Meet SACS™

Empowering offshore innovation

Table of Contents

Anchored in Complexity: The Challenges of Offshore Engineering

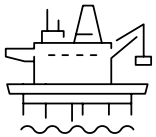
Offshore structural engineers face unique challenges beyond conventional structural demands. Their structures must endure harsh marine environments, extreme forces, and continuous exposure to corrosive seawater. Designing reliable and resilient offshore structures requires precision, innovation, and advanced engineering solutions.

Offshore engineering technical challenges include:

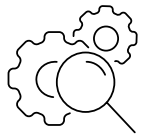
Dynamic environmental loads
Constant exposure to waves, wind, and currents exerting unpredictable forces.

Corrosion and material degradation
Seawater accelerates wear, demanding careful material selection.

Structural fatigue
Repeated stress cycles weaken materials over time.



Complex installation and maintenance
Offshore structures require specialized construction and upkeep in remote locations.



Regulatory compliance
Designs must meet strict safety and environmental standards.

Day-to-day Offshore Engineering Tensions

In addition to the technical engineering challenges, offshore engineers face a host of day-to-day professional challenges.

Staying competitive
Keeping pace with emerging technology and industry trends.

Meeting deadlines and budgets
Balancing efficiency, cost control, and quality.

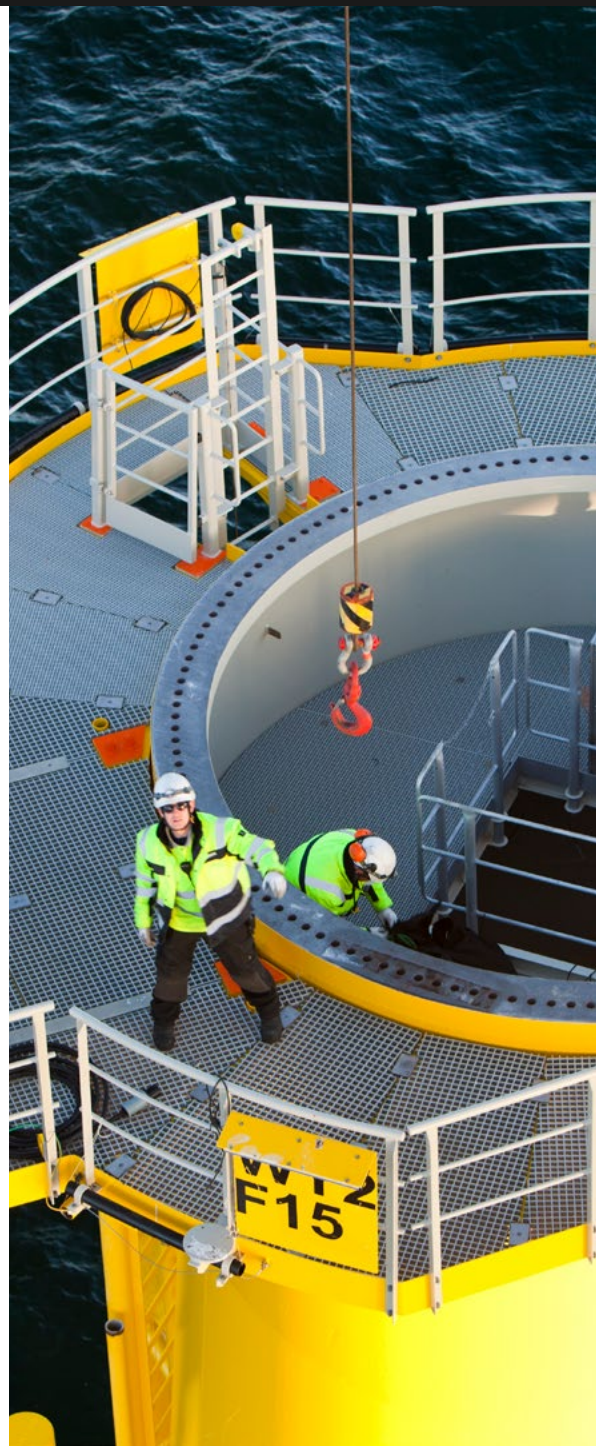
Winning projects
Navigating bidding processes and demonstrating value.

