COURSE OVERVIEW OE0170

Offshore Structural Analysis Computer System (SACS®)

Course Title

Offshore Structural Analysis Computer System (SACS®)



Course Date/Venue

Session 1: April 04-08, 2027/Meeting Plus 9, City Centre Rotana, Doha, Qatar
Session 2: September 12–16, 2027/Meeting Plus 9, City Centre Rotana, Doha, Qatar

Course Reference

OE0170

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

Course Description







This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.

SACS is an integrated suite of software that supports the analysis, design and fabrication of offshore structures and will discuss the fundamentals behind offshore structures with the overall objective to provide participants with an understanding of the design and construction of offshore structure using Structural Analysis Computer System (SACS®) software. SACS is the most comprehensive design and analysis package offered to both the offshore and civil engineering industries.

This course will cover offshore platforms and nomenclature; the role of SACS® in their design and analysis; system capabilities and new features, system configuration; structural models with SACS® using the graphical interface; method of creating a new model using the wizard; process of defining geometry; input material properties; user-defined loading and input environmental loading from waves, wind, current; as well as API RP-2A 20th/21st edition considerations and the hydrostatic and hydrodynamic properties necessary to input in the model.

During this interactive course, participants will be able to describe the load combinations modeling and gain knowledge on code check parameters; identify the analysis options for SACS® and input soil data from the geotechnical report; generate soil data and capacity curve plots and create joint can input file; execute the linear static analysis; conduct beam and finite element stress checks and tubular connection punching shear check; review results, redesign interactively and learn the process of viewing soil graphs and plotting results; demonstrate the method of checking the SACS® model onscreen and examine the SACS® output; prepare and model piles, risers and appurtenances; explain the process of checking the SACS® model and entering the correct Ky/Kz or Ly/Lz properties for primary structural members; and provide alternative ways of entering soil data in PSI.

Course Objectives/Outcomes & Benefits for the Participants

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

- Apply an in-depth knowledge and skills in Offshore Structural Analysis Computer System (SACS®)
- Discuss offshore platforms and nomenclature and emphasize the role of SACS® in their design and analysis
- Determine the system capabilities and new features of SACS® and explain its system configuration
- Create structural models with SACS® using the graphical interface and demonstrate the method of creating a new model using the wizard
- Explain the process of defining geometry and demonstrate how to input material properties
- Describe user-defined loading and input environmental loading from waves, wind, current, etc.
- Recognize API RP-2A 20th/21st edition considerations and the hydrostatic & hydrodynamic properties necessary to input in the model
- Describe load combinations modeling and gain knowledge on code check parameters
- Identify the analysis options for SACS® and input soil data from the geotechnical report
- Generate soil data & capacity curve plots and create joint can input file
- Execute the linear static analysis and conduct beam and finite element stress checks and tubular connection punching shear check
- Review results and to redesign interactively and learn the process of viewing soil graphs & plotting results
- Demonstrate the method of checking the SACS® model onscreen and examine the SACS® output
- Prepare and model piles, risers & appurtenances and explain the process of checking the SACS® model & entering the correct Ky/Kz or Ly/Lz properties for primary structural members
- Provide alternative ways of entering soil data in PSI

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 offshore structural analysis computer system (SACS®) for offshore structural, architectural, mechanical and civil engineers and designers. The course will also benefit naval engineers and technologists.

Training Methodology

Our courses employ an interactive, learner-centred methodology that integrates theoretical knowledge with practical application. The training is delivered through a suitable combination of some or all of the following methods, selected according to the course content and learning objectives:

- Instructor-led presentations and facilitated discussions
- Practical workshops and participant presentations
- Hands-on exercises and real-world case studies
- Equipment demonstrations and technical drawings
- Hardware- and software-based simulations
- Gamification & Role Play in soft-skills courses only
- Virtual Reality (VR) and Augmented Reality (AR)
- Instructional videos and other relevant training resources

This blended approach encourages active participation, strengthens practical skills and supports the effective application of acquired knowledge in the workplace.

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 Fee

US$ 8,500 per Delegate. 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)

Internationally recognized certificates will be issued to all participants of the course 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.

Course Instructor

This course will be conducted by the following instructor. However, we have the right to change the course instructor prior to the course date and inform participants accordingly:



Mr. Luis Manuel is a **Senior Marine Offshore Engineer** with over **30 years** of extensive and practical experience within the **Oil**, **Gas**, **Petrochemical** and **Petroleum** industries. His expertise includes **Pipelines** & **Piping** Design, **International Ship and Port Facility Security Code** (**ISPS**) **Code**, Inspection & Maintenance (**ASME B31**, **API 579** & **API 580**), **Offshore Structure** Engineering, Risk-Based Inspection (**RBI**), Integrity Assessment, Forensic Analysis, Structural Analysis, Design & Engineering, Naval Architecture, Regulatory Compliance Inspections, **Stress & Fatigue Analysis** using **SACS**, **StruCad**, **Caesar II** and **Finite Element Analysis** simulators. He was the **Technical Advisor** and **Engineering Manager** of a leading international engineering firm where he led all Inspections, Structural Engineering and Pipeline Projects for **Total-ELF**, **Shell** and **Mobil**.

