Haward Technology Middle East

COURSE OVERVIEW PE1033
AI in Oil Movement

Course Title
AI in Oil Movement

Course Date/Venue
Session 1: September 21-25, 2025/Tamra Meeting Room, Al Bandar Rotana Creek, Dubai UAE
Session 2: December 15-19, 2025/Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference
PE1033

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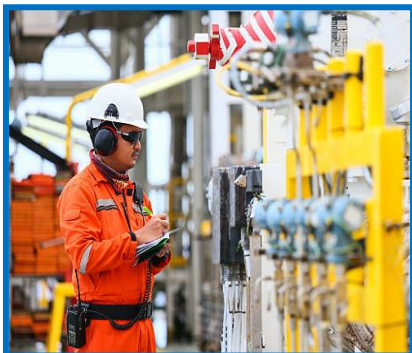Five days/3.0 CEUs/30 PDHs

Course Objectives

This hands-on, 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 Artificial Intelligence in Oil Movement. It covers the artificial intelligence and its role in oil movement and logistics; the AI for pipeline operations and flow management, oil storage tank management and oil loading and unloading optimization; the AI for oil product quality monitoring during movement, predictive maintenance in oil pipelines and storage tank health monitoring; the AI in oil pumping station optimization, marine, rail and truck oil movement optimization and pipeline leak detection and environmental safety; and the AI in oil pumping station optimization, marine, rail and truck oil movement optimization and pipeline leak detection and environmental safety.

Further, the course will also discuss the AI in energy consumption and cost optimization for oil transport; the real-time monitoring of oil movement operations, oil movement risk assessment and safety compliance; AI for pipeline and storage security monitoring, emergency response and spill containment; the AI for pipeline and storage security monitoring, emergency response and spill containment; the AI-powered emissions tracking and carbon footprint reduction; and the machine learning for monitoring oil spill risks, AI-driven compliance with government environmental regulations and AI-assisted sustainable transport and energy efficiency improvements.

During this interactive course, participants will learn the AI-powered autonomous oil transport systems and AI-driven real-time cargo and shipment monitoring; the AI-assisted AI-driven smart pipelines and automation and AI for reducing costs and increasing efficiency in oil movement; the AI-powered real-time decision support systems, AI-driven oil transport optimization models, AI for integrating refinery, storage, and pipeline data and AI-assisted automated reporting for oil movement; the AI-driven IoT sensors for real-time monitoring and machine learning for predictive analytics in smart terminals; and the AI-powered real-time oil movement analytics and AI-assisted integration of AI and blockchain for oil logistics.

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

- Apply and gain a comprehensive knowledge on artificial intelligence in oil movement

- Discuss artificial intelligence and its role in oil movement and logistics

- Carryout AI for pipeline operations and flow management, oil storage tank management and oil loading and unloading optimization

- Apply AI for oil product quality monitoring during movement, predictive maintenance in oil pipelines and storage tank health monitoring

- Employ AI in oil pumping station optimization, marine, rail and truck oil movement optimization and pipeline leak detection and environmental safety

- Implement AI for scheduling and logistics in oil movement, supply chain optimization for oil movement, inventory management and demand forecasting

- Apply AI in energy consumption and cost optimization for oil transport, real-time monitoring of oil movement operations and oil movement risk assessment and safety compliance

- Carryout AI for pipeline and storage security monitoring, emergency response and spill containment

- Recognize machine learning for process optimization in digital twins and AI-powered predictive analytics for oil transport efficiency

- Apply AI-powered emissions tracking and carbon footprint reduction, machine learning for monitoring oil spill risks, AI-driven compliance with government environmental regulations and AI-assisted sustainable transport and energy efficiency improvements

- Discuss AI-powered autonomous oil transport systems and apply AI-driven real-time cargo and shipment monitoring, AI-assisted AI-driven smart pipelines and automation and AI for reducing costs and increasing efficiency in oil movement

- Recognize AI-powered real-time decision support systems, AI-driven oil transport optimization models, AI for integrating refinery, storage, and pipeline data and AI-assisted automated reporting for oil movement

- Explain AI-driven IoT sensors for real-time monitoring, machine learning for predictive analytics in smart terminals, AI-powered real-time oil movement analytics and AI-assisted integration of AI and blockchain for oil logistics

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 artificial intelligence in oil movement for pipeline operators and engineers, oil refinery and production engineers, oil logistics and supply chain professionals, AI and machine learning engineers, data analysts and IoT specialists, industrial automation and IoT engineers, digital transformation leaders and those who involved in the oil and gas industry, logistics and technology sectors.

