COURSE OVERVIEW RE0982

Advanced Turnaround Planning & Cost Optimization

Course Title
Advanced Turnaround Planning & Cost Optimization

Course Date/Venue
July 06-10, 2025/Meeting Plus 9, City Centre Rotana, Doha, Qatar

Course Reference
RE0982

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

Course Description

This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.

This course is designed to provide participants with a detailed and up-to-date overview of Advanced Turnaround Planning & Cost Optimization. It covers the turnaround management covering the definitions and scope of a turnaround, strategic importance to asset and comparison with shutdowns and outages; the turnaround types and planning horizons, turnaround lifecycle phases, TAR organization structure and governance, stakeholder engagement and alignment and readiness review and gate process; the turnaround scope development, worklist development and validation, detailed planning and job pack preparation, scheduling techniques and tools, integration with routine maintenance and projects; and long lead items and procurement coordination.

During this interactive course, participants will learn the turnaround risk management, resource planning and optimization, budgeting and cost estimation, cost control and forecasting; the contractor management and strategy, productivity and performance monitoring, mobilization and site setup and execution phase management; the HSE planning and compliance, quality assurance and control, mechanical completion and system handover and technology in turnaround execution; the closeout planning and execution, performance review and KPI analysis, cost optimization strategies, turnaround digitalization and industry 4.0 and continuous improvement framework.

Course Objectives

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

- Apply and gain an advanced knowledge on turnaround planning and cost optimization
- Discuss turnaround management covering the definitions and scope of a turnaround, strategic importance to asset and comparison with shutdowns and outages
- Identify turnaround types and planning horizons, turnaround lifecycle phases, TAR organization structure and governance, stakeholder engagement and alignment and readiness review and gate process
- Explain turnaround scope development, worklist development and validation, detailed planning and job pack preparation, scheduling techniques and tools, integration with routine maintenance and projects and long lead items and procurement coordination.
- Employ turnaround risk management, resource planning and optimization, budgeting and cost estimation, cost control and forecasting as well as discuss contractor management and strategy, productivity and performance monitoring, mobilization and site setup and execution phase management
- Carryout HSE planning and compliance, quality assurance and control, mechanical completion and system handover and technology in turnaround execution
- Implement closeout planning and execution, performance review and KPI analysis, cost optimization strategies, turnaround digitalization and industry 4.0 and continuous improvement framework

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 advanced turnaround planning and cost optimization for reliability engineers, cost engineers, turnaround managers, plant managers, production supervisors, maintenance planners and schedulers, budget analysts, procurement specialists, HSE officers involved in shutdown safety, consultants advising on turnaround optimization nd 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.

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:

Mr. Andrew Ladwig is a **Senior Process & Mechanical Maintenance Engineer** with over **25 years** of extensive experience within the **Oil & Gas**, **Refinery**, **Petrochemical & Power** industries. His expertise widely covers in the areas of **Ammonia Manufacturing & Process Troubleshooting**, **Distillation Towers**, **Crude Oil Distillation**, **Ammonia Storage & Loading** Systems, **Operational Excellence** in **Ammonia Plants**, **Fertilizer Storage** Management (Ammonia & Urea), **Fertilizer Manufacturing** Process Technology, **Sulphur Recovery**, Phenol Recovery & Extraction, **Refining Process & Petroleum Products**, **Refinery Planning & Economics**, **Hydrotreating & Hydro-processing**, **Separators** in **Oil & Gas** Industry, **Gas Testing & Energy** Isolations, **Industrial Liquid Mixing**, **Extractors**, **Fractionation**, **Water Purification**, **Water Transport** & Distribution, **Environmental Emission Control**, **Process Plant** Troubleshooting & Engineering Problem Solving, **Process Plant Performance**, **Plant Startup & Shutdown**, **Process Troubleshooting** Techniques and Oil & Gas Operation/Surface Facilities. Further, he is also well-versed in **Rotating Machinery** (**BRM**), **Rotating Equipment** Operation & Troubleshooting, Root Cause Analysis (**RCA**), **Process Plant** Shutdown, Turnaround & Troubleshooting, Planning & Scheduling **Shutdowns & Turnarounds**, Optimizing **Equipment Maintenance** & Replacement Decisions, **Maintenance Planning & Scheduling**, **Material Cataloguing**, Maintenance, Reliability & Asset Management Best Practices, **Storage Tanks Operations** & Measurements, **Tank** Inspection & Maintenance, **Pressure Vessel** Operation, **Flare & Relief** System, **Flaring System** Operation, **PSV** Inspection & Maintenance, **Centrifugal & Reciprocating Compressor**, **Screw Compressor** Troubleshooting, **Heat Exchanger** Overhaul & Testing, **Pipe Stress** Analysis, **Control Valves & Actuators**, **Vent & Relief System**, **Centrifugal & Reciprocating Pump** Installation & Repair, **Heat Exchanger** Troubleshooting & Maintenance, **Steam Trapping & Control**, **Control & ESD** System and Detailed Engineering Drawings, Codes & Standards.

