COURSE OVERVIEW EE1002
Classification of Locations for Electrical Installations at Petroleum Facilities (API 500/ API 505/ API RP 14FZ)

Course Title
Classification of Locations for Electrical Installations at Petroleum Facilities (API 500/ API 505/ API RP 14FZ)

Course Date/Venue
April 20-24, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Reference
EE1002

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 classification of location for electrical installations at petroleum facilities in accordance with API 500, 505 & RP14FZ. It covers the conditions for fire and explosion in petroleum facilities; the law and regulators, recommended practices and standards; the hazardous (classified) locations API 500/505 including hazardous area classification; the installation, maintenance, and operation of electrical equipment; the API RP 500, API RP 14F, API 505 and API 14FZ; the area classifications for API hazardous classified and unclassified; the classification based on API RP; the API RP 505 and 500 'preferred' symbols for classified locations; and the atmospheric mixtures of explosive gas and air.

Further, the course will also discuss the extent of areas, release of gas and temperature; the API RP 500 and 505 flammable (explosive) limits; the API RP design installation and maintenance; why API RP 14F and 14FZ are not used to classify areas; the electrical equipment for hazardous (classified) areas; the electrical enclosures, API RP 14F explosion-proof and typical motor name plate; the API and NEC general purpose equipment; the API RP 14F hermetically sealed and API RP 14F intrinsically safe; and the pressurized or purged, clean air (non classified area) and API RP 14F cables and accessories.

During this interactive course, participants will learn the API RP 14F installation 6.8 conduit and cable seals and sealing methods; the grounding, electrical motors and portable equipment; the API14 RP FZ design, installation and maintenance of electrical systems; the API RP 14FZ listings, markings and documentation; the equipment selection division 1, oil immersion (type "o"), increased safety (type "e") equipment, powder filling equipment and encapsulation (type "m") equipment; and the API RP 14FZ electrical distribution systems.

Course Objectives

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

- Classify the locations for electrical installations at petroleum facilities in accordance with API 500, API 505 and API RP 14FZ
- Identify conditions for fire and explosion in petroleum facilities
- Discuss the law and regulators including recommended practices and standards
- Explain hazardous (classified) locations API 500/505 and hazardous area classification
- Install, maintain and operate electrical equipment and discuss API RP 500, API RP 14F, API 505 and API 14FZ
- Recognize area classifications for API hazardous classified and unclassified
- Classify hazard based on API RP and discuss API RP 505 and 500 'preferred' symbols for classified locations
- Identify the atmospheric mixtures of explosive gas and air including the extent of areas, release of gas and temperature
- Recognize API RP 500 and 505 flammable (explosive) limits and carryout API RP design installation and maintenance
- Explain why API RP 14F and 14FZ are not used to classify areas
- Identify electrical equipment for hazardous (classified) areas, electrical enclosures, API RP 14F explosion-proof and typical motor nameplate
- Differentiate API and NEC general purpose equipment as well as API RP 14F hermetically sealed and API RP 14F intrinsically safe
- Describe pressurized or purged, clean air (non classified area) and API RP 14F cables and accessories
- Employ API RP 14F installation 6.8 conduit and cables seals and sealing methods
- Discuss grounding, electrical motors and portable equipment
- Design, install and maintain electrical systems as well as API14 RP FZ
- Review API RP 14FZ listings, markings and documentation
- Determine equipment selection division 1, oil immersion (type "o"), increased safety (type "e" equipment, powder filling equipment and encapsulation (type "m") equipment
- Discuss electrical distribution systems as per API RP 14 FZ

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 classification of locations for electrical installations at petroleum facilities in accordance with API 500/ API 505 and API RP14FZ for engineers and technicians working in industrial facilities.

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)

(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) earned during the course.

Haward Technology Middle East

Continuing Professional Development (HTME-CPD)

CEU Official Transcript of Records

TOR Issuance Date: 14-Nov-19

HTME No. 8667-2014-9020-2555

Participant Name: Fahim Al Qahtani

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
EE1002-IH	Classification of Locations for Electrical Installations at Petroleum Facilities (API 500 / API 505 / API RP 14FZ)	Nov 10-14, 2019	30	3.0

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

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Maricel De Guzman
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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Certificate Accreditations

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**. 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. Pan Marave, PE, MSc, BEng, is a **Senior Electrical & Instrumentation Engineer** with over **30 years** of extensive experience in **Oil**, **Gas**, **Petrochemical**, **Refinery** & **Power** industries. His expertise includes **Earthing**, **Bonding**, **Grounding**, **Lightning & Surge Protection**, **Hazardous Areas Classification** and Detailed Engineering Drawings, **Motor Controllers**, **Motor Control Circuit**, Basic **Electricity**, **Electrical & Special Hazards**, **CEMS** Operations and Maintenance, **ABB 11KV Distribution Switchgear**, **Electrical Switching** Practices, **HV Switchgear Maintenance**, Operation & Maintenance of **Rotork make MOVS**, **Maintaining Instrument Air Compressors**, **Circuit Breaker**, **HV/LV Electrical** Authorisation, **Personnel Protection**, **HV/LV Equipment**, **Emergency Planning**, **Safety Management**, Safety Instrumented Systems (**SIS**), Safety Integrity Level (**SIL**), Emergency Shutdown (**ESD**), **DCS**, **SCADA** & **PLC**, **Measurement** (**Flow**, **Temperature**, **Pressure**), **Process Analyzers** & **Analytical Instrumentation**, **Process Control**, **Instrumentation** & **Safeguarding**, **Process Controller**, **Control Loop & Valve Tuning**, Industrial **Distribution Systems**, Industrial **Control & Control Systems**, Power Systems **Protection & Relaying**, Electric Power **Substation** & **Systems**, Electrical Engineering Principles, **Electrical Fault Analysis**, Electrical Networks & Distribution **Cables**, **Circuit Breakers**, **Switchgears**, **Transformers**, **Codes** & **Standards**. Furthermore, he is also well-versed in Microprocessors Structure, Lead Auditor (**ISO 9000:2000**), **ISO 9002**, Quality Assurance, and Projects & Contracts Management.