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: -

- **BAC**   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.

- **IACET ACCREDITED PROVIDER**   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. Karl Thanasis, PEng, MSc, MBA, BSc, is a **Senior Engineer** with over **30 years** of practical experience within the **Oil**, **Gas**, **Refinery** and **Petrochemical** industries. His wide expertise includes **Process Plant** Optimization Technology & Continuous Improvement, **Process Engineering Calculations**, **Process Plant** Start Up & Commissioning, Applied **Process Engineering** Elements**, Coke Cooler**, **Process Plant** Start-up & Commissioning, **Process Plant** Troubleshooting, **Operations Abnormalities & Plant Upset**, **Process Equipment** Applications & Troubleshooting, **Process Plant Performance & Efficiency**, **Gas Sweetening & Sulphur Recovery**, **Distillation-Column** Control & Troubleshooting, **Oil Movement & Troubleshooting**, **Process Plant Operations & Control**, Process Equipment Operation, **Fired Heaters & Air Coolers** Maintenance, **Heat Exchangers**, **Pumps & Compressors**, **Crude Desalter**, **Pressure Vessels & Valves**, **Steam Trapping & Control**, **Pumps & Valve** Maintenance & Troubleshooting, **Turbomachinery**, **Mechanical Alignment**, **Rotating Equipments**, **Diesel Generators**, **Lubrication** Technology, **Bearing**, **Predictive & Preventive** Maintenance, **Root Cause Analysis**, **Boilers**, **Oil Field** Operation, **Production** Operation, Plant Operation & Commissioning, **Crude Oil De Salting** Process, **Gas Conditioning**, **NGL Recovery & NGL Fractionation**, **Flare** System, **Storage Tanks**, **Oil Recovery** System and **Chemical Injection**.

Mr. Thanasis has acquired his thorough and practical experience as the **Project Manager**, **Plant Manager**, **Area Manager - Equipment Construction**, **Construction Superintendent**, **Project Engineer** and **Design Engineer**. His duties covered **Plant Preliminary Design**, **Plant Operation**, **Write-up** of **Capital Proposal**, **Investment Approval**, **Bid Evaluation**, **Technical Contract Write-up**, **Construction** and **Sub-contractor Follow up**, **Lab Analysis**, **Sludge Drying** and **Management** of **Sludge Odor** and **Removal**. He has worked in various companies worldwide in the **USA**, **Germany**, **England** and **Greece**.

Mr. Thanasis is a **Registered Professional Engineer** in the **USA** and **Greece** and has a **Master** and **Bachelor** degrees in **Mechanical Engineering** with **Honours** from the **Purdue University** and **SIU** in **USA** respectively as well as an **MBA** from the **University of Phoenix** in **USA**. Further, he is a **Certified Internal Verifier/Trainer/Assessor** by the **Institute of Leadership & Management (ILM)** and a **Certified Instructor/Trainer**.

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 AI in Oil Transportation & Movement*** *What Is Artificial Intelligence (AI)? • The Role of AI in Oil Movement and Logistics • Key AI Technologies (Machine Learning, IoT, Digital Twins, Predictive Analytics) • AI versus Traditional Oil Transportation and Monitoring Systems*
0930 – 0945	*Break*
0945 – 1040	***AI for Pipeline Operations & Flow Management*** *AI-Powered Optimization of Crude and Refined Product Flow • Machine Learning for Real-Time Pipeline Pressure Monitoring • AI-Driven Prediction of Flow Rate Fluctuations • AI-Assisted Leak Prevention and Anomaly Detection*
1040 – 1135	***AI in Oil Storage Tank Management*** *AI-Driven Real-Time Inventory Tracking • Machine Learning for Optimizing Tank Filling and Emptying Schedules • AI-Powered Monitoring of Vapor Emissions and Environmental Compliance • AI-Assisted Predictive Maintenance for Tank Integrity*
1135 - 1230	***AI for Oil Loading & Unloading Optimization*** *AI-Powered Automation of Loading Operations • Machine Learning for Detecting Inconsistencies in Oil Volumes • AI-Driven Monitoring of Ship, Rail, and Truck Loading Activities • AI-Assisted Real-Time Tracking of Unloading Efficiency*
1230 – 1245	*Break*
1245 – 1335	***AI for Oil Product Quality Monitoring During Movement*** *AI-Driven Real-Time Crude Oil Quality Assessment • Machine Learning for Detecting Contamination Risks • AI-Powered Tracking of Temperature and Viscosity Changes • AI-Assisted Prediction of Product Degradation in Transit*
1335 - 1420	***Hands-On: AI-Based Oil Flow & Storage Data Analysis*** *Implementing AI Models for Pipeline Flow Optimization • AI-Driven Process Monitoring in Storage Tanks • Machine Learning for Optimizing Oil Loading Schedules • AI-Powered Real-Time Oil Quality 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 One*

