COURSE OVERVIEW ME0409
Caesar II

Course Title
Caesar II

Course Date/Venue
October 06-10, 2025/Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference
ME0409

Course Duration
Five days/3.0 CEUs/30 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.

Ensuring your plant's piping systems adhere to international codes and standards plays an integral role in keeping your plant operational. CAESAR II software makes it easy to input and display all the data needed to accurately define a piping system analysis model. It evaluates the structural responses and stresses of your piping systems to international codes and standards and enables you to access and modify, if necessary, input element by element or globally.

This course is designed to provide participants with a detailed and up-to-date knowledge on Caesar II: Piping Stress Analysis. It covers the software's basic features, applications and user interface; the setup, configuration and data input methods of CAESAR II; the fundamental concepts in pipe stress analysis; the piping codes, components and supports; the steel structure supports and sustained loads versus spring hanger design; the expansion joints design and analysis and flange assessment; the stress intensification factors for elbows and interconnections; the expansion loops and buried pipeline analysis; and the piping evaluation for fatigue due to seismic and wind loads and other occasional loads with static equivalents.

During this interactive course, participants will learn the local stresses in vessels and nozzles; the pump and nozzle flexibility according to API 610 standards; the RFP piping systems and transmission lines; the finite element analysis tools available in CAESAR II; the concepts learned in CAESAR II to real-world model analysis; the basic theory of dynamics in relation to CAESAR II; the harmonics analysis, spectral analysis, relief valve analysis, history analysis, seismic design and system responses evaluation; the flow induced vibration, impact load analysis and dealing with complex piping systems; and the common errors in pipe stress analysis and how to mitigate them.

Course Objectives

At the end of this course the Trainee will be able to fully utilize the CAESAR II software application:

- Appy and gain a comprehensive knowledge on Caesar II piping stress analysis
- Understand the software's basic features, applications and user interface
- Set-up and configure CAESAR II as well as input data into the software
- Discuss the fundamental concepts in pipe stress analysis and how they are applied in CAESAR II
- Identify the various piping codes used in CAESAR II as well as the components and supports typically involved in pipe stress analysis
- Design and analyze steel structure supports in CAESAR II as well as differentiate sustained loads versus spring hanger design and the crucial concepts in pipe stress analysis
- Explore how to design and analyze expansion joints in CAESAR II and apply flange assessment
- Calculate and interpret stress intensification factors for elbows and interconnections
- Design and analyze expansion loops, analyze buried pipelines and evaluate piping for fatigue due to seismic and wind loads and other occasional loads with static equivalents
- Analyze local stresses in vessels and nozzles including pump and nozzle flexibility according to API 610 standards
- Model and analyze RFP piping systems and transmission lines as well as use finite element analysis tools available in CAESAR II
- Apply the concepts learned in CAESAR II to real-world model analysis and discuss the basic theory of dynamics in relation to CAESAR II
- Understand the different modes of vibration and how they are analyzed in CAESAR II
- Carryout harmonics analysis, spectral analysis, relief valve analysis, history analysis, seismic design and system responses evaluation
- Interpret flow induced vibration, conduct an impact load analysis and deal with complex piping systems
- Recognize the common errors in pipe stress analysis and how to mitigate them

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 piping stress analysis for those who are involved with piping in the petroleum, chemical, power, gas transmission and related industries. Further, mechanical/design engineers, piping vessel maintenance engineers, engineering managers, piping designers, plant managers, draftsmen, new and experienced CAESAR-II users can benefit from this up-to-date, information-packed short course, whether they use other pipe stress programs – or don't use any.

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 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.

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: -

- 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:

