COURSE OVERVIEW RE0930
Process Plant Shutdown, Turnaround & Troubleshooting

Course Title
Process Plant Shutdown, Turnaround & Troubleshooting

Course Date/Venue
August 04-08, 2024/Nisantasi Meeting Room, Point Hotel Taksim, Istanbul, Turkey

Course Reference
RE0930

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.

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

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

Turnaround results have a long-term effect on the facility's operational reliability and it dictates the plant's operational efficiency and business survival in the competitive global market. The turnaround performance can be dramatically improved if companies focus on key issues such as strategic planning, selection of qualified contractors, synergistic and innovative organizations, and tactical initiative to improve field productivity.

The course will cover the emerging industry trends, turnaround benchmarking and the challenges faced by plant executives to consistently achieve pacesetter results on plant shutdowns and turnarounds. 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. Upon the completion of this course, you will have good knowledge to perform World-Class turn arounds.

Course Objectives

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

- Get a certificate as a "*Professional Turnaround Manager*"
- Apply systematic techniques in the shutdown, turnaround and troubleshooting of process plants
- Implement the special needs of time constrained projects (24/7)
- Identify the work to be accomplished for the shutdown project
- Plan to meet deadlines & complete turnaround projects on time within budget
- Apply shutdown best practices
- Plan, lead, organize, control and co-ordinate shutdown type projects
- Schedule the work effectively
- Manage resources effectively
- Implement feedback systems
- Identify risks and manage these effectively
- Reporting and documenting the shutdown activity
- Recognize the use of software packages

Who Should Attend

This course is intended for those involved directly or indirectly in the plant shutdown and turnaround operations. This includes maintenance and project staff such as managers, engineers, planners, supervisors and other technical people.

Course Fee

US$ 6,000 per Delegate + **VAT**. This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

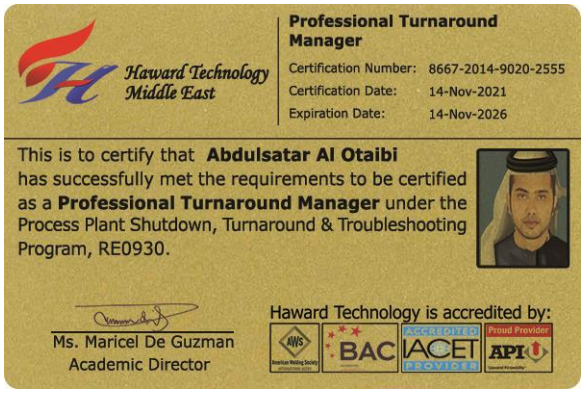
Course Certificate(s)

(1) Internationally recognized Competency Certificates and Plastic Wallet Cards will be issued to participants who completed a minimum of 80% of the total tuition hours and successfully passed the exam at the end of the course. Certificates are valid for 5 years.

Recertification is FOC for a Lifetime.

Sample of Certificates

The following are samples of the certificates that will be awarded to course participants:-



(2) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ANSI/IACET accredited Continuing Education Units (CEUs)

Haward Technology Middle East

Continuing Professional Development (HTME-CPD)

CEU Official Transcript of Records

TOR Issuance Date: 14-Nov-21

HTME No. 8667-2014-9020-2555

Participant Name: Abdulsatar Al Otaibi

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
RE0930	Process Plant Shutdown, Turnaround & Troubleshooting	10 Nov-14 Nov, 2021	30	3.0

Total No. of CEU's Earned as of TOR Issuance Date **3.0**

TRUE COPY

Jaryl Castillo
Academic Director

Haward Technology has been approved as an Authorized Provider by the International Association for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this approval, Haward Technology has demonstrated that it complies with the ANSI/IACET 1-2013 Standard which is widely recognized as the standard of good practice internationally. As a result of their Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for programs that qualify under the ANSI/IACET 1-2013 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 Association 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 is accredited by

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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: -

- 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.

