

**COURSE OVERVIEW GE0200-4D**

**Detailed Engineering Drawings, Codes & Standards**

*P&ID Reading, Interpretation & Developing*

**Course Title**

Detailed Engineering Drawings, Codes & Standards: *P&ID Reading, Interpretation & Developing*

**Course Reference**

GE0200-4D

**Course Duration/Credits**

Four days/2.4 CEUs/24 PDHs

**Course Date/Venue**

Session(s)	Dates	Venue
1	March 04-07, 2024	Boardroom, Warwick Hotel Doha, Doha, Qatar
2	June 03-06, 2024	Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
3	September 02-05, 2024	Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
4	December 09-12, 2024	Al Aziziya Hall, The Proud Hotel Al Khobar, Al Khobar, KSA



**Course Description**



***This practical and highly-interactive course includes 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 knowledge of detailed engineering drawings, codes and standards. It covers the interpretation of drawings in a multi-discipline environment such as plant layout, mechanical, structural, instrumentation and piping (P&ID); the mechanical engineering drawings from design information; and the interpretation of codes, standards and specifications in engineering drawings.



During the course, participants will be able to prepare hand sketches of a number of mechanical components; participate in a series of blueprint reading exercises; and read, interpret and extract information from mechanical & piping arrangement drawings and piping and instrumentation drawings (P&ID).

Further, the course will also discuss the B31.1 and B31.3 codes; level, flow, pressure and temperature variables; the control valves, relief valves and closed control loops; and the drawing representation and interpretation

## Course Objectives

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

- Interpret drawings in a multi discipline environment such as plant layout, mechanical, structural, instrumentation and piping (P&ID)
- Produce mechanical engineering drawings from design information
- Interpret codes, standards and specifications and apply them in engineering drawings
- Prepare hand sketches of a number of mechanical components and participate in a series of blueprint reading exercises
- Read, interpret and extract information from mechanical & piping arrangement drawings and piping & instrumentation drawings (P&ID)

## 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 covers systematic techniques on P&ID reading, interpretation and developing of detailed engineering drawings, codes and standards for managers, engineers, supervisors and other technical staff. Further, the course is essential for designers and draftspersons in the plant design field as well as for piping fabricators and suppliers.

## 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.

## 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: -

-  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 **2.4 CEUs** (Continuing Education Units) or **24 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.

-  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 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:



**Dr. Tony Dimitry**, PhD, MSc, BSc, is a **Senior Mechanical Engineer** with over **30 years** of industrial experience. His expertise covers **Fundamentals of Engineering Drawings, Field Sketching, Plant Design Drawing Interpretation, Piping Terminology, Piping and Instrumentation Drafting Standards, The Layout of Piping Systems & Process Equipment, Pressure Safety Relief Valve Repair &**

**Recalibration, PSV/PRV Troubleshooting, PRV Testing & Repair, Valve Testing & Inspection, Valve Sealing, Valve Calibration, Process Equipment, Vibration Analysis, Heat Exchanger, Siemens Steam Turbine Maintenance, Electromechanical Maintenance, Machinery Alignment, Lubrication Technology, Compressors, HVAC & Refrigeration Systems, Piping System, Blower & Fan, Shaft Repair, Control Valve & Actuator, Safety Relief Valves, Pipelines, Piping Vibration Analysis, Pressure Vessels, Dry Gas Seal, Process Equipment, Diesel Engine & Crane Maintenance, Maintenance Management (Preventive, Predictive, Breakdown), Reliability Management, Condition-Based Monitoring, Rotating Equipment, Tanks & Tank Farms, Pneumatic System, Static Equipment, Failure Analysis, FMEA, Corrosion, Metallurgy, Planning, Scheduling, Cost Control, Preventive and Predictive Maintenance.** Currently, he is the Maintenance Manager of the PPC Incorporation wherein he is responsible for the maintenance and upgrade of all plant components, monitoring the thermal stresses and the remaining life of steam pipes, turbine casing, mills, fans and pumps. He is in-charge of the metallurgical failure analysis and the usage of fracture mechanics for determining crack propagation in impellers of turbines, assessing all alterations and developments for upgrading the plant.

During his career life, Dr. Dimitry was a **Senior Engineer** in **Chloride Silent (UK)** wherein he was responsible for the mechanical, thermal and electrical modelling of battery problems for electric vehicles and satellites as well as an **Operations Engineer** of the **National Nuclear Corporation (UK)** wherein he was responsible for the optimization of the plant. Prior to this, he was a **Professor** at the **Technical University of Crete** and an Assistant **Professor** of the **University of Manchester (UK)**.

Dr. Dimitry has a **PhD, Master's** and **Bachelor's** degree in **Mechanical Engineering** from the **Victory University of Manchester** and the **University of Newcastle, UK** respectively. Further, he is a **Certified Instructor/Trainer, a Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management (ILM)** and an associate member of the American Society of Mechanical Engineers (**ASME**) and Institution of Mechanical Engineers (**IMechE**). He has further delivered various trainings, seminars, courses, workshops and conferences internationally.



