Basin Assessment & Modelling – Certification by IFP Training or Next SLB

26 April – 7 May 2027
Barcelona (Spain)



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Introduction

In today's competitive energy sector, mastering basin assessment and modeling is essential for exploration geoscientists and engineers to make informed, risk-based decisions. The Basin Assessment & Modelling - Certification by IFP Training or Next SLB course equips professionals with the theoretical and practical tools to analyze sedimentary basins, interpret petroleum systems, and integrate geological, geophysical, and geochemical data. This comprehensive training program emphasizes the application of modern basin modeling techniques—1D, 2D, and 3D—to reduce exploration risks and identify viable hydrocarbon resources.

Course Objectives

By the end of this course, participants will be able to:

- Understand the key geological processes shaping sedimentary basins, from plate tectonics to basin architecture.
- Interpret structural, stratigraphic, and geochemical data critical for basin analysis and petroleum system modeling.
- Apply basin modeling techniques to assess hydrocarbon potential and quantify risk and uncertainty.
- Integrate geophysical, geological, and geochemical data for comprehensive petroleum system evaluation.
- Utilize industry-standard software tools and workflows for 1D, 2D, and 3D basin modeling.
- Design and implement risk-based decision-making strategies to optimize exploration outcomes.

Course Outlines

Day 1: Introduction to Basin Types and Tectonic Settings

- Sedimentary basin classification and global distribution.
- Plate tectonics and their role in basin formation.
- Key geological concepts for basin analysis.
- Understanding tectono-stratigraphic evolution.

Day 2: Stratigraphy and Sedimentation

- Principles of stratigraphy and depositional systems.
- Sequence stratigraphy and source-to-sink sediment pathways.
- Interpreting stratigraphic records from seismic and well data.



Day 3: Structural Framework and Basin Architecture

- Structural styles and basin geometry.
- Impact of faulting, folding, and salt tectonics on hydrocarbon trapping.
- Interpretation of structural maps and cross-sections.

Day 4: Petroleum Systems Overview

- Elements of a petroleum system: source, reservoir, seal, trap.
- Hydrocarbon generation, migration, and accumulation processes.
- Evaluation of source rocks and reservoir quality.

Day 5: Geochemical Data Integration

- Geochemical techniques for basin evaluation.
- Modeling thermal maturity and hydrocarbon typing.
- Biomarkers and calibration of burial and thermal histories.

Day 6: 1D Basin Modeling Fundamentals

- Introduction to basin modeling software PetroMod, TemisFlow.
- Data requirements for 1D modeling and calibration.
- Predicting maturity and hydrocarbon generation.

Day 7: 2D and 3D Basin Modeling Applications

- Structural and stratigraphic frameworks in 2D/3D modeling.
- Migration pathways and charge modeling.
- Case studies showcasing real-world applications.

Day 8: Risk Assessment in Basin Analysis

- Identifying risk elements and volumetric estimation.
- Play and prospect risk matrices.
- Using Monte Carlo simulations to manage uncertainty.

Day 9: Regional Case Studies

- Passive margin, rift basin, and fold-thrust belt examples.
- Insights from deepwater basin assessments.
- Lessons learned from failed and successful wells.



Day 10: Integrated Basin Evaluation Project

- Hands-on team project integrating geophysical and geochemical data.
- Building a basin model and conducting a petroleum system assessment.
- Presenting findings and sharing best practices.

Why Attend this Course: Wins & Losses!

- Gain practical experience in advanced basin modeling and petroleum system evaluation.
- Enhance your expertise with global best practices in basin assessment and modeling.
- Minimize exploration risks by integrating data-driven decision-making and risk-based assessment.
- Build competencies in using industry-standard software and techniques for 1D, 2D, and 3D basin modeling.
- Stay competitive in the energy sector by mastering modern exploration workflows.
- Expand your professional network by collaborating with geoscientists and engineers across diverse industries.

Conclusion

Basin assessment and modeling are essential for sustainable, profitable, and risk-managed exploration in today's dynamic energy landscape. This course provides the practical tools, industry applications, and strategic insights needed to transform raw data into actionable exploration strategies. Whether you're working in oil & gas, infrastructure projects, or government energy sectors, this certification program will empower you to drive performance and value creation with confidence and expertise.

Let me know if you'd like me to translate this into Arabic, adjust the tone, or integrate it into a course brochure or webpage format!