Dr. Tony Dimitry, PhD, MSc, BSc, is a **Senior Mechanical & Maintenance Engineer** with over **35 years** of industrial experience within the **Petroleum**, **Oil & Gas**, **Petrochemical**, **Nuclear & Power** industries. His expertise covers **CAESAR**, **Pipe Stress Analysis**, **Pipeline** System Design, Construction, Maintenance and Repair, Facilities & **Pipeline** Integrity Assessment, **Pipeline** Welding Practices, Revising **Engineering Drawings**, **Engineering Drawings & Diagrams**, **AutoCAD & GIS Support**, Retailed **Engineering Drawings**, Codes & Standards, **Mechanical Diagrams** Interpretation, Reading **Engineering Drawings**, **Process & Project Drawings**, **Engineering Drawings** Interpretation, **Piping Layouts & Isometrics**, **P&ID** Reading & Interpretation, Glass Reinforced Epoxy (**GRE**), Glass Reinforced Pipes (**GRP**), Glass Reinforced Vent (**GRV**), **Mechanical Pipe Fittings**, **Flange Joint Assembly**, Adhesive Bond Lamination, **Butt Jointing**, **Joint & Spool Production**, **Isometric Drawings**, **Flange Assembly** Method, **Fabrication & Jointing**, Jointing & Spool Fabrication, **Pipe Cuttings**, **Flange Bolt Tightening** Sequence, **Hydro Testing**, **Failure Analysis Methodologies**, Machinery Root Cause Failure Analysis (**RCFA**), **Preventive Maintenance** & **Condition Monitoring**, Reliability Centred Maintenance (**RCM**), Risk Based Inspection (**RBI**), Root Cause Analysis (**RCA**), **Planning & Managing Plant Turnaround**, **Scheduling Maintenance**, **Data Archive Maintenance**, **Master Milestone Schedule** (**MMS**), Piping & Mechanical **Vibration Analysis**, Preventive & Predictive Maintenance (**PPM**) **Maintenance**, Condition Based Monitoring (**CBM**), Risk Based Assessment (**RBA**), Planning & Preventive Maintenance, **Maintenance** Management (**Preventive**, **Predictive**, **Breakdown**), **Reliability** Management, Rotating Equipment, Scheduling & Cost Control, **Maximo** Foundation, **Maximo** Managing Work, **Asset Management Best Practices**, **Resource Management**, **Inventory Set-up & Management**, **Work Management**, Automatic & Work Flows & Escalations, **Vibration Analysis**, **Heat Exchanger**, **Siemens**, **Gas & Steam Turbine Maintenance**, **Pumps & Compressors**, **Turbo-Expanders**, **Fractional Columns**, **Boilers**, **Cryogenic Pumps** for **LNG**, **Electromechanical Maintenance**, **Machinery Alignment**, **Lubrication Technology**, **Bearing & Rotary Machine**, **Blower & Fan**, **Shaft Repair**, **Safety Relief Valves**, **Pipelines**, **Piping**, **Pressure Vessels**, **Process Equipment**, **Diesel Engine & Crane Maintenance**, **Tanks & Tank Farms**, **Pneumatic System**, **Static Equipment**, **FMEA**, **Corrosion**, **Metallurgy**, **Thermal** and **Electrical Modelling** of **Battery Problems**. He is also well-versed in various simulators such as i-**Learn Vibration**, **AutoCAD**, **Word Access**, **Aspen One**, **Fortran**, **VB**, **C ANSYS**, **ABAQUS**, **DYNA3D**, **Ceasar**, **Caepipe**, **MS Project**, **Primavera**, **MS Excel**, **Maximo**, **Automation Studio** and **SAP**. Currently, he is the **Maintenance Manager** of the PPC Incorporation wherein he is responsible for the maintenance and upgrading of all **Power Station** components.

During his career life, Dr. Dimitry held a significant positions such as the **Operations Engineers**, **Technical Trainer**, **HSE Contracts Engineer**, **Boilers Section Engineer**, **Senior Engineer**, **Trainee Mechanical Engineer**, **Engineer**, **Turbines Section Head**, **Professor**, **Lecturer/Instructor** and **Teaching Assistant** from various multinational companies like **Chloride Silent Power Ltd.**, **Technical University of Crete**, **National Nuclear Corporation**, **UMIST Aliveri Power Station** and **HFO Fired Power Station**.

Dr. Dimitry has **PhD**, **Master** and **Bachelor** degrees 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 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, 06th of October 2025***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Introduction to CAESAR II:*** *Understanding the Software's Basic Features, Applications & User Interface*
0930 – 0945	*Break*
0945 – 1030	***Setup/Configuration/Data Input Methods of CAESAR II:*** *Detailed Explanation of How to Set Up & Configure CAESAR II as well as How to Input Data into the Software*
1030 – 1130	***Introduction to Pipe Stress Analysis Basics:*** *Fundamental Concepts in Pipe Stress Analysis & How They are Applied in CAESAR II*
1130 – 1215	***Piping Codes, Components & Supports:*** *An Overview of the Various Piping Codes Used in CAESAR II as well as the Components & Supports Typically Involved in Pipe Stress Analysis*
1215 – 1230	*Break*
1230 – 1330	***Steel Structure Supports:*** *A Detailed Look at How to Design & Analyze Steel Structure Supports in CAESAR II*
1330 – 1420	***Understanding Sustained Loads vs Spring Hanger Design:*** *An In-depth Comparison Between These Two Crucial Concepts in Pipe Stress Analysis*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2: ***Monday, 07th of October 2025***

