Chess Subsea Engineering

Proudly promoting local content with sustainability

Subsea Field development, Production & Drilling Systems Specialist
Note:
Chess Subsea is always delighted to take up either role base position or contract position on any of our consultancy services with IOC’s, offshore or Subsea Company worldwide. We stick and abide with our clients company policy while delivering our services on time, quality and within budget without undermining safety.

www.chesssubseaengineering.com

/ChessSubseaEngineering
Welcome to Chess Subsea

Chess Subsea Engineering is a leading provider of subsea production systems training, research and consulting services to the oil and gas industry through playing a vital role in all phases of subsea field development. Our exceptional professional services is aimed at enabling offshore oil and gas companies around Nigeria and Western African Countries to deliver deepwater projects on time, quality and within budget without undermining safety.

Chess Subsea production systems consulting operations are well organized in divisions such as Subsea Project Management, Subsea Production System Asset Integrity Management, Subsea Field Development & System Engineering, Subsea Umbilicals, Risers and Flowlines (SURF), Subsea Systems Installation Support, ROV Subsea Operation Support, Subsea Drilling Systems, Subsea Production Systems Professional Training and Deepwater Resources Research & Development.

Chess Subsea is also the hub of deepwater subsea engineering research in West Africa. At Chess Subsea, our research is centred in five major areas namely Subsea Systems & Topsides, Marine Engineering, Offshore Engineering, Oil and Gas Resource Development & Decommissioning.

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Subsea Production System Specialist

Component of Subsea Production Systems

Subsea production system is associated with the overall process and all the equipment involved in drilling, field development, and field operation.

Component of Subsea Production System includes:

I. Subsea Drilling Systems

II. Subsea Christmas trees and wellhead systems;

III. Umbilical & Riser systems;

IV. Subsea manifold and jumper systems;

The diagram below; shows relationship between subsea production system components.

Chess Subsea professional services are solely focused on subsea field development, subsea production systems, reliability of these systems and its integrity management.

www.chesssubseaengineering.com
History

Chess Subsea Engineering is a subsea production system training, research and consultancy company fully registered and established in Nigeria with headquarters in United Kingdom, London. The company was founded in 2013 as a subsea engineering research company. Its research was centred in five major areas namely Subsea Production Systems & Topsides, Marine Engineering, Offshore Engineering, Oil and Gas Resource Development & Decommissioning.

In 2014, Chess Subsea started consulting for offshore training institutes & deepwater oil and gas companies. Its operations were centred in divisions such as Subsea Project Management, Subsea Production System Asset Integrity Management, Subsea Field Development & System Engineering, Subsea Umbilicals, Risers and Flowlines (SURF), Subsea Installation Support, ROV Subsea Operation Support & Subsea Drilling Systems.

Today, Chess Subsea has emerged as one of the largest subsea production systems training, research and consultancy company in Nigeria & West Africa. It has established a solid track record of delivery quality services in a timely manner. We have an exemplary safety record and the ability to deliver world class services fully compliant with local content requirement.

PURPOSE

To be a leader in the subsea industry by providing enhanced services, relationship and profitability

Vision

To provide quality services that exceeds the expectations of our esteemed customers.

Core Values

C: Commitment
H: Honesty
E: Enthusiasm
S: Satisfaction of customers
S: Sustainability
Mission Statement

Our mission is to provide high quality subsea service to our customers through total commitment to innovative and research base engineering combined with the best combination of technical and human resources.

We advocate total commitment to efficiency and Quality Management of project(s) without compromising Health, Safety, Environment and Community Relations Issues.

Our client portfolio consists of major players in the following sectors:

- Oil & Gas Energy Industry
- Subsea Industry
- Offshore Industry
- Maritime Industry
- Government & its Agencies
Corporate Strategic Policy

We recognize that we operate in a dynamic and ever changing business environment. As such it is our continuous desire to be constantly proactive through the adoption of strategies that meets the needs of our clients, while constantly acquiring technology to maintain an edge over our competitors. These strategies include amongst others:

Provision of first class subsea engineering and deepwater research services tailored to meet the needs of our clients through the use of a highly professional, competent and motivated team, supported with advance technology and guided by the highest standard of professional ethics thus ensuring that all work is executed in due time and in compliance with client recommendation.

The achievement and sustenance of the highest performance standards unrivalled in the Nigeria Market with future prospects in other Africa Sub-regions.

Placing of premium value on human resources and investment in quality personnel through focused career development, recruitment and intensive training programs.