Day 2

0730 – 0830	**AI for Predictive Maintenance in Oil Pipelines** *AI-Driven Failure Prediction Models for Pipeline Integrity • Machine Learning for Detecting Corrosion and Pipeline Wear • AI-Powered Monitoring of Pressure Anomalies • AI-Assisted Pipeline Maintenance Scheduling*
0830 – 0900	**AI for Storage Tank Health Monitoring** *AI-Driven Predictive Analytics for Storage Tank Corrosion Detection • Machine Learning for Predicting Structural Weaknesses • AI-Powered Monitoring of Temperature and Pressure Variations • AI-Assisted Early Warning Systems for Storage Tank Failures*
0900 – 0915	*Break*
0915 – 1100	**AI in Oil Pumping Station Optimization** *AI-Driven Real-Time Pump Efficiency Monitoring • Machine Learning for Pump Failure Prediction • AI-Powered Energy Consumption Forecasting for Pumping Stations • AI-Assisted Predictive Maintenance for Rotating Equipment*
1100 – 1230	**AI for Marine, Rail & Truck Oil Movement Optimization** *AI-Powered Real-Time Tracking of Oil Shipments • Machine Learning for Route Optimization and Fuel Efficiency • AI-Driven Risk Assessment for Transport Delays • AI-Assisted Scheduling for Vessel and Truck Fleet Operations*
1230 – 1245	**Break**
1245 – 1335	**AI for Pipeline Leak Detection & Environmental Safety** *AI-Powered Acoustic and Pressure Monitoring for Leak Detection • Machine Learning for Anomaly Detection in Pipeline Operations • AI-Driven Modeling of Leak Location and Severity • AI-Assisted Predictive Analytics for Spill Prevention*
1335 - 1420	**Hands-On: AI for Predictive Maintenance & Leak Detection** *AI-Based Pipeline Corrosion Prediction Models • Machine Learning for Pump Failure Detection • AI-Driven Storage Tank Risk Assessment Models • AI-Powered Real-Time Leak Detection and Response System*
1420 – 1430	**Recap** *Using this Course Overview, the Instructor(s) will Brief Participants about that were Discussed Today and Advise Them of the Topics to be Discussed Tor*
1430	*Lunch & End of Day Two*

Day 3

0730 – 0830	**AI for Scheduling & Logistics in Oil Movement** *AI-Driven Scheduling of Oil Transport Operations • Machine Learning for Dynamic Route Planning • AI-Powered Optimization of Vessel and Pipeline Allocations • AI-Assisted Real-Time Dispatch Tracking*
0830 – 0900	**AI in Supply Chain Optimization for Oil Movement** *AI-Driven Demand Forecasting and Scheduling Adjustments • Machine Learning for Optimizing Crude Supply Chain Flows • AI-Powered Integration of Pipeline, Marine, Rail, and Truck Logistics • AI-Assisted Real-Time Decision-Making in Supply Chain Disruptions*

0900 – 0915	Break

0915 – 1100	**AI for Inventory Management & Demand Forecasting** *AI-Driven Real-Time Inventory Tracking in Terminals • Machine Learning for Supply-Demand Balance Optimization • AI-Powered Forecasting for Oil Product Allocation • AI-Assisted Risk Mitigation for Stock-Outs and Overflows*
1100 – 1230	**AI in Energy Consumption & Cost Optimization for Oil Transport** *AI-Driven Efficiency Monitoring in Transportation Energy Usage • Machine Learning for Fuel Consumption Forecasting in Oil Tankers • AI-Powered Cost Analysis and Budget Optimization • AI-Assisted Sustainability Improvements in Transport Logistics*
1230 – 1245	Break
1245 – 1335	**AI for Real-Time Monitoring of Oil Movement Operations** *AI-Driven Monitoring of Pipeline and Terminal Operations • Machine Learning for Anomaly Detection in Oil Shipments • AI-Powered Decision Support Systems for Dispatch Operators • AI-Assisted Integration of IoT Data for Real-Time Oil Flow Analysis*
1335 - 1420	**Hands-On: AI-Based Scheduling & Supply Chain Optimization** *AI-Driven Inventory Tracking and Movement Forecasting • Machine Learning for Scheduling Efficiency Improvement • AI-Powered Predictive Analytics for Oil Product Movement • AI-Assisted Real-Time Tracking Dashboard Implementation*
1420 – 1430	**Recap** *Using this Course Overview, the Instructor(s) will Brief Participants about that were Discussed Today and Advise Them of the Topics to be Discussed Tom*
1430	*Lunch & End of Day Three*