During his career life, Mr. Ladwig has gained his practical experience through his various significant positions and dedication as the **Mechanical Engineer**, **Project Engineer**, **Reliability & Maintenance Engineer**, **Maintenance Support Engineer**, **Process Engineer**, **HSE Supervisor**, **Warehouse Manager**, **Quality Manager**, **Business Analyst**, **Senior Process Controller**, **Process Controller**, **Safety Officer**, **Mechanical Technician**, **Senior Lecturer** and **Senior Consultant/Trainer** for various companies such as the Sasol Ltd., Sasol Wax, Sasol Synfuels, just to name a few.

Mr. Ladwig has a **Bachelor's** degree in **Chemical Engineering** and a **Diploma** in **Mechanical Engineering**. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**) and has delivered various trainings, workshops, seminars, courses and conferences internationally.

Accommodation

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

Course Fee

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

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	***Overview of Turnaround Management*** *Definitions and Scope of a Turnaround • Strategic Importance to Asset Reliability and Availability • Comparison with Shutdowns and Outages • Organizational and Economic Impacts*
0930 - 0945	*Break*
0945 – 1045	***Turnaround Types & Planning Horizons*** *Major, Mini, Emergency and Rolling Turnarounds • Long-Term versus Tactical Planning Timelines • Integration with Asset Lifecycle and Maintenance Plans • Multi-Year TAR Forecasting Strategies*
1045 - 1145	***Turnaround Lifecycle Phases*** *Initiation and Concept Development • Planning and Preparation • Execution and Closeout • Lessons Learned and Feedback Loops*
1145 - 1230	***TAR Organization Structure & Governance*** *Roles and Responsibilities (TAR Manager, Planner, Scheduler) • Project Steering Committees and Stakeholder Involvement • Communication Flow and Chain of Command • Use of RACI Matrices*
1230 – 1245	*Break*
1245 – 1330	***Stakeholder Engagement & Alignment*** *Engaging Operations, HSE, Procurement, and Finance • Managing Cross-Functional Interfaces • Expectations and Success Criteria Alignment • Change Management and Communication Plan*
1330 - 1420	***Readiness Review & Gate Process*** *Stage-Gate Planning Methodology • Readiness Checklist for Each Phase • Assurance Review Process • Red-Amber-Green (RAG) Status Assessments*
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	***Turnaround Scope Development*** *Scope Identification Sources: Inspection, Reliability, History • Must-Do versus Nice-to-Do versus Regulatory Scope • Risk-Based Work Selection (RBWS) • De-Scoping and Scope Freezing Processes*

