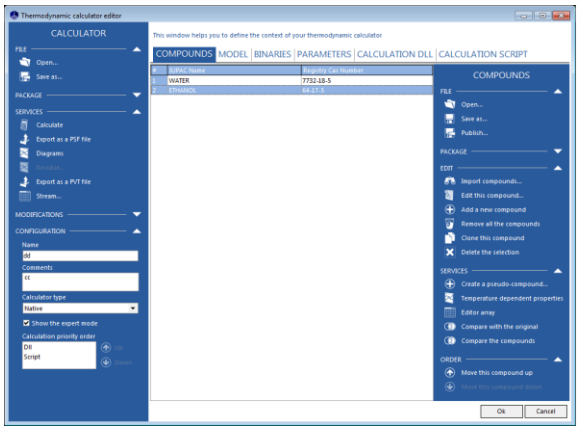
1215 – 1230	*Break*
1230 – 1330	***Start-Up Progress Monitoring and Control*** *Planning for Success ● Sequence by Units ● Sequence by Systems ● Recovery from False Starts*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed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

Day 5

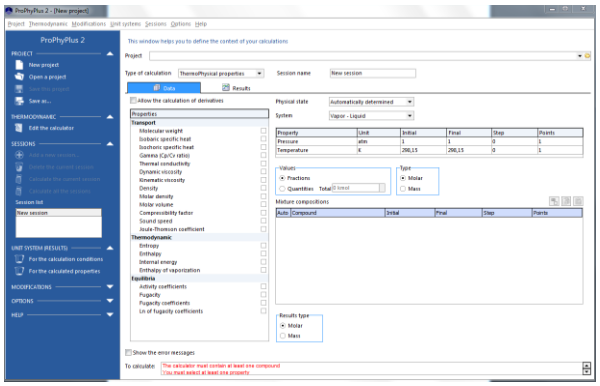
0730 – 0930	***Instrumentation & Control Systems*** *Instrument Commissioning ● Start-up Problems and Causes*
0930 – 0945	*Break*
0945 – 1100	***Performance Trials*** *Performance and Acceptance Testing, Preliminary Tests ● Performance Test Runs*
1100 – 1215	***Troubleshooting & Problem Solving*** *Identification of Problems &Priorities ● Resource Allocation & Teamwork ● Data Collection & Solution Selection ● Troubleshooting Techniques ● RCFA & RCM ● Murphy's Law*
1215 – 1230	*Break*
1230 – 1300	***Change Management*** *Implementation of Change ● Success Measures ● Operational Techniques ● Post Commissioning Audit ● Close-out Certificates*
1345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course*
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Simulator (Hands-on Practical Sessions)

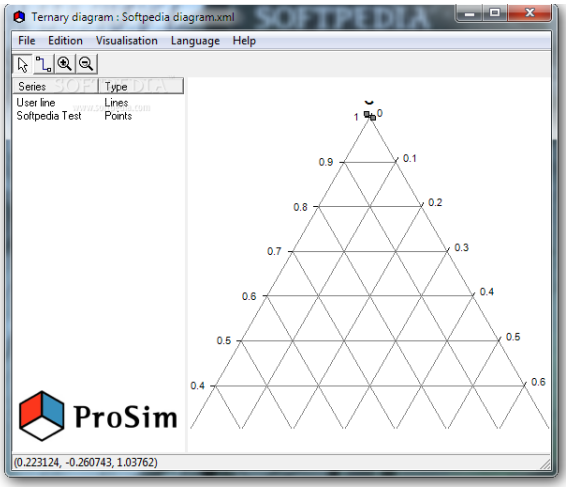
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the "Simulis Thermodynamics", "ProPhyPlus", "ProSim Ternary Diagram", "Simulis Conversions" simulators and "ASPEN HYSYS" simulator.



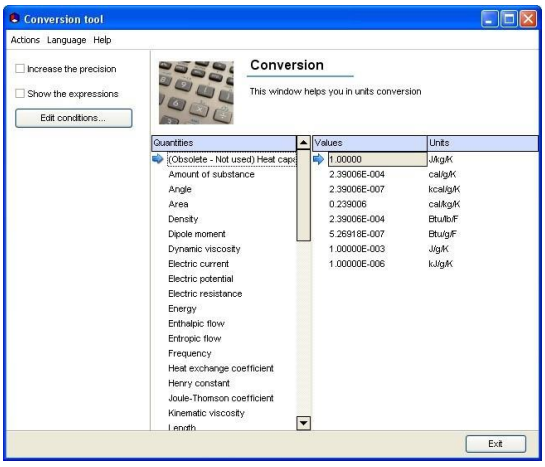
Simulis® Thermodynamics



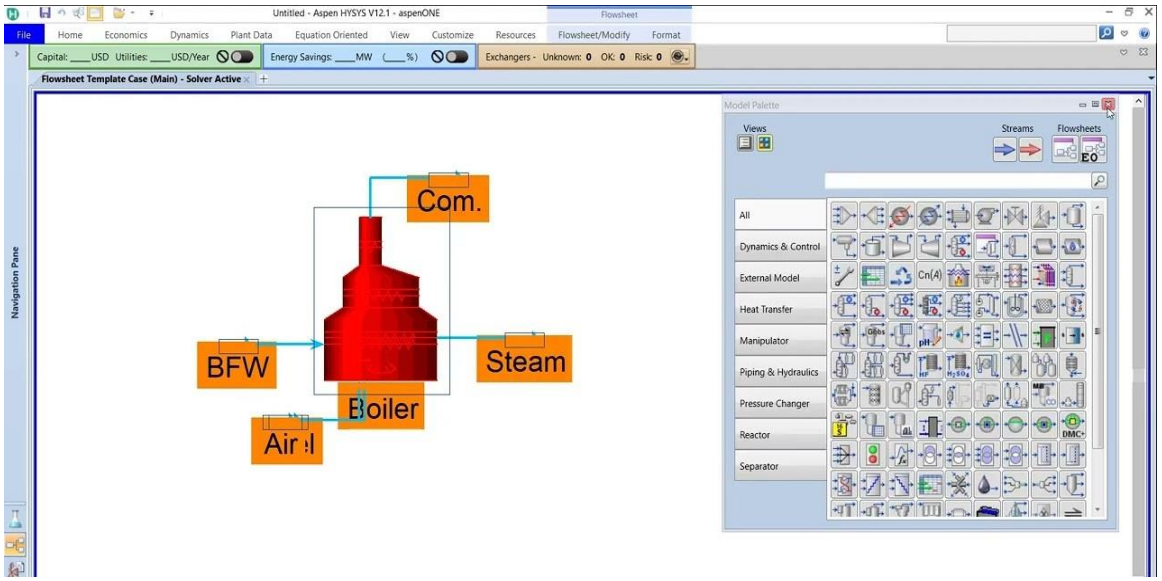
ProPhyPlus



ProSim Ternary Diagram



Simulis Conversions



ASPEN HYSYS V12.1 Simulator

Course Coordinator

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