Day 4

0730 – 0830	**AI for Oil Movement Risk Assessment & Safety Compliance** *AI-Driven Hazard Identification in Oil Transport • Machine Learning for Predicting Operational Risks • AI-Powered Real-Time Monitoring of Safety Procedures • AI-Assisted Compliance Reporting and Risk Mitigation Strategies*
0830 – 0930	**AI for Pipeline & Storage Security Monitoring** *AI-Driven Predictive Analytics for Theft and Sabotage Detection • Machine Learning for Access Control and Intrusion Detection • AI-Powered Security Camera Surveillance Analysis • AI-Assisted Real-Time Tracking of Suspicious Activities*
0930 – 0945	Break
0945 – 1100	**AI in Emergency Response & Spill Containment** *AI-Driven Modeling of Oil Spill Dispersion Patterns • Machine Learning for Predicting Spill Impact and Response Times • AI-Powered Real-Time Emergency Management System • AI-Assisted Predictive Analytics for Environmental Protection*
1100 – 1215	**AI for Digital Twin Technology in Oil Movement** *What Is a Digital Twin? • AI-Driven Real-Time Pipeline Simulation Models • Machine Learning for Process Optimization in Digital Twins • AI-Powered Predictive Analytics for Oil Transport Efficiency*

1215 – 1230	Break
1245 – 1335	**AI for Environmental Monitoring & Regulatory Compliance** *AI-Powered Emissions Tracking and Carbon Footprint Reduction • Machine Learning for Monitoring Oil Spill Risks • AI-Driven Compliance with Government Environmental Regulations • AI-Assisted Sustainable Transport and Energy Efficiency Improvements*
1335 - 1420	**Hands-On: AI for Safety & Digital Twin Applications** *AI-Driven Risk Prediction Model for Oil Movement Operations • Machine Learning for Environmental Compliance Tracking • AI-Powered Digital Twin Simulation for Oil Transportation Systems • AI-Assisted Emergency Response System Development*
1420 – 1430	**Recap** *Using this Course Overview, the Instructor(s) will Brief Participants about that were Discussed Today and Advise Them of the Topics to be Discussed Tom*
1430	*Lunch & End of Day Four*

Day 5

0730 – 0830	**Future AI Trends in Oil Movement & Logistics** *AI-Powered Autonomous Oil Transport Systems • AI-Driven Real-Time Cargo and Shipment Monitoring • AI-Assisted Smart Pipelines and Automation • AI for Reducing Costs and Increasing Efficiency in Oil Movement*
0830 – 0930	**AI for Intelligent Decision-Making in Oil Transportation** *AI-Powered Real-Time Decision Support Systems • AI-Driven Oil Transport Optimization Models • AI for Integrating Refinery, Storage, and Pipeline Data • AI-Assisted Automated Reporting for Oil Movement*
0930 – 0945	Break
0945 – 1100	**AI & IoT Integration for Smart Oil Movement** *AI-Driven IoT Sensors for Real-Time Monitoring • Machine Learning for Predictive Analytics in Smart Terminals • AI-Powered Real-Time Oil Movement Analytics • AI-Assisted Integration of AI and Blockchain for Oil Logistics*
1215 – 1230	Break
1230 – 1345	**Hands-On: AI-Powered End-to-End Oil Movement Model** *AI-Based Scheduling and Logistics Simulation • AI-Driven Predictive Maintenance for Oil Transport Systems • AI-Powered Safety Monitoring and Compliance Tracking • AI-Assisted Automation for Oil Movement Operations*
1345 – 1400	**Course Conclusion** *Using this Course Overview, the Instructor(s) will Brief Participants about Topics that were Covered During the Course*
1400 – 1415	**POST-TEST**
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Practical Sessions

This hands-on, highly-interactive course includes real-life case studies and exercises:-

Course Coordinator

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