

## COURSE OVERVIEW ME0389-4D Pipe Stress Analysis CAESAR II Static

### Course Title

Pipe Stress Analysis CAESAR II Static

### Course Date/Venue

December 01-04, 2024/Boardroom 2, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

### Course Reference

ME0389-4D



### Course Duration/Credits

Four days/2.4 CEUs/24 PDHs



### 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 overview of Pipe Stress Analysis CAESAR II Static. It covers the necessity, governing principles, and key terms of pipe stress analysis; the software interface and basic functions of CAESAR II; the input of a piping system into CAESAR II; and the basic system.



During this interactive course, participants will learn the static analysis theory including the primary and secondary loads and sustained and occasional loads; developing load cases and identify how to set up and solve various load cases for static analysis; checking for errors and creating reports using CAESAR II; the sustained load and expansion loads and their implications and design to accommodate these loads; using the software to perform sustained and expansion load analysis; the seismic analysis, wind loading, or dynamics; the common issues and how to resolve them; and the best practices in pipe stress analysis.

## Course Objectives

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

- Apply and gain an in-depth knowledge on CAESAR II static pipe stress analysis
- Discuss the necessity, governing principles, and key terms of pipe stress analysis
- Explore the software interface and basic functions of CAESAR II
- Input a piping system into CAESAR II and create a basic system
- Discuss the static analysis theory including the primary and secondary loads and sustained and occasional loads
- Develop load cases and identify how to set up and solve various load cases for static analysis
- Check for errors and create reports using CAESAR II
- Recognize sustained loads and expansion loads including their implications and design to accommodate these loads
- Use the software to perform sustained and expansion load analysis
- Discuss seismic analysis, wind loading, or dynamics
- Identify the common issues and how to resolve them and apply best practices in pipe stress analysis

## 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 CAESAR II static pipe stress analysis for mechanical/design engineers, piping vessel maintenance engineers, engineering managers, piping designers, plant managers, draftsmen and those who are involved with piping in the petroleum, chemical, power, gas transmission and related industries.

## 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 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: -

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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.

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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\$ 4,500** 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 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. Saad Bedir**, MSc, BSc, is a **Senior Mechanical Engineer** with over **30 years** of extensive experience in the **Power, Petrochemical, Oil & Gas** and **Cement** industries. He is well-versed in the areas of **CAESAR II Pipe Stress Analysis, Sustained & Expansion Loads, Static & Dynamic Analysis, Piping Stress Analysis, Piping Vibration, Control Valves & Actuators, Pump Technology, Pumps Maintenance & Troubleshooting, Valve Maintenance, Plunger Valve, Maintenance & Reliability Best Practices, Maintenance & Reliability Management, Process Plant Operations, Process Plant Startup & Operating Procedure, Ethylene & Vinyl Chloride, Ethane Cracking Furnaces Operations, Boiler & Steam System Management, Waste Heat Recovery, Boiler Plant Safety, Boiler Controls, Steam Distribution Systems, Steam Traps, Pollution Control, Cracked Gas Compressor, Reboilers, Selection & Operation, Boiler Inspection & Maintenance, Introduction to Process Troubleshooting, Polyethylene Manufacturing & Process Troubleshooting, Heat & Power Consumption and Heat Transfer**. His expertise also includes the implementation of Environmental Impact Assessment (EIA), **OHSAS 18001, ISO 9001, ISO 14001, QHSE** Management Planning, Air Quality Management, Health, Fire, Safety, Security & Environmental Codes of Practice, Legislations and Procedures. Crisis & Business Continuity Management Planning, Emergency Response & Procedures, Industrial Security Risk Assessment & Management, , Behavioural Safety, Incident & Accident Investigation, Integrated EHS Aspects, Risk Assessment & Hazard Identification, Environmental Audits, Hazardous & Non-Hazardous Waste Management, Confined Space Safety, **SHEMS** Principles, Process Safety, Basic & Advanced Construction Safety, Rig & Barge Inspection, , Safety & Occupational Health Awareness, Loss Control, Lifting & Slings, Marine Pollution Hazards & Control, Ground Contamination & Reclamation Processes, Waste Management & Recycling, **HAZOP, HAZID, HSEIA, QRA**, Hazardous Area Classification, Radiation Protection, Active and Positive Fire Fighting, Fire & Gas Detection Systems, Fire Fighting Systems, Fire Proofing, ESD, Escape Routes. Presently, he is the **HSE Director** for one of the largest and renowned companies in the Middle East, wherein he takes charge of all HSE and security operations of the company.

