COURSE OVERVIEW HE1237
Open Flame & Hot Tapping Safety

Course Title
Open Flame & Hot Tapping Safety

Course Date/Venue
July 26-30, 2026/Al Yasmine Meeting Room, Cristal Amaken Hotel, Riyadh, KSA

Course Reference
HE1237

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 Open Flame & Hot Tapping Safety. It covers the scope of open flame operations and hot tapping techniques; the types of fire and explosion hazards, flammable atmospheres, ignition sources and pressure-related hazards in pipelines; the regulatory standards, compliance and basic fire science including the roles and responsibilities of supervisors, safety officers, operators, technicians and fire watch personnel; the personal protective equipment (PPE) and hot tapping equipment; and the open flame equipment safety, worksite risk assessment, permit-to-work system (PTW), isolation and lockout/tagout (LOTO) and gas testing and monitoring.

During this interactive course, participants will learn the hot tapping procedures, flame work procedures and fire prevention techniques; the ventilation and atmospheric control, communication and coordination and human factors and safety behavior; the emergency preparedness, firefighting techniques and incident reporting and investigation; the first aid techniques and medical response, explosion risk management and crisis communication; the advanced hot tapping techniques, safety audits and inspections, risk management and continuous improvement; and the environmental protection by managing emissions and spills, waste handling procedures, environmental compliance and sustainability considerations.

Course Objectives/Outcomes & Benefits for the Participants

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

- Apply and gain an in-depth knowledge on open flame and hot tapping safety
- Discuss the scope of open flame operations and hot tapping techniques
- Identify the types of fire and explosion hazards, flammable atmospheres, ignition sources and pressure-related hazards in pipelines
- Review the regulatory standards and compliance and discuss basic fire science including the roles and responsibilities of supervisors, safety officers, operators, technicians and fire watch personnel
- Recognize personal protective equipment (PPE) and hot tapping equipment
- Carryout open flame equipment safety, worksite risk assessment, permit-to-work system (PTW), isolation and lockout/tagout (LOTO) and gas testing and monitoring
- Apply hot tapping procedures, open flame work procedures and fire prevention techniques
- Employ ventilation and atmospheric control, communication and coordination and human factors and safety behavior
- Carryout emergency preparedness, firefighting techniques and incident reporting and investigation
- Apply first aid techniques and medical response, explosion risk management and crisis communication
- Employ advanced hot tapping techniques, safety audits and inspections, risk management and continuous improvement
- Apply environmental protection by managing emissions and spills, waste handling procedures, environmental compliance and sustainability considerations

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 open flame and hot tapping safety for pipeline engineers / mechanical engineers, maintenance engineers and technicians, welding and fabrication personnel, plant operators / field operators, pipeline technicians, HSE (health, safety and environment) officers, safety supervisors / permit issuers, project engineers / project managers, supervisors / foremen and other technical staff.

Course Fee

US$ 7,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course 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.

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. Andrew Ladwig is a **Senior Process & Safety Engineer** with over **25 years** of extensive experience within the **Oil & Gas**, **Refinery**, **Petrochemical & Power** industries. His expertise widely covers in the areas of **PHA**, **HAZOP**, **HAZCOM**, **HAZMAT**, **HAZID**, **Behavior Based Safety**, **Hazardous Materials & Chemicals** Handling, **Pollution Control**, **Environment, Health & Safety** Management, **Process Risk** Analysis, **Hazard & Risk Assessment**, **Emergency Response Procedures** Behavioural Based Safety (**BBS**), **Confined Space Entry**, **Fall Protection**, **Emergency Response**, H_2S, Safety Management System (**ISO 45001**), **Accident/Incident Investigation** System and Report PSM, **Risk Assessment**, **SCE FMEA Failure Investigations**, Site Management Safety Training (**SMSTS**), **Occupational Health & Safety and Industrial Hygiene, Crisis Management & Damage Control** in Oil & Gas Industry, **Enhancing HSSE Safety Performance & Effectiveness**, **Overhead & Gantry Crane Safety**, **HSSE Principles & Practices Advanced**, **HAZOP** Study, Sampling & Analysis, **Training** Analysis, **Job Analysis** Techniques, Storage & Handling of **Toxic Chemicals & Hazardous Materials**, **Hazardous Material** Classification & Storage/Disposal, **Dangerous Goods**, Environmental Management System (**EMS**). Further, he is also well-versed in **Ammonia Manufacturing & Process Troubleshooting**, **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, **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**, **Steam & Electricity**, **Flame Arrestors** and **Coal Processing**, **Environmental Emission Control**.

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.

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.