Creation and implementation of a flat organizational structure thus generating effective channels of communication supported by appropriate and modern systems, policies and procedures.

To constantly comply with industry and Government regulatory standards in order to provide maximum satisfaction to our clients, the company, shareholders and host community.
HSE Policy Statement

In recognition of the importance and need for a functional health, safety and environmental policy for its personnel and equipment, whether directly or indirectly involved in its daily operations, Chess Subsea Engineering maintains a standard policy on health, safety and environment in all areas of its operations.

As a subsea consultancy company, Chess Subsea complies with all codes and statutory requirements affecting the industry or client business sector. We adopt any plans that will enhance the business of safety in our organization and comply with safety programs / plans of our clients without violating relevant government legislation.

Our personnel undertake regular inspection visits to work sites or the purpose of internal safety audit (ISA) observations. Accident records are crucial to the effective monitoring and revision of the HSE policy and must therefore be accurate and comprehensive.

Recommendations are given prompt attention and adequate resources mobilised to create safer work environment for our personnel and equipment. Hence, all company’s personnel undertake periodic safety observation program (STOP). Our management prides itself in providing every employee with the requisite and equipment necessary to carry out his or her tasks in a safe working environment.

In constantly demonstrating our commitment to ensure the workings of this policy statement, our HSE policy will be continuously monitored and updated when changes in the scale and nature of our operations occur.
Our Services

Chess Subsea Engineering consulting services are well organized in divisions such as Subsea Project Management, Subsea Production System Asset Integrity Management, Subsea Umbilicals, Risers and Flowlines (SURF), Subsea Field Development & System Engineering, Subsea Systems Installation, ROV Subsea Operation, Subsea Well Control management, Subsea Professional Short Courses Training and Deepwater Research.

Chess Subsea is the hub of deepwater subsea research in Nigeria and West Africa. At Chess Subsea, our research is centred in five major areas namely Subsea Systems and Top Sides, Marine Engineering, Offshore Engineering, Oil and Gas Resource Development & Decommissioning.

Leading deepwater energy producers & training institute both internally and locally rely on us for our professional subsea services and exceptionally trained personnel’s. We play a vital role in all phases of subsea field development. Right from the planning phase through the front end engineering design phase and during drilling, installation, production & decommissioning phases.

Chess Subsea is always delighted to take up either role base position or contract position on any of our consultancy services with our client worldwide. We stick and abide with our clients company policy while delivering our services on time, quality and within budget without undermining safety.
Subsea Project Management

Chess Subsea aims at being the Project Management Consultancy (PMC) contractor of choice by supporting its customers’ business objectives and consistently delivering projects with outstanding safety and environmental performance that meet cost, schedule and quality targets.

Chess Subsea’s PMC services are being used on some of the world’s most challenging onshore, offshore and subsea projects.

As a single point of contact or as part of an integrated management team with the customer, we apply PMC best practices and management skills developed on many completed projects, to assist our customers in achieving their business objectives.

From the Technology & Licensor selection phase to the management of multinational consortia in the execution & successful delivery of world-scale, lump-sum turnkey projects, Chess Subsea has the required project management experience and its goal is to be its customers’ PMC contractor of choice.

Doing PMC the Chess Subsea way ensures customers can manage their project risks in a pro-active way and achieve their business objectives.
Field Development poses a considerable challenge for both operators and contractors, while serving a demanding oil and gas sector with high quality analysis and engineering studies, requires in-depth knowledge and experience.

Founded on our extensive subsea engineering experience and capabilities, we regularly deliver high quality engineering analyses and studies for any phase of the field development process.

We fully analyse the requirements of any project and further implement the most appropriate engineering solutions in order to ensure the optimum project result in terms of operations, finance and safety.

In addition to equipment and facilities systems, we also assess such aspects as:

- operational availability
- reliability
- shutdown functionality
- safety performance requirements
- installation and operational integrity.

Seabed equipment definitions and architecture is identified by system schematics. These cover everything from wellhead to topside including valves, connections, spools, templates, flowlines, structures, risers, etc. Our system schematics also form the interface definitions for management, cost estimates and an overall understanding of the system for all parties and stakeholders.

Chess Subsea has a proven track record in studies, analyses, and engineering solutions for development of oil and gas reserves in deep waters and arctic areas.