Mr. Saad's vast professional experience in directing & managing process operations and health, safety and the environment aspects as per OSHA framework and guidelines can be traced back to his stint with a few international companies like **Saudi ARAMCO, CONOCO, Kuwait Oil Co. (KOC)**, etc, where he worked as the **Field Senior Process Consultant** handling major projects and activities related to the discipline. Through these, he gained much experience and knowledge in the implementation and maintenance of **internationally accepted principles** of process operations. Through this, he has also gained knowledge regarding international safety standards for the National Fire Protection Association (**NFPA**), the American Petroleum Institute (**API**), Safety of Life at Sea (**SOLAS**), and Safety for Mobile Offshore Drilling Unit (**MODU**).

Mr. Saad has a **Master and Bachelor** degrees in **Chemical Engineering**. Further, he is a **Certified Lead Auditor** for **OHSAS 18001, ISO 9001 and ISO 14001** and he holds **NEBOSH** certificate which includes health & safety measures. His passion for development and acquiring new skills and knowledge has taken him all over the Middle East to attend and share his expertise in numerous trainings and workshops.



### 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, 01<sup>st</sup> of December 2024

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Introduction to Pipe Stress Analysis: Understanding Why it's Necessary, the Governing Principles, &amp; Key Terms</b>
0930 – 0945	Break
0945 – 1100	<b>Overview of CAESAR II: Exploring the Software Interface &amp; Basic Functions</b>
1100 – 1215	<b>Inputting a Piping System into CAESAR II: Learn to Create a Basic System</b>
1215 – 1230	Break
1230 – 1320	<b>Static Analysis Theory: An Overview of Static Analysis, Why it's Necessary, &amp; What it Reveals About a Piping System</b>
1320 – 1420	<b>Loads: Explanation of Primary &amp; Secondary Loads, Sustained &amp; Occasional Loads</b>
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day One

#### Day 2: Monday, 02<sup>nd</sup> of December 2024

0730 – 0930	<b>Developing Load Cases: How to Set Up &amp; Solve Various Load Cases for Static Analysis</b>
0930 – 0945	Break
0945 – 1100	<b>Practical Exercises: Participants will have Hands-on Experience Developing Load Cases</b>
1100 – 1215	<b>Error Checking &amp; Report Generation: Learn to Check for Errors &amp; Create Reports using CAESAR II</b>
1215 – 1230	Break
1230 – 1320	<b>Understanding Sustained Loads: Deep Dive into Sustained Loads, their Implications &amp; How to Design to Accommodate these Loads</b>
1320 – 1420	<b>CAESAR II for Sustained Loads: How to Use the Software to Perform Sustained Load Analysis</b>
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Two

#### Day 3: Tuesday, 03<sup>rd</sup> of December 2024

0730 – 0930	<b>Practical Exercises: Participants will have Hands-on Experience Performing Sustained Load Analysis</b>
0930 – 0945	Break
0945 – 1100	<b>Expansion Loads: Deep Dive into Expansion Loads, their Implications, &amp; How to Design to Accommodate these Loads</b>
1100 – 1215	<b>CAESAR II for Expansion Loads: How to Use the Software to Perform Expansion Load Analysis</b>
1215 – 1230	Break
1230 – 1320	<b>Practical Exercises: Participants will have Hands-on Experience Performing Expansion Load Analysis</b>
1320 – 1420	<b>Recap</b>
1430	Lunch & End of Day Three

