

**COURSE OVERVIEW RE0225**  
**Maintenance Planning & Scheduling**

**Course Title**

Maintenance Planning & Scheduling

**Course Date/Venue**

September 22-26, 2024/ SAS Meeting Room,  
 Holiday Inn Muscat al Seeb, an IHG Hotel,  
 Muscat, Oman

**Course Reference**

RE0225

**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.***



This course is designed to provide participants with a detailed and up-to-date overview Certified Maintenance Planner (CMP). It covers the maintenance planning and integrated maintenance production management partnership; the planning, coordination and scheduling to management and operations; the good maintenance practices and the responsible supervisor or team leader; the six planning and scheduling principle; and the wrench time, actual hours to plan estimate, planning variance index and enhancing planner productivity.



During this interactive course, participants will learn the backlog management, existing staffing processes and preventive/predictive maintenance inspections; the steady state backlog relief, deferred maintenance, capital program requirements and other considerations for staffing; the planning process (micro-planning) and detailed planning process-materials, tools and equipment; the work measurement, analytical estimating, scheduling maintenance work and job execution; and the job close-out and follow-up, managing planning, direct and indirect measure of planning effectiveness and project planning and management.

## Course Objectives

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

- Get certified as a “*Certified Maintenance Planner*”
- Discuss maintenance planning and integrated maintenance production management partnership
- Explain planning, coordination and scheduling to management and operations as well as identify work sampling, typical maintenance worker’s day and symptoms of ineffective job planning
- Carryout good maintenance practices and identify the responsible supervisor or team leader
- Discuss the six planning principles and scheduling principles
- Recognize wrench time and the actual hours to plan estimate
- Explain planning variance index and enhance planner productivity
- Discuss backlog management covering ready backlog and planned backlog as well as review checklist for backlog integrity and develop work programs and backlog weeks trend chart
- Apply existing staffing processes and preventive/predictive maintenance inspections
- Explain steady state backlog relief, deferred maintenance, capital program requirements and other considerations for staffing
- Illustrate planning process (micro-planning) including planning process-screening, scoping, research and detailed planning
- Discuss detailed planning process-materials, tools and equipment
- Employ work measurement, analytical estimating, scheduling maintenance work and job execution
- Carryout job close-out and follow-up, managing planning, direct and indirect measure of planning effectiveness and project planning and management

## 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, sample video clips of the instructor’s actual lectures & practical sessions during the course conveniently saved in a **Tablet PC**.

## Who Should Attend

This course covers systematic techniques in maintenance planning, scheduling and work control to assist maintenance team responsible for delivering maximum reliability and availability of equipment at the lowest possible cost. It is intended for plant maintenance engineers, planning engineers, maintenance planners and maintenance coordinators.

To maximize the benefits of the course, delegates should be prepared to actively participate in the course and bring examples of standard work plans, a list of plant performance metrics, the work priority system in-place, and any other planning or scheduling material they would like to review and discuss.



**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. Successful candidate will be certified as a “*Certified Maintenance Planner*”. 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) earned during the course.

\* Haward Technology \* CEUs \* Haward Technology \* CEUs \* Haward Technology \* CEUs \* Haward Technology \*



## Haward Technology Middle East

Continuing Professional Development (HTME-CPD)

# CEUs

### CEU Official Transcript of Records

**TOR Issuance Date:** 14-Nov-22  
**HTME No.** 74851  
**Participant Name:** Waleed Al Habeeb

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
RE0225	Certified Maintenance Planner (CMP)	November 10-14, 2022	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, Hemdon, 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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### 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.

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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.