Client satisfaction
Addressing expectations while maintaining technical integrity.

Team coordination
Managing multidiscipline collaboration across locations.

Risk management
Proactively identifying and mitigating potential failures.

To combat these unique technical and professional challenges, offshore engineers need robust, cutting-edge technology to streamline their workflows and make them more efficient.



Powerful Software You Can Trust

For 50 years, Bentley SACS has been the leading comprehensive offshore structural design and analysis software trusted by engineers all over the world. It provides innovative solutions needed to efficiently design fixed offshore oil and gas platforms, FPSO topsides, piles, and wind turbine foundations. Whether it's for design, fabrication, installation, operations, or decommissioning, SACS helps engineers face complex technical and professional hurdles.

With SACS, you can:

- **Simulate environmental forces –** Predict wave, wind, and current impacts with accuracy.
- **Optimize materials –** Choose the best materials to prevent corrosion and structural fatigue.
- **Plan efficient installation –** Test construction and maintenance scenarios before deployment.
- **Ensure compliance –** Design structures that meet international safety and environmental standards.

Built by Engineers for Engineers

SACS is offshore-specific software built by engineers for engineers who know what it takes to succeed in the industry. It puts advanced offshore engineering capabilities in your hands, helping you overcome unique challenges with confidence.

SACS helps you:

- **Stay ahead of the competition –** Leverage automation and advanced analysis for innovative designs.
- **Meet deadlines and budgets –** Work faster without sacrificing quality using advanced modeling tools.
- **Win more projects –** Create compelling visualizations and reports to secure contracts.
- **Keep clients happy –** Deliver optimized solutions tailored to their exact needs.
- **Collaborate seamlessly –** Share and refine designs with multidiscipline teams worldwide.
- **Manage risk proactively –** Identify potential issues before they become costly problems.

Flexible and Scalable Offshore Engineering

Every offshore project comes with unique demands, requiring scalable and adaptable engineering solutions. Bentley offers four flexible SACS options, complemented by add-on modules and interoperability features that enhance its offshore structural design capabilities. With customizable applications, you can tailor SACS to your specific needs, ensuring efficiency and accuracy in every project.

SACS key features:

Comprehensive structural analysis
Supports linear and nonlinear static and dynamic analysis.

Wave and wind load modeling
Accurately simulates environmental forces to optimize designs for stability and durability.

Geotechnical integration
Includes soil-structure interaction analysis, pile design, and foundation modeling.

3D modeling and visualization
Create, view, and analyze offshore structures in a detailed 3D environment.

Regulatory compliance
Ensure designs meet global industry standards.

Automated workflows
Streamline complex analyses and efficiently manage large-scale project.

Solutions for a Sustainable Future

The global shift toward renewable energy is driving demand for more efficient and resilient offshore structures, particularly in offshore wind energy. Many countries are investing in wind farms and other offshore projects to accelerate the transition to cleaner energy sources.

To meet this growing demand for offshore wind energy, engineers need sophisticated and comprehensive software that is reliable, comprehensive, and efficient to innovate new offshore wind designs.

SACS Wind Turbine is Bentley's specialized offshore wind turbine foundation design and analysis software.

With powerful automation and cloud-based acceleration, SACS Wind Turbine makes it easier than ever to:

- **Reduce design time:** Automate complex simulations, cutting analysis from weeks to hours.
- **Improve accuracy:** Advanced load calculations ensure structural integrity and compliance.
- **Optimize costs:** Smart foundation design minimizes material usage saving up to 30% in material costs.

With SACS Wind Turbine, you can deliver safer, more cost-effective offshore wind structures to create a better tomorrow.

Ready to Upgrade Your Offshore Structural Designs?

Let our offshore experts help you get started today.

Chat with an expert **Learn more**