0830 – 0930	***Worklist Development & Validation*** *Worklist Creation: Format and Structure • Work Pack Development (Scope, Drawings, Tools, Permits) • Work Categorization and Craft Discipline Mapping • Scope Walkdowns and Finalization*
0930 - 0945	*Break*
0945 – 1130	***Detailed Planning & Job Pack Preparation*** *Work Breakdown Structure (WBS) and Coding • Task Sequencing and Step-Wise Job Plans • Man-Hour and Resource Estimation • Safety and Quality Planning Integration*
1130 - 1230	***Scheduling Techniques & Tools*** *Network Logic, Critical Path and Float • Gantt Charts and Bar Schedules • Primavera P6/MS Project Usage • Daily, Weekly and Window Schedules*
1230 - 1245	*Break*
1245 - 1330	***Integration with Routine Maintenance & Projects*** *Interface Management with Capital and Minor Projects • Mitigating Conflict with Preventive Maintenance • Shared Resources and Equipment Planning • Turnaround Isolation and Handover Strategy*
1330 - 1420	***Long Lead Items & Procurement Coordination*** *Identifying Long Lead Materials and Spares • BOM Validation and Vendor Coordination • Expediting and Inspection Strategies • Material Control and Delivery Tracking*
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	***Turnaround Risk Management*** *Risk Register Creation and Review • Risk Assessment and Mitigation Hierarchy • Impact Analysis on Scope, Cost and Schedule • Monitoring and Updating Risk Profile*
0830 – 0930	***Resource Planning & Optimization*** *Craft Manpower Loading Curves • Third-Party Contractor Planning • Equipment, Scaffolding and Crane Planning • Accommodation and Welfare Logistics*
0930 - 0945	*Break*
0945 – 1130	***Budgeting & Cost Estimation*** *Estimating Techniques: Bottom-Up, Analogous, Parametric • Fixed versus Variable and Direct versus Indirect Costs • Building TAR Cost Models and Benchmarks • Budget Approval and Alignment with Business*
1130 - 1230	***Cost Control & Forecasting*** *Earned Value Management (EVM) Principles • Budget versus Actual Cost Tracking • Forecasting Final Cost (Estimate at Completion) • Cost Trend Analysis and Variance Reporting*
1230 - 1245	*Break*
1245 - 1330	***Contractor Management & Strategy*** *Contract Strategy: Lump Sum, T&M, Unit Rate • Contractor Prequalification and Onboarding • Performance KPIs and Daily Reporting • Conflict and Claim Prevention*

1330 - 1420	***Productivity & Performance Monitoring*** *Craft Efficiency and Productivity Metrics • Daily Execution Reports and KPIs • Downtime and Idle Time Tracking • Workfront Availability Management*
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	***Mobilization & Site Setup*** *Pre-Shutdown Preparation Checklist • Site Layout and Access Control • Temporary Facilities Setup • Tool Cribs and Material Laydown*
0830 – 0930	***Execution Phase Management*** *Workfront Control and Permitting • Shift Handover and Daily Meetings • Managing Rework and Emergent Work • Real-Time Decision Making and Escalation*
0930 - 0945	*Break*
0945 – 1130	***HSE Planning & Compliance*** *Pre-Job Risk Assessments and Toolbox Talks • Safety Assurance Plans and Leadership Walkdowns • Permit to Work (PTW) System • Incident Prevention and Response Planning*
1130 - 1230	***Quality Assurance & Control*** *ITPs and QC Hold Point Definition • Inspection Coordination and Punch Listing • Weld/NDT Coordination and Documentation • QA/QC Record Compilation and Turnover*
1230 - 1245	*Break*
1245 - 1330	***Mechanical Completion & System Handover*** *Definition of Mechanical Completion versus Commissioning • Punch List Classification (A/B/C) • System Walkdowns and Sign-Offs • Handover to Operations Process*
1330 - 1420	***Technology in Turnaround Execution*** *Use of Drones for Inspection and Surveillance • Mobile Apps for Field Execution and Reporting • Barcoding and RFID for Material Tracking • Digital Dashboards and KPI Visualization*
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*