- 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. Saleh Aich is a **Senior Mechanical & Maintenance Engineer** with over **20 years** of extensive experience within the **Oil & Gas**, **Petrochemical** and **Refining** industries. His expertise widely covers in the areas of **Shutdown & Turnaround**, **Maintenance Planning & Scheduling**, **Reliability Maintenance** Management, **Spareparts & Inventory** Management, **Combustion** Techniques, **Combustion** System Performance, **Pump** Operation & Maintenance, **Compressor** Maintenance & Troubleshooting, **Gas Turbine** Control & Protection Systems, **Valve** Troubleshooting & Maintenance, **Vibration** Analysis, **Oil** Analysis, **Dry Gas Seals**, Packing & Mechanical **Seals**, **Seal** Support Systems, **Mechanical Seal** Failure Analysis & Troubleshooting, **Seal** Maintenance & Repair, **Bearing** Care & Maintenance, **Couplings & Alignment**, **Alignment Methods**, Troubleshooting **Piping & Pipe Support** Systems, **Heat Exchangers** Maintenance & Inspection, **Pressure Vessel** Design, Fabrication & Testing, **Burners**, **Blowers**, Piston & Plunger **Gearboxes**, Fin-Fans, Separators, Expansion Drums, Filters, Molecule Sieve, Tanks, Fittings, Root Cause Failure Analysis (**RCFA**), Computerized Maintenance Management System (**CMMS**), **Maintenance** Management, **Planning & Scheduling** Work Management, **Parts & Inventory** Management, **Turnaround & Shutdowns**, **Condition Monitoring**, Regeneration Unit, NGL & Condensate, **Furnace** Operation & Troubleshooting, Performance Measure & Indicators, Total Productive Maintenance (**TPM**), **Preventive & Predictive** Maintenance Analysis, **Rotating & Static Equipment**, **Machinery & Equipment** Failure Analysis, **Gas & Steam Turbines**, **Boilers**, **Coolers**, **Diesel & Gas Engines**, **Heaters**, **Separators**, **Storage Tanks**, H_2S and ISO 9001:2008 Internal Quality Management System.

During his career life, Mr. Saleh has gained his practical and field experience through his various significant positions and dedication as the **Maintenance Instructor**, **Mechanical Supervisor**, **Maintenance Engineer**, **Mechanical Engineer**, **Contract Engineer**, **Planning Engineer** and **Senior Instructor/Lecturer** for various multi-national companies such as the ADNOC Gas Processing (**GASCO**), **ConocoPhillips** and Syrian Gas Company.

Mr. Saleh has a **Bachelor** degree in **Mechanical Engineering**. Further, he is a **Certified Instructor/Trainer** and has acquired various certifications and has further delivered numerous training, courses, workshops, seminars and conferences worldwide.

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: ***Sunday, 04th of August 2024***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0900	***Introduction & Fundamentals*** *Introduction to PM: What is a Project? ● PM Associations & Body of Knowledge ● Project Management Body of Knowledge (PMBOK) ● Project Management Elements ● Projects Environment ● Project Life Cycle Phases ● Project Managers Job profile ● Project Manager Job Description ● Project Management Skills ● Project Management Toolkit*
0900 – 0915	***Planning the Shutdown*** *Identifying the Work ● Starting Your Project ● Project Charter/Project Document ● Defining & Limiting the Scope ● Constraints of the Shutdown*
0915 - 0945	***Prioritizing the Proposed Work*** *Identifying the Work ● Review the Maintenance Backlog ● Jobs Not Requiring a Shutdown ● Equipment History ● Predictive Maintenance (PDM) Records ● Preliminary Work of Shutdown ● Walk-downs & Check Lists ● Solicit the Input of Others ● Reviewing Shutdown Files ● Identify Start-up Activity ● Compiling Identified Work*
0945 – 1000	*Break*
1000 – 1030	***Sources of Shutdown Work & Shutdown Project Parameters*** *Class Task*
1030 – 1100	***Risk Management*** *Staffing Assumptions ● Estimate Risks ● Commercial Data ● Procurement Problems ● Project Risk Management - Model*
1100 – 1200	***Risk Management Plan*** *Identify Risks Throughout the Project ● Develop Risk Assessment Criteria ● Tabulate The Risks ● Prepare Standby Plans or Alternatives*
1200 - 1230	***The Project Managers Role***

1230 – 1245	Break
1245 – 1330	***Quality Control Plan & Project Quality Management***
1330 - 1400	***Quality Management*** Group Task
1400 - 1420	***Shutdown Manager's Skills***
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: Monday, 05th of August 2024