Learning Design & Customization

This course can be customized to the exact requirements of clients. Haward Technology is so proud of our huge capabilities in tailoring our courses to the training needs of our valued clients.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the workshop for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1: ***Sunday, 26th of July 2026***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Introduction to Open Flame & Hot Tapping*** *Definition and Scope of Open Flame Operations • Overview of Hot Tapping Techniques • Industrial Applications and Use Cases • Key Differences Between Hot Work and Hot Tapping*
0930 – 0945	*Break*
0945 – 1030	***Hazard Identification*** *Types of Fire and Explosion Hazards • Flammable Atmospheres and Ignition Sources • Pressure-Related Hazards in Pipelines • Case Studies of Past Incidents*
1030 – 1130	***Regulatory Standards & Compliance*** *OSHA, NFPA, API Standards Overview • Local and International Safety Regulations • Permit-to-Work (PTW) Systems • Legal Responsibilities and Liabilities*
1130 – 1215	***Basic Fire Science*** *Fire Triangle and Fire Tetrahedron • Types of Fires (Class A, B, C, D, K) • Combustion Process Fundamentals • Heat Transfer Methods (Conduction, Convection, Radiation)*
1215 – 1230	*Break*
1230 – 1330	***Roles & Responsibilities*** *Duties of Supervisors and Safety Officers • Responsibilities of Operators and Technicians • Role of Fire Watch Personnel • Communication Protocols*

1330 – 1420	***Personal Protective Equipment (PPE)*** *Types of PPE for Hot Work and Hot Tapping • Flame-Resistant Clothing and Materials • Respiratory Protection Requirements • PPE Inspection and Maintenance*
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, 27th of July 2026***

0730 – 0830	***Hot Tapping Equipment Overview*** *Hot Tapping Machines and Fittings • Valves, Cutters, and Sealing Devices • Inspection of Tools Before Use • Maintenance Requirements*
0830 – 0930	***Open Flame Equipment Safety*** *Welding and Cutting Equipment • Gas Cylinders and Regulators • Leak Detection Methods • Safe Storage and Handling*
0930 – 0945	*Break*
0945 – 1100	***Worksite Risk Assessment*** *Job Safety Analysis (JSA) Procedures • Identifying Confined Spaces • Environmental Risk Factors • Hazard Ranking and Mitigation*
1100 – 1215	***Permit-to-Work System (PTW)*** *Types of Permits (Hot Work, Confined Space) • Permit Approval Process • Validity and Renewal Procedures • Documentation and Recordkeeping*
1215 – 1230	*Break*
1230 – 1330	***Isolation & Lockout/Tagout (LOTO)*** *Energy Isolation Procedures • Lockout/Tagout Steps • Verification of Isolation • Common LOTO Failures*
1330 – 1420	***Gas Testing & Monitoring*** *Types of Gas Detectors • Oxygen Level Monitoring • LEL (Lower Explosive Limit) Concepts • Continuous vs. Periodic Monitoring*
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, 28th of July 2026***

0730 – 0830	***Hot Tapping Procedures*** *Step-by-Step Hot Tapping Process • Pressure Considerations • Equipment Setup and Alignment • Leak Prevention Techniques*
0830 – 0930	***Open Flame Work Procedures*** *Safe Welding and Cutting Practices • Flame Control and Supervision • Work Area Preparation • Fire Watch Requirements*
0930 – 0945	*Break*
0945 – 1100	***Fire Prevention Techniques*** *Elimination of Ignition Sources • Use of Fire Barriers and Shields • Housekeeping Practices • Safe Material Handling*

1100 – 1215	***Ventilation & Atmospheric Control*** *Natural versus Mechanical Ventilation • Preventing Accumulation of Gases • Airflow Management • Monitoring Effectiveness*
1215 – 1230	*Break*
1230 – 1330	***Communication & Coordination*** *Pre-Job Briefings and Toolbox Talks • Coordination with Control Rooms • Emergency Communication Systems • Shift Handover Procedures*
1330 – 1420	***Human Factors & Safety Behavior*** *Fatigue and Stress Management • Situational Awareness • Safety Culture and Mindset • Error Prevention Techniques*
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: Wednesday, 29th of July 2026

0730 – 0830	***Emergency Preparedness*** *Emergency Response Planning • Roles During Emergencies • Evacuation Procedures • Alarm Systems*
0830 – 0930	***Firefighting Techniques*** *Use of Fire Extinguishers • Fire Suppression Systems • Fire Classification Response Strategies • Hands-On Firefighting Drills*
0930 – 0945	*Break*
0945 – 1100	***Incident Reporting & Investigation*** *Reporting Procedures • Root Cause Analysis • Incident Documentation • Lessons Learned Implementation*
1100 – 1215	***First Aid & Medical Response*** *Treatment of Burns and Injuries • CPR and Basic Life Support • Handling Smoke Inhalation Cases • Emergency Medical Coordination*
1215 – 1230	*Break*
1230 – 1420	***Explosion Risk Management*** *Causes of Explosions in Hot Work • Pressure Build-Up Scenarios • Prevention Strategies • Blast Impact Mitigation*
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: Thursday, 30th of July 2026

0730 – 0830	***Crisis Communication*** *Internal Communication Protocols • External Stakeholder Communication • Media Handling Basics • Post-Incident Briefings*
0830 – 0930	***Advanced Hot Tapping Techniques*** *Complex Pipeline Configurations • High-Pressure and High-Temperature Systems • Specialized Equipment Usage • Troubleshooting Operational Issues*
0930 – 0945	*Break*

0945 – 1100	***Safety Audits & Inspections*** *Conducting Safety Audits • Inspection Checklists • Identifying Non-Compliance • Corrective Action Planning*
1100 – 1230	***Risk Management & Continuous Improvement*** *Risk Assessment Review • Safety Performance Metrics • Continuous Improvement Strategies • Benchmarking Best Practices*
1230 – 1245	*Break*
1245 – 1345	***Environmental Protection*** *Managing Emissions and Spills • Waste Handling Procedures • Environmental Compliance • Sustainability Considerations*
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*

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-

Course Coordinator

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