The breadth of engineers’ experience ranges from challenges associated with harsh environmental loads, extreme temperatures, deep waters, long fluid transport distances, and logistics for field development in remote areas.
Our key engineering capabilities include:

**Studies of all Phases of Field Development:**

- Early Phase Studies
- Concept Studies
- FEED Studies
- Detailed Engineering Studies
- Flow assurance
- Production Assurance and Optimisation
- HSE studies

**Components and System Engineering:**

- Riser and Umbilical Engineering
- Pipeline and Flowline Engineering
- System Engineering
- Structure and Tool Engineering

**Analysis:**

- Installation analysis
- Risk analysis
- System Engineering
- Subsea pipeline components and structures analysis

Our Engineering studies can reveal whether a system is optimised for operation and therefore determine if improvements can be made to increase your return on investment.
Subsea Integrity Management Solutions

Chess Subsea Asset Integrity Management (AIM) offer cost effective, integrated and practical solutions reflecting the need for predictability and minimal interruption to production.

We understand the physical structures to which asset integrity is applied and have considerable structural analysis and integrity expertise. Similarly, we are an industry leader in our knowledge of top-tensioned risers, flexible risers, umbilicals and wellheads from all engineering perspectives.

IMR for flexible risers to ensure integrity

We have been involved in in-situ inspections and assessments for major oil companies, focusing on flexible riser integrity.

Furthermore, we provide dissection and failure investigations for flexible risers and spools. These investigations are conducted by specialists with extensive riser design and operational history knowledge.

Selected examples of IMR services for Flexible Risers:

- Risk assessments of risers in operation
- Status assessments of flexible risers
- Establishment of inspection programs
- Dissection and failure investigations of flexible risers
IMR Engineering Services Includes:

- Development of maintenance, inspection, operation, monitoring philosophies and strategies.

- Criticality assessments for equipment, systems and special tools.

- Reliability centred maintenance assessment, leading to preventive (typically ROV exercising, CP-measurement, inspection and remote testing) and corrective maintenance plans, and condition based solutions for wellheads, valves, control modules, subsea transformers, pumps, compressors, heat exchangers, piping, pipelines and more, also their topsides power, control and operating systems.

- Risk based inspection assessments leading to ROV-inspection plans for piping, equipment and structures, also pipelines, umbilicals and risers.

- Practical maintenance and inspection plans, collected and job-packed, with work instructions, drawings and report formats.

- Assessment of fitness-for-service for damaged and corroded equipment, systems and structures, and assessment of potential for lifetime extension for these.

- Project management of all the above.

The maintenance and inspection plans can be started at FEED phase, to ensure that all relevant failure modes are considered. We also offer assessment and follow-up of all condition monitoring, maintenance and inspection findings, with reporting and advice to operators on what actions should be taken to maintain integrity.
Installation Support

Chess Subsea Engineering is a specialist subsea installation-support services provider. Chess Subsea installation experts are also available to support a diverse cross-section of offshore projects.

Chess Subsea provides a range services in support of its subsea installation support operations, including:

- Rigless intervention and project engineering
- Provision of DP2 and DP3 vessels
- Subsea System Installation Analysis
- Project management and logistic support
- Survey and positioning assistant
- Offshore project personnel
Subsea Well Control Management

Subsea Well Control Management is the management of the dangerous effects caused by the unexpected release of formation fluid, such as gas, water and/or crude oil, upon well control equipment (surface & subsea) of oil and gas drilling rigs and escaping into the atmosphere.

Technically, oil well control involves preventing the formation fluid, usually referred to as kick, from entering into the wellbore during drilling. Formation fluid can enter the wellbore if the pressure exerted by the column of drilling fluid is not great enough to overcome the pressure exerted by the fluids in the formation being drilled.

The prevention of hydrocarbons in wells rising to the surface out of control is crucial to the safety of offshore operations. Based on chess subsea R&D team findings, four critical factors and eight scenarios can lead to well control accident offshore.

The holes in the diagram above represent failures or vulnerabilities in the defence barriers.
Subsea Well Control Management

At Chess Subsea, we work with offshore drilling contractors and BOP servicing companies as 3rd parties to routinely carryout maintenance, inspection and troubleshooting services on subsea well control equipment. Our subsea well control service scope is detailed below.

- Plan routine operations, including routine inspections of all well control equipment and compensating systems on floating rigs.

- Troubleshooting and fault correction of the BOP control system on conventional hydraulic and multiplex control systems as well as on the riser tensioner systems, direct acting tensioner systems, drill string or crown-mounted compensator systems.

- Plan and carry out maintenance, including routine maintenance and daily checks, of all well control equipment.