### 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 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 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, Fundamentals of Distillation for Engineers, Distillation Operation and Troubleshooting, Advanced Distillation Troubleshooting, Distillation Technology, Vacuum Distillation, Ammonia Storage & Loading Systems, Ammonia Plant Operation, Troubleshooting & Optimization, Ammonia Recovery, Ammonia Plant Safety, Hazard of Ammonia Handling, Storage & Shipping, Operational Excellence in Ammonia Plants, Fertilizer Storage Management (Ammonia & Urea), Fertilizer Manufacturing Process Technology, Sulphur Recovery, Phenol Recovery & Extraction, Wax Sweating & Blending, Petrochemical & Fertilizer Plants, Nitrogen Fertilizer Production, Petroleum Industry Process Engineering, Refining Process & Petroleum Products, Refinery Planning & Economics, Safe Refinery Operations, Hydrotreating & Hydro-processing, Separators in Oil & Gas Industry, Gas Testing & Energy Isolations, Gas Liquor Separation, Industrial Liquid Mixing, Wax Bleachers, Extractors, Fractionation, Operation & Control of Distillation, Process of Crude ATM & Vacuum Distillation Unit, Water Purification, Water Transport & Distribution, Steam & Electricity, Flame Arrestors, Coal Processing, Environmental Emission Control, R&D of Wax Blending, Wax Molding/Slabbing, Industrial Drying, Principles, Selection & Design, Certified Process Plant Operations, Control & Troubleshooting, Operator Responsibilities, Storage Tanks Operations & Measurements, Process Plant Troubleshooting & Engineering Problem Solving, Process Plant Performance, Efficiency & Optimization, Continuous Improvement & Benchmarking, Process Troubleshooting Techniques, Oil & Gas Operation/Introduction to Surface Facilities, Pressure Vessel Operation, Process Equipment Performance & Troubleshooting, Plant Startup & Shutdown, Startup & Shutdown the Plant While Handling Abnormal Conditions, Flare & Relief System, Process Gas Plant Start-up, Commissioning & Problem Solving, Process Liquid and Process Handling & Measuring Equipment. Further, he is also well-versed in **Compressors & Turbines** Operation, Maintenance & Troubleshooting, **Heat Exchanger** Overhaul & Testing Techniques, Balancing of **Rotating Machinery (BRM)**, **Pipe Stress** Analysis, **Valves & Actuators** Technology, Inspect & Maintain **Safeguarding Vent & Relief System**, Certified Inspectors for **Vehicle & Equipment**, Optimizing **Equipment Maintenance & Replacement** Decisions, Certified Maintenance Planner (**CMP**), Certified Planning and Scheduling Professional (**AACE-PSP**), **Tank Design**, Construction, Inspection & Maintenance, **Material Cataloguing**, Specifications, Handling & Storage, **Steam Trap** Design, Operation, Maintenance & Troubleshooting, **Steam Trapping & Control, Column, Pump & Exchangers**, Troubleshooting & Design, **Rotating Equipment** Operation & Troubleshooting, **Control & ESD System, Detailed Engineering Drawings**, Codes & Standards, **Budget** Preparation, Allocation & Cost Control, Root Cause Analysis (**RCA**), **Production Optimization**, Permit to Work (**PTW**), Project Engineering, **Data Analysis, Process Hazard Analysis (PHA), HAZOP** Study, Sampling & Analysis, **Training Analysis, Job Analysis** Techniques, Storage & Handling of **Toxic Chemicals & Hazardous Materials, Hazardous Material** Classification & Storage/Disposal, **Dangerous Goods, Risk Monitoring** Authorized Gas Tester (**AGT**), Confined Space Entry (**CSE**), Personal Protective Equipment (**PPE**), Fire & Gas, First Aid and Occupational Health & Safety.**

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.