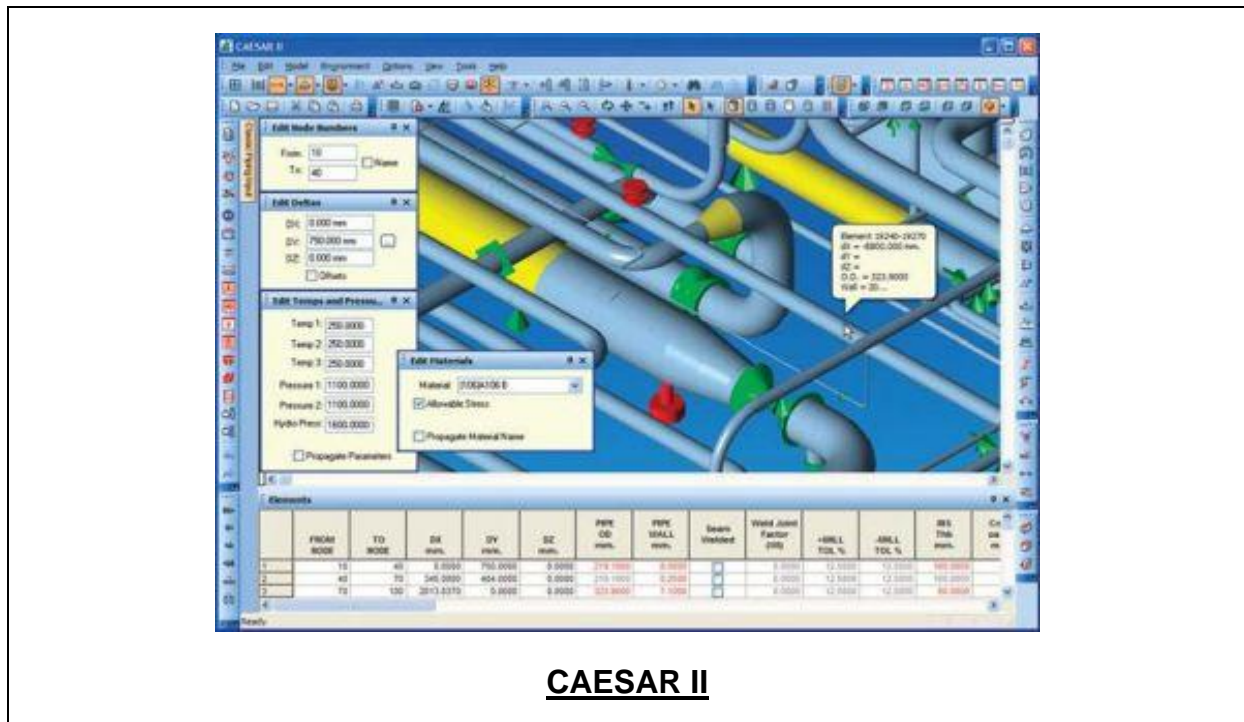


**Day 4: Wednesday, 04<sup>th</sup> of December 2024**

0730 – 0930	<i>Advanced Topics: Cover Any Additional Topics such as Seismic Analysis, Wind Loading, or Dynamics (As per Course Objectives &amp; Participant Interest)</i>
0930 – 0945	<i>Break</i>
0945– 1100	<i>Practical Exercise: Participants will have a Hands-on Experience with these Advanced Topics</i>
1100 – 1215	<i>Troubleshooting &amp; Best Practices: Discuss Common Issues &amp; How to Resolve them, Plus Tips for Best Practices in Pipe Stress Analysis</i>
1215 – 1230	<i>Break</i>
1300 – 1345	<i>Course Wrap-up: Review of the Week's Concepts, Open Forum for Remaining Questions, Feedback Session, &amp; Next Steps for Further Learning</i>
1345 – 1400	<i>Course Conclusion</i>
1400 – 1415	<i>POST-TEST</i>
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch &amp; End of Course</i>

**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 state-of-the-art “CAESAR II Software”.



**Course Coordinator**

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