0730 – 0830	***Expansion Joints Design & Analysis:*** *Exploring How to Design & Analyze Expansion Joints in CAESAR II*
0830 – 0930	***Flange Assessment:*** *An In-Depth Discussion on Flange Assessment in CAESAR II*
0930 – 0945	*Break*
0945 – 1100	***Stress Intensification Factors for Elbows & Interconnections:*** *Understanding How to Calculate & Interpret Stress Intensification Factors*
1100 – 1215	***Expansion Loops:*** *A Detailed Look at the Design & Analysis of Expansion Loops in CAESAR II*
1215 – 1230	*Break*
1230 – 1330	***Buried Pipeline Analysis:*** *Exploring the Unique Considerations & Methods for Analyzing Buried Pipelines in CAESAR II*
1330 – 1420	***Fatigue Evaluation of Piping:*** *Understanding How to Evaluate Piping for Fatigue Due to Seismic & Wind Loads & Other Occasional Loads with Static Equivalents*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3:	Tuesday, 08th of October 2025
0730 – 0830	***Local Stresses in Vessels/Nozzles:*** *Learning How to Analyze Local Stresses in Vessels & Nozzles in CAESAR II*
0830 – 0930	***API 610 Analysis of Pump & Nozzle Flexibility****: In-depth Analysis of Pump & Nozzle Flexibility According to API 610 Standards*
0930 – 0945	*Break*
0945 – 1100	***Modelling/Analysis of RFP Piping Systems & Transmission Lines:*** *Detailed Explanation on Modelling & Analyzing RFP Piping Systems & Transmission Lines*
1100 – 1215	***Finite Element Analysis Tools & Mode Shapes:*** *Introduction to the Finite Element Analysis Tools Available in CAESAR II & Understanding the Concept of Mode Shapes*
1215 – 1230	*Break*
1230 – 1330	***Model Analysis:*** *Applying the Concepts Learned in CAESAR II to Real-World Model Analysis*
1330 – 1420	***Dynamics (Basic Theory):*** *Understanding the Basic Theory of Dynamics in Relation to CAESAR II*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

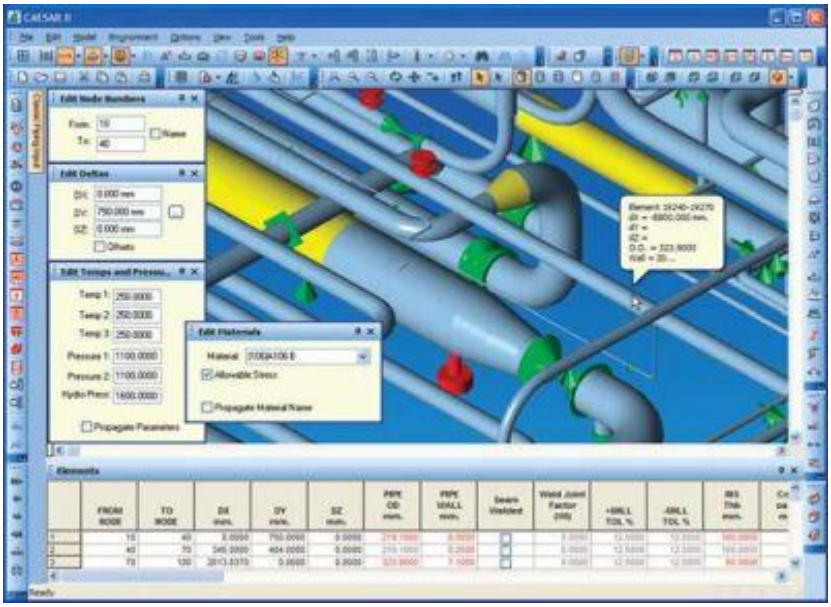
Day 4:	Wednesday, 09th of October 2025
0730 – 0830	***Modes of Vibration:*** *Understanding the Different Modes of Vibration & How they are Analyzed in CAESAR II*
0830 – 0930	***Harmonics Analysis:*** *Exploring the Theory & Application of Harmonics Analysis in CAESAR II*
0930 – 0945	*Break*
0945 – 1100	***Spectral Analysis:*** *Detailed Overview of Spectral Analysis in CAESAR II*
1100 – 1215	***Relief Valve Analysis:*** *Learning About the Design & Analysis of Relief Valves using CAESAR II*
1215 – 1230	*Break*
1230 – 1330	***Time History Analysis & Seismic Design:*** *Exploring the Application of Time History Analysis for Seismic Design in CAESAR II*
1330 – 1420	***Evaluation of System Responses:*** *Understanding How to Evaluate System Responses in CAESAR II*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5:	Thursday, 10th of October 2025
0730 – 0830	***Flow Induced Vibration:*** *An Overview of Flow Induced Vibration & How It's Analyzed in CAESAR II*
0830 – 0930	***Impact Load Analysis:*** *A Detailed Look at How to Conduct an Impact Load Analysis in CAESAR II*
0930 – 0945	*Break*
0945 – 1100	***Dealing with Complex Piping Systems:*** *Strategies & Best Practices for Dealing with Complex Piping Systems in CAESAR II*
1100 – 1215	***Understanding & Mitigating Errors:*** *Understanding Common Errors in Pipe Stress Analysis & How to Mitigate Them*

1215 – 1230	*Break*
1230 – 1345	***Tips & Tricks for Efficient Use of CAESAR II:*** *Sharing Some Insider Knowledge for Maximizing Efficiency in CAESAR II*
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
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 state-of-the-art "CAESAR II Software".



Course Coordinator

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