**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 22<sup>nd</sup> of September 2024**

0730 – 0800	<i>Registration &amp; Coffee</i>
0800 – 0815	<i>Welcome &amp; Introduction</i>
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b><i>Introduction to Maintenance Planning</i></b> <i>Integrated Maintenance &amp; Production Management Partnership • Definitions • Why Plan, Coordinate &amp; Schedule Maintenance Jobs? • Objectives of Work Preparation • Prerequisites • Understanding the Nature of Maintenance Activities &amp; Organizing Accordingly • Organization by Work Type</i>
0930 – 0945	<i>Break</i>
0945 – 1045	<b><i>Selling Planning, Coordination &amp; Scheduling to Management &amp; Operations</i></b> <i>Selling Management • Work Sampling • Typical Maintenance Worker’s Day – With &amp; Without Planning &amp; Scheduling • Symptoms of Ineffective Job Planning • Convey the Many Benefits that Accrue to Each Stakeholder</i>
1045 – 1145	<b><i>Where Planning Fits into Good Maintenance Practices</i></b> <i>Should Work Preparation be a Separate &amp; Distinct Function? • The Assigned Craftsman • The Responsible Supervisor or Team Leader • The Proven Answer • Channels of Coordination &amp; Communication • Working Liaisons • Maintenance Liaisons • Should Planning be Separate from Scheduling? • Clarification of Roles • Relationship with other Functions</i>
1145 – 1200	<i>Break</i>
1200 – 1300	<b><i>Planning Principles</i></b> <i>Six Principles • The Planning Vision; The Mission • Planning Principle 1: Separate Department • Principle 2: Focus on Future Work • Principle 3: Component Level Files • Principle 4: Estimates Based on Planner Expertise • Principle 5: Recognize the Skill of the Crafts • Principle 6: Measure Performance with Schedule Compliance</i>



1300 – 1420	<p><b>Scheduling Principles</b>  <i>Why Maintenance does not Assign Enough Work • Advance Scheduling in an Allocation • Principle 1: Plan for Lowest Required Skill Level (Prerequisites of Scheduling) • Principle 2: Schedules &amp; Job Priorities are Important (Prerequisites of Scheduling) • Principle 3: Schedule from Forecast of Highest Skills Available (Advance Scheduling Process) • Principle 4: Schedule for Every Work Hour Available • Principle 4 Brings the Previous Scheduling Principles Together • Principle 5: Crew Leader Handles Current Day's Work • Principle 6: Measure Performance with Schedule Compliance</i></p>
1420 - 1430	<p><b>Recap</b>  <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today &amp; Advise Them of the Topics to be Discussed Tomorrow</i></p>
1430	<p><i>Lunch &amp; End of Day One</i></p>

**Day 2: Monday 23<sup>rd</sup> of September 2024**

0730 – 0930	<p><b>Wrench Time</b>  <i>Definition • Objectives • Formula • Qualifications • Ample Calculation • Observations • Management of Planners</i></p>
0930 – 0945	<p><i>Break</i></p>
0945 – 1150	<p><b>Actual Hours to Planning Estimate</b>  <i>Definition • Objectives • Formula • Component Definitions • Actual Work Order Hours • Planned Work Order Hours • Qualifications • Sample Calculation • Best in Class Target Value</i></p>
1150 – 1215	<p><b>Planning Variance Index</b>  <i>Definition • Objectives • Formula • Component Definitions • Sample Calculation</i></p>
1215 – 1230	<p><i>Break</i></p>
1230 – 1330	<p><b>Planner Productivity</b>  <i>Definition • Objectives • Formula • Sample Calculation • Sample #2 Using Job Plans</i></p>
1330 - 1420	<p><b>Backlog Management: Ready Backlog</b>  <i>Definition • Objectives • Formula • Component Definition • Sample Calculation • Best in Class Target Value: 2 to 4 Weeks</i></p>
1420 - 1430	<p><b>Recap</b>  <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today &amp; Advise Them of the Topics to be Discussed Tomorrow</i></p>
1430	<p><i>Lunch &amp; End of Day Two</i></p>