Presently, Mr. Marave is the **Technical Advisor** of **Chamber of Industry & Commerce** in Greece. Prior to this, he gained his thorough practical experience through several positions as the **Technical Instructor**, **Engineering Manager**, **Electronics & Instruments Head**, **Electrica**l, **Electronics & Instruments Maintenance Superintendent**, **Assistant General Technical Manager** and **Engineering Supervisor** of various international companies such as the **Alumil** Mylonas, **Athens Papermill**, **Astropol** and the **Science Technical Education**.

Mr. Marave is a **Registered Professional Engineer** and has **Master's** and **Bachelor's** degrees in **Electrical Engineering** from the **Polytechnic Institute of New York** and **Pratt Institute of New York** (**USA**) respectively. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**) and an active member of the **Technical Chamber** and the Institute of Electrical and Electronics Engineer (**IEEE**) in Greece. He has presented and delivered **numerous international** courses, conferences, trainings and workshops worldwide.

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, 20th of April 2025***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0900	***Conditions for Fire & Explosion in Petroleum Facilities***
0900 – 0930	***Law & the Regulators, Recommended Practices & Standards***
0930 – 0945	*Break*
0945 – 1030	***Hazardous (Classified) Locations API 500/505***
1030 – 1100	***Hazardous Area Classification***
1100 – 1130	***CFR 250.114 Install, Maintain, & Operate Electrical Equipment***
1130 - 1230	***API RP 500 & API RP 14F***
1230 - 1245	*Break*
1245 – 1345	***API 505 & API 14FZ***
1345 - 1420	***Area Classifications for API Hazardous Classified***
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2: ***Monday, 21st of April 2025***

0730 – 0830	***Area Classifications for API Unclassified***
0830 – 0930	***Classification Based on API RP***
0930 – 0945	*Break*
0945 – 1030	***API RP 505 'Preferred' Symbols for Classified Locations***
1030 – 1100	***API RP 500 'Preferred' Symbols for Classified Locations***
1100 – 1130	***Atmospheric Mixtures of Explosive Gas & Air***
1130 – 1230	***Extent of Areas, Release of Gas & Temperature***
1230 – 1245	*Break*
1245 – 1345	***Gas Release & Extent of Areas API RP 500***
1345 - 1420	***API RP 500 & 505 Flammable (Explosive) Limits***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3: ***Tuesday, 22nd of April 2025***

0730 – 0830	***API RP Design Installation & Maintenance***
0830 – 0930	***API RP 14F & 14FZ are Not Used to Classify Areas***
0930 – 0945	*Break*
0945 – 1030	***Sec 4 Electrical Equipment for Hazardous (Classified) Areas***
1030 – 1100	***Electrical Enclosures***
1100 – 1130	***API RP 14F Explosion-Proof***
1130 – 1230	***Typical Motor Name Plate***
1230 – 1245	*Break*
1245 – 1345	***Difference with API & NEC General Purpose Equipment***
1345 - 1420	***API RP 14F Hermetically Sealed***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4:	Wednesday, 23rd of April 2025
0730 – 0830	***API RP 14F Intrinsically Safe***
0830 – 0930	***Pressurized or Purged***
0930 – 0945	*Break*
0945 – 1030	***Clean Air (Non Classified Area)***
1030 – 1100	***API RP 14F Cables & Accessories***
1100 – 1130	***API RP 14F Installation 6.8 Conduit & Cable Seals & Sealing Methods***
1130 – 1230	***Grounding Sec, 610***
1230 – 1245	*Break*
1245 – 1345	***Electrical Motors***
1345 - 1420	***Portable Equipment***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5:	Thursday, 24th of April 2025
0730 – 0830	***API14 RP FZ Design, Installation & Maintenance of Electrical Systems***
0830 - 0930	***API RP 14FZ Listings, Markings & Documentation***
0930 – 0945	*Break*
0945 – 1030	***Equipment Selection Division 1***
1030 – 1100	***Oil Immersion (Type "o")***
1100 – 1130	***Increased Safety (Type "E") Equipment***
1130 – 1200	***Powder Filling Equipment***
1200 - 1215	*Break*
1215 – 1245	***Encapsulation (Type "m") Equipment***
1245 – 1315	***API RP 14FZ Electrical Distribution Systems***
1315 – 1330	***Course Conclusion***
1330 - 1430	***COMPETENCY EXAM***
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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