0730 – 0930	***Planning Processes*** Doing the Right Work ● Doing The Work Right ● Doing The Work at the Right Time
0930 - 0945	Break
0945 – 1015	***What is the Difference Between Planning & Scheduling?*** What is Scheduling? ● Planning Objectives ● Planning Tools Cycle
1015 – 1045	***Project Management Toolkit*** Project Plan ● Shutdown Plan
1045 – 1115	***Shutdown Definition*** The Shutdown Work Breakdown Structure ● The Project WBS – It's Uses ● The Project Work Breakdown Structure ● The Shutdown Budget ● The Project OBS ● The Shutdown OBS ● The Shutdown WBS
1115 - 1130	***The Shutdown WBS & SOW*** Group Task
1130 – 1200	***Planning Thought Process*** What Must Happen First on the Job? ● Who Must Do This Step? ● How Many People Are Required? ● What Parts, Materials, or Supplies Will Be Needed? ● Is Any Support Equipment Required? ● How Long Will It Take? ● What Must Happen Next on this Job? ● Documentation
1200 – 1215	***Determining Contract Work*** Technical Support ● Non-technical Support ● Work That Can Be Performed Off-site ● Work Requiring Special Equipment ● Activities from WBS ● Activities Data ● Task Duration – PERT Method ● Activity Work Content & Costing/Pricing
1215 - 1230	Break
1230 - 1330	***Base Line Plan with Budget Approval*** Networks For Activity Logic – Overview & Convention ● Shutdown– Early Start Calculations – Forward ● Project Plan – Late Start Calculations-backwards, Float Calculations – Subtract & Network to Gantt Chart ● Common Network Errors ● Schedules ● Milestones
1330 – 1420	***Base Line Plan with Budget Approval (cont'd)*** Resource Utilization ● Milestone Plan & Chart ● Resource Utilization ● Resource Loading & Leveling ● Schedules: Resource Requirements ● Manual Load Leveling
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:	Tuesday, 06th of August 2024
0730 – 0900	***Base Line Plan with Budget Approval (cont'd)*** *Leveling Other Resources ● Resource Utilization ● Budgets & Committed Cash Flow ● Tracking Project Costs ● The Basic Principle ● Base Line Plan*
0900 – 0930	***Shutdown – Network Logic, Schedules: Committed Cash Flow & Schedules: Actual Projected Cash Flow*** *Group Task*
0930 - 0945	*Break*
0945 - 1015	***Organizing & People Management*** *Shutdown Toolkit ● The Shutdown Organisation ● Organizing Tools & Techniques ● Most Important Communications ● Tender / Contract Clause Coverage ● Parts, Material & Equipment ● Material & Equipment Responsibility*
1015 - 1115	***Organizing & People Management (cont'd)*** *Tracking Long Delivery Items ● Accounting ● Reporting Structure ● Assigning Responsibility ● Shutting Down Meeting ● Organization Breakdown Structure (OBS)*
1115 - 1145	***Organizing*** *Group Task*
1145 – 1215	***The Matrix Organisation*** *Administration ● Communication ● Forms, Formats & Files ● Project File ● Shut Down Toolkit- Resource Utilization*
1215 – 1230	*Break*
1230 – 1330	***Leadership Tools & Techniques*** *Team Selection – Organisation ● - Motivation ● - Shutdown Sponsor Role*
1330 – 1420	***Execution & Feedback*** *The Execution Phase ● Shutdown Practical Execution Issues ● Feedback on Project Status ● Job Status Update ● Feedback on Project Status ● Feedback on Project Status: Costs*
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:	Tuesday, 06th of August 2024
0730 – 0930	***Execution & Feedback (cont'd)*** *Project Practical Control ● Project Review Meeting ● Materials Management ● Staging/Rigging ● Shutdown Safety ● OSHA Requirements*
0930 - 0945	*Break*
0945 – 1015	***Quality Control Plan (QCP) Information*** *Cost of Quality ● Inspection Reports ● Activity Inspection Results ● Quality Control Sheet*
1015 – 1100	***Quality*** *Group Task*