**Day 3: Tuesday 24<sup>th</sup> of September 2024**

0730 – 0930	<p><b>Backlog Management: Planned Backlog</b>  <i>Definition • Objectives • Formula • Component Definitions • Ready Work • Sample Calculation • Job Status • Checklist for Backlog Integrity • Development of Work Programs • A Weekly Example of a Work Program • Backlog Weeks Trend Chart</i></p>
0930 – 0945	<p><i>Break</i></p>
0945 – 1045	<p><b>Sizing the Maintenance Staff</b>  <i>Existing Staffing Processes • Preventive/Predictive Maintenance Inspections • Steady State Backlog Relief • Deferred Maintenance • Capital Program Requirements • Summary of Requirements • Other Considerations for Staffing • Another Approach to the Staffing Question</i></p>







1045 – 1145	<b>The Planning Process (Micro-Planning)</b> <i>Steps of the Planning Process • The Planned Job Package</i>
1145 – 1200	Break
1200 – 1420	<b>The Planning Process-Screening, Scoping, Research &amp; Detailed Planning</b> <i>Screening of Work Requests • Job Assessment &amp; Scoping Check-list • Dealing with Scope Creep • Job Research • Job Preparation • Feedback on the Plan • Job Planning Survey • Coordination of Equipment Access, Permitting, Safety &amp; Statutory Permission</i>
1420 - 1430	<b>Recap</b> <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today &amp; Advise Them of the Topics to be Discussed Tomorrow</i>
1430	Lunch & End of Day Three

**Day 4: Wednesday 25<sup>th</sup> September 2024**

0730 – 0930	<b>Detailed Planning Process-Materials, Tools &amp; Equipment</b> <i>Planner/Scheduler Responsibilities to the Material Management Process • Material Related Steps in the Planning of Specific Jobs are Summarized • The Planner’s Role in Rebuilding • Controlling the Maintenance Storeroom with Statistical Inventory Control • JIT Versus SIC</i>
0930 – 0945	Break
0945 – 1045	<b>Work Measurement</b> <i>Adjusted Averages • Analytical Estimates • Job Slotting &amp; Labor Libraries • Universal Maintenance Standards • Building an Estimate • Job Creep</i>
1045– 1145	<b>Analytical Estimating</b> <i>Common Job Sequence • Travel-Time Table • Miscellaneous Provision Table • The Labour Library • Development of Slotting Tables • Slotting Table Cataloguing • Job Estimating Worksheet • Coordination with Operations</i>
1145 – 1200	Break
1200 – 1420	<b>Scheduling Maintenance Work</b> <i>The Weekly Expectation • Scheduling Techniques • Instruction for Preparing Schedules • Completing the Scheduling Process</i>
1420 - 1430	<b>Recap</b> <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today &amp; Advise Them of the Topics to be Discussed Tomorrow</i>
1430	Lunch & End of Day Four

**Day 5: Thursday 26<sup>th</sup> of September 2024**

0730 – 0930	<b>Job Execution</b> <i>Three Important Functions • Daily Schedule Adjustment • Planner Support of Job Execution • The Morning Meeting</i>
0930 – 0945	Break
0945 – 1045	<b>Job Close Out &amp; Follow Up</b> <i>Schedule Compliance • Reasons for Non-Compliance • Reason for Schedule Non-Compliance • Calculation of Schedule Compliance • Sample Calculation • Supplementary Metrics</i>
1045 - 1215	<b>Planner &amp; Scheduler Metrics</b> <i>Managing Planning • Direct Measure of Planning Effectiveness • Indirect Measures of Planning Effectiveness • The Follow-Up Critique • Activity Sampling • Using CMMS to Aid Planning and Scheduling</i>





1215 – 1230	Break
1230 – 1300	<b>Planning &amp; Management of Projects</b> Project Management Process • Phase One – Project Definition • Phase Two – Preliminary Engineering • Phase Three – Justification & Funding • Phase Four – Detailed project Planning • Phase Five – Project Execution • Phase Six – Project Completion & Close-Out • Phase Seven – Project Review (6 Months After Completion)
1300 – 1315	<b>Course Conclusion</b> Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course
1315 – 1415	<b>COMPETENCY EXAM</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 the “MS Project” and “Mindview Software”.





**Mindview Software**

**Course Coordinator**

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