- Plan and carry out repairs, including changing of rams and overhauling ram bonnets, changing the annular element, installing and testing new hydraulic seals, changing/repairing choke and kill valves installed on the BOP, changing/repairing gate valves and chokes on choke and kill manifold and changing/testing slip joint packers.

- Understand the operations and maintenance of all types of hydraulic connectors used in today’s drilling industry.

- Understand the operations and maintenance of standard and modern marine riser systems.

- Perform the following calculations:

  1. accumulator systems calculations, both surface and subsea.
  2. riser tensioner calculations.
  3. compressibility calculations for pressure testing.
  4. design and testing of choke and kill manifolds.
  5. poorboy degasser calculations.
  6. rigid conduit line volumes circulation calculation.
  7. surface and subsea BOP pressure testing and design.

We can also conduct well control equipments integrity management for our clients.
ROV Support Operation

As offshore drilling operations move into waters beyond 10,000 feet, drilling ROV systems, personnel and procedures are critical to successful drilling operations. Chess Subsea can also support the global offshore exploration industry with its in-house servicing experts.

Chess Subsea Engineering can provide a number of key capabilities and enhanced services to address the needs of the current environment of planning, preparation, risk management, testing, safety and quality at every step of each project, each rig and each well. Today’s new generation deep water drilling vessels require tremendous investment, and the success of the asset’s operation can rely on the performance of the ROV systems on board. We believe that top quality equipment, experienced and properly trained personnel, advance planning, rigorous safety and risk assessment are key components of a successful drilling program.

With more than 2 years’ experience providing ROV support to offshore operators, Chess Subsea can provide a novel degree of service and expertise for drilling support operations.
Subsea Production System Professional Training

Subsea production system is associated with the overall process and all the equipment involved in drilling, field development, and field operation. The diagram below shows relationship between subsea production system components.

Chess Subsea professional training modules are geared towards detailed understanding of subsea production system, reliability of these systems and its integrity management.

**Structure**

Our course structure is divided into two (2); Online and Class rooms. Most of our online classes are free. This is geared towards obtaining theoretical knowledge of the production systems.

This is supported by real time operational videos that enable attendees to develop a practical understanding of systems, operations and procedures. We organize field trips at interval depending on availability.
Chess Subsea Engineering Short Professional Courses

- Introduction to Subsea Engineering
- Subsea Field Development
- Subsea Well Control Systems
- Subsea Distribution System
- Subsea Surveying, Positioning, and Foundation
- Installation and Vessels
- Subsea Cost Estimation
- Subsea Control Systems
- Subsea Power Supply
- Subsea Project Execution and Interfaces
- Subsea Risk and Reliability
- Subsea Equipment RBI
- Subsea System Engineering
- Hydraulics
- Subsea Corrosion and Scale
- Subsea Manifolds Systems
- Pipeline Ends and In-Line Structures
- Subsea Connections and Jumpers
- Subsea Wellheads and Trees
- ROV Intervention and Interface
- Subsea Umbilical Systems
- Drilling Risers
- Subsea Production Risers
- Multiplex Subsea Control BOP Stack – Operations, maintenance, trouble shooting and job hazard analysis

Free Online Courses

Subsea Project Execution and Interfaces

Subsea Systems Installation

Subsea Systems Risk and Reliability

Subsea Engineering Specialist Software
Chess Subsea Engineering Short Professional Training
Events | Gallery
Deepwater Subsea Research Areas

At chess subsea we create an environment for highly-qualified personnel to study, research and intern in the growing offshore industry and build on the research strengths associated with subsea technology.

The program is in response to identified needs in the offshore industry and has been designed to ensure that trainees receive professional training and active participation, team building, critical thinking, key industry problem solving, writing and presentation skills, networking with others, mentoring and career development.

At Chess Subsea Engineering, our research is centred in five major areas namely

- Subsea Systems & Topsides,
- Marine Engineering,
- Offshore Engineering,
- Oil and Gas Resource Development
- Decommissioning.

Research Areas

Subsea System & Topsides

Offshore Engineering

Oil & Gas Resources Development

Decommissioning

Marine Engineering
Deepwater Subsea Research Areas

Subsea Systems & Top Sides Research Areas

As the hub of deepwater research in West Africa, Chess Subsea Engineering research is centred in five major research areas namely Subsea Production Systems and Topsides, Marine Engineering, Offshore Engineering, Oil and Gas Resource Development & Decommissioning.

We work with Oil & Gas R&D departments, Institutes and Universities to carry out researches that will provide immediate solution to Oil and Gas companies need.