1100 – 1230	***Proven Turnaround Practices*** *The Nature of Turnaround/Shutdown Project Management ● The Environment In Which a Turnaround/Shutdown Takes Place ● Turnaround/Shutdown Success Factors ● More Success Factors ● Similar Planning Approach To Projects ● Elements of a Turnaround/Shutdown ● Turnaround/Shutdown Toolkit ● The Work Breakdown Structure (WBS) & the Organization Breakdown Structure (OBS) ● Identifying the Work ● General Shutdown/Turnaround Checklist ● Planning A Plan ● Milestone Plan ● Milestone Chart ● Work Scope ● Budgets & Cost Control ● Projects*
1230 - 1245	*Break*
1245 - 1400	***Proven Turnaround Practices (cont'd)*** *Materials ● Process Operations ● Pre-shutdown/Pre-turnaround Reviews ● Safety ● Typical Safety Questions That Should Be Asked ● Inspection ● Contracting ● Quality: What is Required? ● Quality Control Plan (QCP) ● Quality Control Plan (QCP) Inspection Report ● Quality Control Sheet ● Risk Management ● Shutdown/Turnaround Practices Discussion*
1400 – 1420	***Control of Shutdown*** *Control Tools & Techniques ● Tracking Project Costs ● Project Practical Control ● Controlling ● Control – Overview ● Control: CSCS = Cost Schedule Control System ● Control Cycle –CSCS ● CSCS Illustrative Graph ● Scope Control*
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*

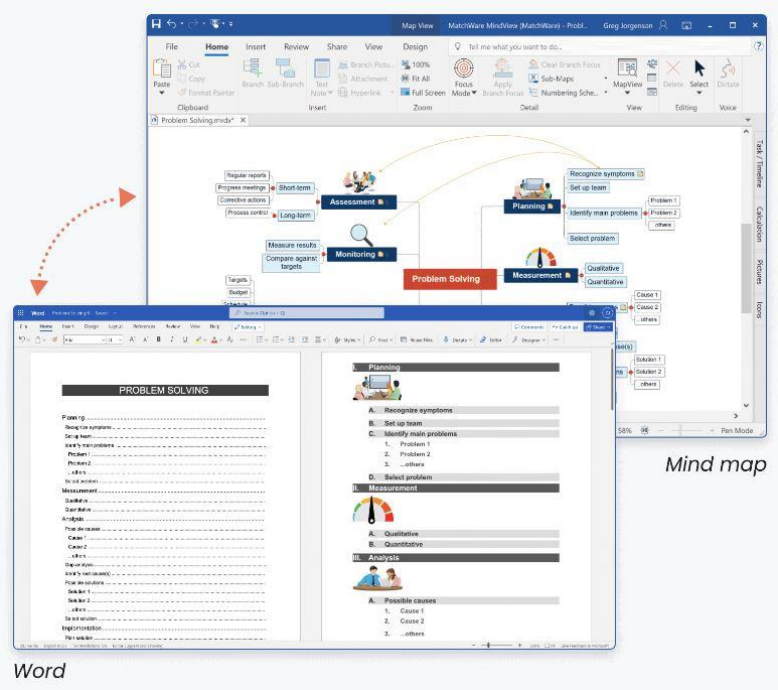
Day 5: ***Wednesday, 07th of August 2024***

0730 - 0930	***Control of Shutdown (cont'd)*** *Shutdown & Turnaround ● Shutdown Acceleration ● Project Acceleration ● Contractor Controls ● Control Tools & Techniques ● Tracking Project Costs ● Project Practical Control ● Controlling ● Control – Overview*
0930 - 0945	*Break*
0945 - 1015	***Control of Shutdown (cont'd)*** *Control: CSCS = Cost Schedule Control System ● Control Cycle –CSCS ● CSCS Illustrative Graph ● Scope Control ● Shutdown & Turnaround ● Shutdown Acceleration ● Project Acceleration ● Contractor Controls*
1015 - 1030	***Accelerating a Project & Start-up & Handover*** *Group Task*
1030 – 1100	***Start-up & Handover*** *Elements of Handover ● Contactor Handover ● Final Report ● Conclusion*
1100 – 1200	***Use of Computer & Software*** *Project Management Software ● Sorting & Communicating Information*
1200 – 1230	***Using Microsoft Project & Shutdown Workshop*** *Group Task*
1230 – 1245	*Break*

1245 – 1300	***Typical Causes of Shutdown Failure*** *Work not Clearly Defined ● Risks not Analysed or Managed with Contingency Plans ● No Baseline Plan –Poor or Non-existent Planning ● Lack of Scope Management ● Poor Leadership ● Not Taking Environmental needs into the Plan ● Focus on Critical Path items only- the Rest Catch up with you*
1300 – 1315	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course*
1315 – 1415	***COMPETENCY EXAM***
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 "MS Project" and "Mindview Software".



Mindview Software

Course Coordinator

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