During his career life, Mr. Manuel has gained his thorough practical experience in **multiple engineering disciplines** that includes pipeline/piping inspection and engineering, naval engineering, container cargo lashing, aerospace engineering and offshore structural engineering (oil and gas exploration platforms) through several challenging positions such as the **Senior Pipelines Engineer**, **Senior Piping Engineer**, **Senior & Lead Structural Engineer**, **Staff Engineer**, **Naval Architect** and **Applications Engineer** for various international companies including **Chevron**, **ExxonMobil**, **Addax Petroleum**, **ZAGOC**, **NASSCO**, DWC, Point Engineering, **US ARMY**, W.S. & Atkins, Atlas Engineering, **Heerema Offshore**, Casbarian Engineering Associates (CEA), Textron Marine, Ingalls Shipbuilding and Peck & Hale. Further, he has been heavily involved in the development of fabrication and erection drawings for offshore structures including installation and rigging as well as in the instruction materials as authorized by EDI (**Engineering Dynamic Incorporated**) for the training of engineers on the Structural Analysis Computer System (**SACS**) software.

Mr. Manuel has a **Bachelor** degree in **Structural & Marine Engineering** from the **State University of New York**. Further, he is a **Certified Internal Verifier/Trainer/Assessor** by the **Institute of Leadership & Management** (**ILM**), a **Certified Instructor/Trainer** and the **author** of the book "**Offshore Platforms Design**" and the "**SACS Software Training Module**".

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

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0900	***Personnel Introductions & Software Installation***
0900 – 0930	***SACS Overview***
0930 – 0945	*Break*
0945 – 1030	***Offshore Platforms*** *Nomenclature*

1030 – 1100	***Scope of Training & Training Strategy***
1100 – 1130	***System Capabilities & New Features***
1130 – 1215	***System Configuration***
1215 – 1230	*Break*
1230 – 1330	***Using the Graphical Interface***
1330 – 1420	***Questions & Answers***
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0800	***Creating the Model Using Wizard***
0800 – 0830	***Defining Geometry & Material Properties***
0830 – 0930	***User-Defined Loading***
0930 – 0945	*Break*
0945 – 1030	***Environmental Loading of Wave, Wind, etc***
1030 – 1100	***API RP-2A 20th/21st Edition Considerations***
1100 – 1130	***Hydrostatic & Hydrodynamic Properties***
1130 – 1215	***Load Combinations Modelling***
1215 – 1230	*Break*
1230 – 1300	***Code Check Parameters***
1300 – 1330	***Analysis Options***
1330 – 1420	***Stage Assessment***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0800	***Modelling & Generating API RP-2A 20th Soils***
0800 – 0830	***Generating Soil Data & Capacity Curve Plots***
0830 – 0930	***Creating the Joint can Input File***
0930 – 0945	*Break*
0945 – 1030	***Executing the Linear Static Analysis***
1030 – 1100	***Beam & Finite Element Check***
1100 – 1130	***Tubular Connection Punching Shear Check***
1130 – 1215	***Reviewing Results & Redesigning Interactively***
1215 – 1230	*Break*
1230 – 1300	***Questions & Answers***
1300 – 1330	***Viewing Soil Graphs & Plotting Results***
1330 – 1420	***Stage Assessment***
1420 – 1430	*Recap*
1430	*Lunch & End of Day Three*

Day 4

0730 – 0830	***Checking the SACS Model on Screen***
0830 – 0930	***Examining the SACS Output***
0930 – 0945	*Break*
0945 – 1030	***Modelling Piles***
1030 – 1100	***Checking the SACS Model for & Entering the Correct Ky/Kz or Ly/Lz Properties for Primary Structural Members***
1100 – 1130	***Modelling Risers & Appurtenances***

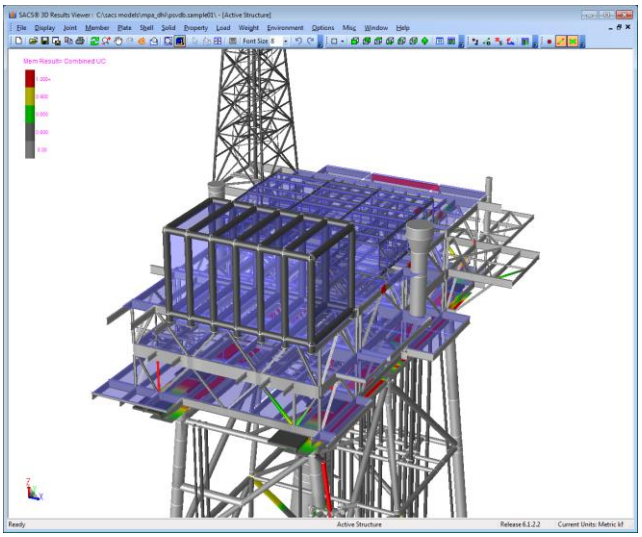
1130 – 1215	***Questions & Answers***
1215 – 1230	*Break*
1230 – 1330	***Alternative Ways of Entering Soil Data in PSI***
1330 – 1420	***Stage Assessment***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0930	***Knowledge Assessment***
0930 – 0945	*Break*
0945 – 1100	***Knowledge Assessment (cont'd)***
1100 – 1215	***Checking the Participants Work & Commenting on Difficulties Encountered***
1215 – 1230	*Break*
1230 – 1345	***Course Critique***
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 "Offshore Structural Analysis Computer System (SACS®)" simulator.



Offshore Structural Analysis Computer System (SACS®)

Course Coordinator

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