Our Subsea Production Systems Engineering research topic includes:

- Subsea Drilling Systems
- Subsea Systems – Trees, Controls, Manifolds
- Flexible Pipes
- Pipeline & Flowlines
- Umbilicals
- Risers Systems
- Subsea wells & Facilities Decommissioning
- Subsea Inspection & Integrity Management
- Dry tree solutions
- Transferring facilities from topsides to subsea
- Subsea Processing Separation, boosting and water injection

Decommissioning Research Areas

Our Decommissioning Engineering research topic includes:

- Field Restoration (Well Abandonment & Decommissioning)
Our Offshore Engineering research topic includes:

– Autonomous Vehicles for Offshore Exploration
– Deepwater Dry Tree System
– Floating Systems
– Flow Assurance
– Fractured Carbonate Reservoirs
– Geosciences in Offshore Projects
– High Pressure High Temperature
– Installation/Construction/Pipelay and Operations
– International Standards – Adapting to Local Requirements
– IOR/EOR
– Marginal Deepwater Production
– Materials Technology
– Minimizing Environmental Discharge
– Ocean Engineering Resources
– Offshore Artificial Lift
– Offshore Emergency Response & Recovery
– Offshore Governance & Regulations
– Offshore Oil and Gas Facilities Security
– Offshore Oil and Gas Platform Security
– Operating in the Monsoon Season
– Project Management and Economics
– Reservoir Modeling Technology
– Riser Systems
– Sensors and Measurements for Environmental Hazards
– Subsea Production and Processing System
– Wells and Completion Technology
– Offshore Technology (floating platforms, anchoring and mooring computations)
– Pipeline and Riser Technology (design, analysis, installation, pipe soil interaction, flexible pipes)
– Modeling and Structure Analysis of Offshore Structures
– Pipeline and Welding Technology
Marine Engineering Research Areas

Our Marine Engineering research topic includes:

– Ship Design (Hydrodynamic, Stability, Powering),
– Propulsion Transmission Systems, Analytic Design Procedures, Experimental Data
– Ship Production Technologies
– Marine Turbines and Energy Extractors
– Drilling, Production, Construction, Oil and Gas Reservoir Engineering
– Structures, Safety and Reliability
– Marine Environment and Safety
– Maintenance and Repair Technology
– Ship Conversion

Oil & Gas Resources Development Research Areas

Our Oil and Gas Resources Development research topic includes:

– Subsea Well Control Equipment Management
– Well drilling systems
– Well completion systems
– Pipelines and flowlines design
– Riser design
– Subsea structures
– Subsea controls and umbilicals
– Jumpers, connector systems and flying leads
– Moorings and mooring-riser interface
Chess Subsea is always delighted to take up either role base position or contract position on any of our consultancy services with our client worldwide. We stick and abide with our clients company policy while delivering our services on time, quality and within budget without undermining safety. Please contact:

Name: Oseghale Lucas Okohue

Position: Subsea Engineer Specialist– Production Systems | Drilling Systems

Email: oseghaleokohue@chesssubseaengineering.com, oseghaleokohue@gmail.com

info@chesssubseaengineering.com

Phone: 08139340494
Executed and On-going Projects

Chess Subsea Engineering has been able to execute excellent services to some notable clients in Nigeria and this includes:

Subsea Production System Professional Courses

Provision of Subsea Survey, Positioning, & Installation of Subsea Production Systems professional training services. Also inclusive to this package is introduction to subsea control System.

2014 – Till Date

Client: Offshore Technology Institute, Institute of Petroleum Studies, University of Portharcourt.

Instructor:

Name: Oseghale Lucas Okohue
Position: Subsea Engineer Specialist– Production Systems | Drilling Systems
Email: oseghaleokohue@chesssubseaengineering.com, oseghaleokohue@gmail.com
info@chesssubseaengineering.com
Phone: 08139340494

Offshore Engineering Research Consultancy Services

Provision of Offshore Engineering research consultancy services in the following area:

- Design verification of deepwater marine drilling riser.
- Pipeline installation stress analysis using S-Lay method
- Flow assurance simulation of deepwater production riser with Pipesim.

Client: Offshore Technology Institute, Institute of Petroleum Studies, University of Portharcourt – 2014

Consultant:

Name: Oseghale Lucas Okohue
Position: Subsea Engineer Specialist– Production Systems | Drilling Systems
Email: oseghaleokohue@chesssubseaengineering.com, oseghaleokohue@gmail.com
Phone: 08139340494