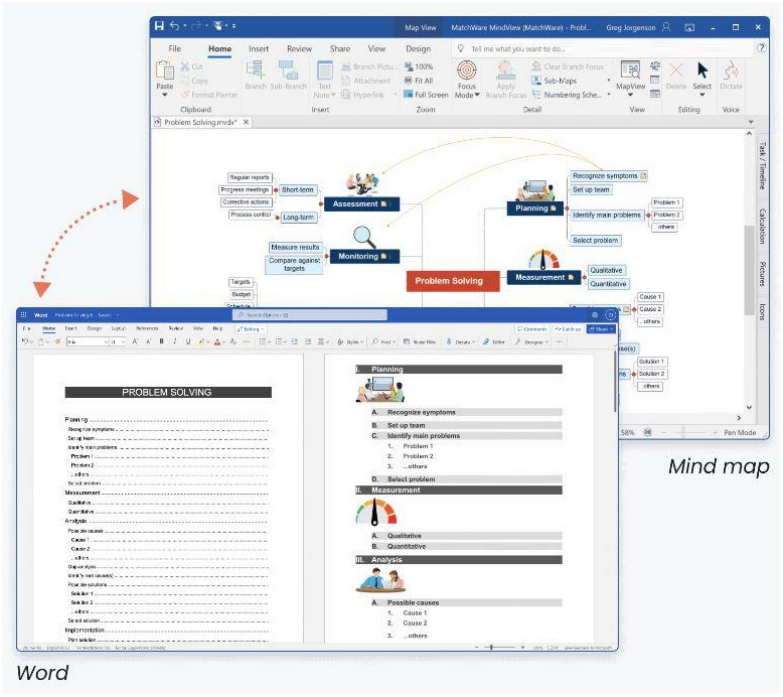
Day 5

0730 – 0830	***Closeout Planning & Execution*** *Final Documentation and Certification • Final Budget Reconciliation and Closeout Report • Lessons Learned Workshops • Archive and Handover to Asset Management*
0830 – 0930	***Performance Review & KPI Analysis*** *TAR Scorecard Development • Benchmarking Against Previous Events • Contractor Performance Evaluation • Root Cause Analysis of Delays and Overruns*

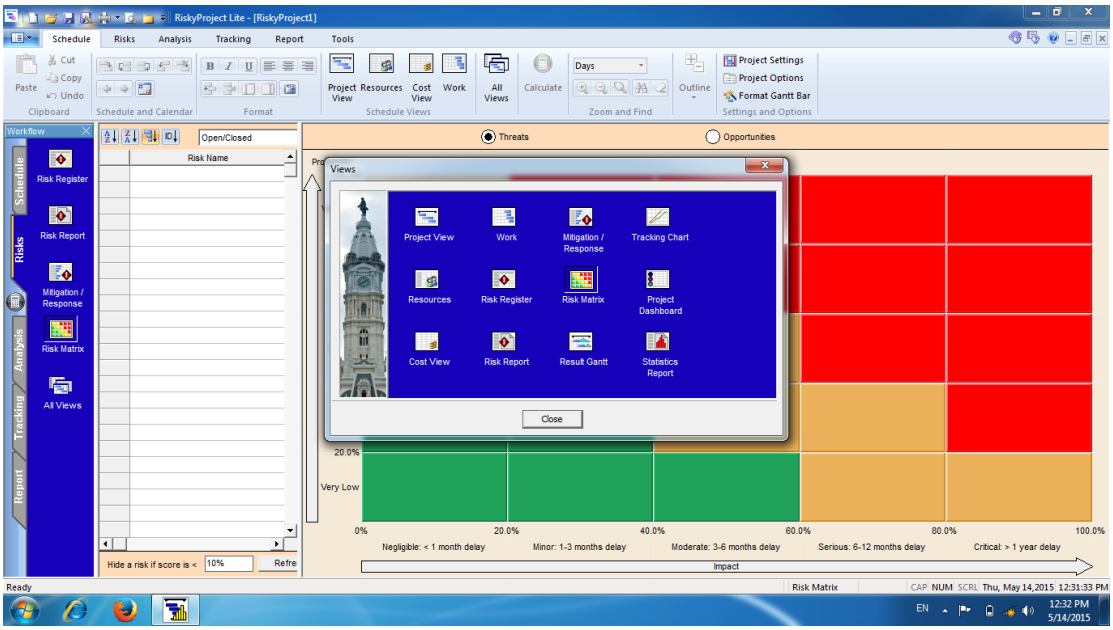
0930 - 0945	*Break*
0945 – 1100	***Cost Optimization Strategies*** *Scope Compression without Compromising Reliability • Craft Productivity Improvements • Integrated Contractor Strategy • Use of Modularization and Pre-Shutdown Work*
1100 – 1200	***Turnaround Digitalization & Industry 4.0*** *Digital Twin and TAR Simulation • AI-Based Planning and Forecasting • IIoT and Predictive Maintenance During TARs • Paperless Execution and Documentation Systems*
1200 - 1215	*Break*
1215 – 1345	***Continuous Improvement Framework*** *Building Turnaround Maturity Models • Ownership Culture and TAR Excellence Teams • Cross-Functional Learning Integration • Annual TAR Improvement Roadmap*
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 “MS Project”, “Mindview Software” and “Risky Project Software”



Mindview Software



Risky Project Software

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