### Course Fee

Doha	<b>US\$ 5,500</b> per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Abu Dhabi	<b>US\$ 4,500</b> per Delegate + <b>VAT</b> . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Dubai	<b>US\$ 4,500</b> per Delegate + <b>VAT</b> . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Al Khobar	<b>US\$ 4,500</b> per Delegate + <b>VAT</b> . 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	<i>Registration &amp; Coffee</i>
0800 – 0815	<i>Welcome &amp; Introduction</i>
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Introduction</b> <i>Plant Layout Disciplines • Defining Priorities in Design Drafting • Orthographic Projection • Isometric Projection • Linework &amp; Symbology</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Working Drawings</b> <i>Mechanical • Structural, Piping &amp; Instrumentation • Title Blocks • Revisions • Metric &amp; Imperial Scales • Dimensioning</i>
1100 – 1230	<b>Field Sketching</b> <i>Freehand Sketching &amp; Lettering • Notes • Sketching in the Field or Plant</i>
1230 – 1245	<i>Break</i>
1245 – 1420	<b>Field Sketching (cont'd)</b> <i>Ensuring that Sufficient Information is Provided on Sketch</i>
1420 – 1430	<b>Recap</b> <i>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</i>
1430	<i>Lunch &amp; End of Day One</i>

#### **Day 2**

0730 – 0930	<b>Plant Design Drawing Interpretation</b> <i>Terminology Used in Plant Design Drawings • Dimensioning</i>
0930 – 0945	<i>Break</i>
0945 – 1115	<b>Plant Design Drawing Interpretation (cont'd)</b> <i>Drafting &amp; Interpretation Examples</i>



1115 – 1215	<b>Piping Terminology</b> Process Flow Diagram • Development of Process & Instrumentation Diagram (P&ID)
1215 – 1230	Break
1230 – 1420	<b>Piping Terminology (cont'd)</b> Piping & Instrumentation Functions
1420 – 1430	<b>Recap</b> 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 – 0930	<b>Piping Drawing Interpretation</b> Piping Arrangements • Isometrics • Piping Documentation • Specifications • Instrumentation Specs
0930 – 0945	Break
0945 – 1100	<b>Piping Drawing Interpretation (cont'd)</b> Components • Fittings & Valve Functions
1100 – 1215	<b>Piping Drawings</b> Dimensioning & Drafting Isometrics • Bills of Material • P&ID Development • Engineering Design
1215 – 1230	Break
1230 – 1420	<b>Piping Drawings (cont'd)</b> Equipment Design • Equipment Sizing & Selection • Introduction to Flow Analysis
1420 – 1430	<b>Recap</b> 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

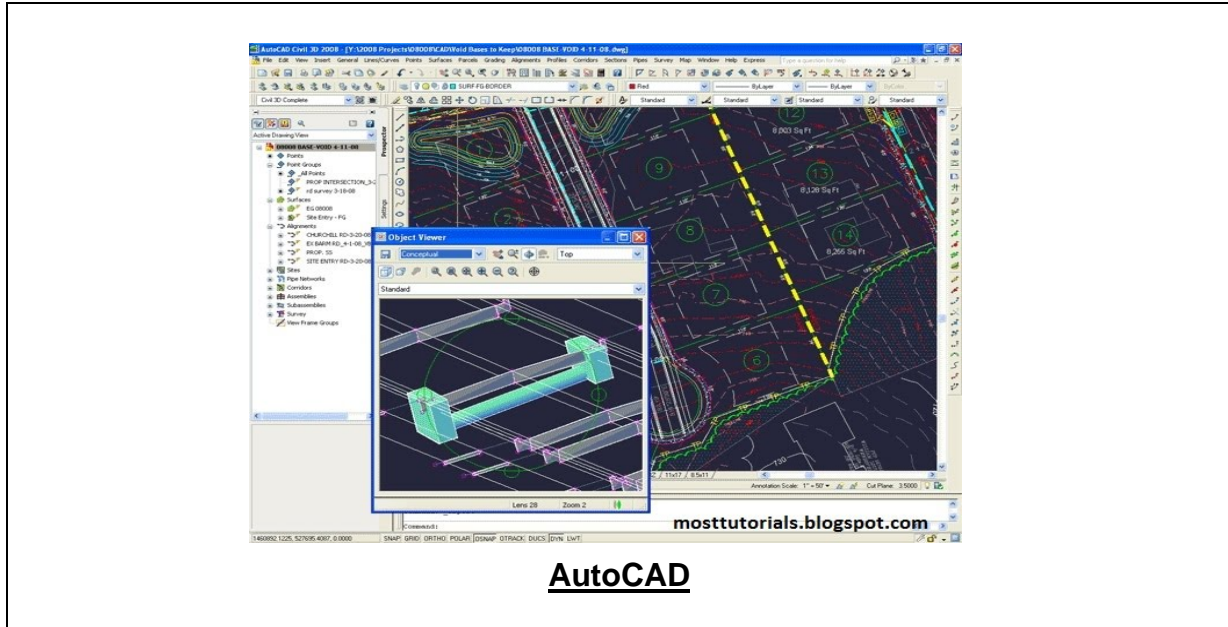
**Day 4**

0730 – 0930	<b>B31.1, B31.3 Codes</b> Scope of Code Rules • Intent of the Code • Operations & Scope • Piping Design Conditions • Code Applicability • Responsibilities • Piping Design Criteria
0930 – 0945	Break
0945 – 1100	<b>Instrumentation</b> Level, Flow, Pressure & Temperature Variables • Control Valves & Sets • Relief Valves • Closed Control Loops
1100 – 1215	<b>Piping &amp; Instrumentation Drafting Standards</b> Drawing Representation • Drawing Interpretation
1215 – 1230	Break
1230 – 1345	<b>Q &amp; A Discussion &amp; Review</b>
1345 – 1400	<b>Course Conclusion</b> Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course
1400 – 1415	<b>POST-TEST</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 “AutoCAD” software.



**Course Coordinator**

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