

<u>Training Title :</u> WELL DESIGN & ENGINEERING

<u>Training Duration</u> 5 days

Training Venue and Dates

In any of 4 or 5 star hotel. Exact venue will be informed once finalized.

Training Fees

• 5,750 US\$ per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch

Training Certificate

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

COURSE OVERVIEW TRAINING DESCRIPTION

Well Design and Engineering is a critical discipline within the oil and gas industry, focused on the safe, efficient, and cost-effective planning, construction, and maintenance of wells. It encompasses the integration of geological, mechanical, and operational considerations to ensure optimal wellbore placement, integrity, and performance throughout the well's life cycle. This process involves multidisciplinary collaboration and rigorous adherence to engineering standards, regulatory frameworks, and environmental guidelines. The ultimate goal is to deliver a technically sound well design that maximizes hydrocarbon recovery while minimizing risks and environmental impact.

TRAINING OBJECTIVES www.definetraining.com

- Understand the responsibilities of a well planner as a designer and project manager
- Review offset analysis and data gathering
- Understand the influence of completion design and production requirements on well design
- Identify trajectory design issues and their influence on torque and drag, wellbore stability, and future intervention
- Develop specific casing design skills including casing point selection; design load case development; burst, collapse and tension calculations; controlling load and safety factor determination and select appropriate size, weight and grade

DMCT/OL/9/18(Rev3Dt:23/9/18)

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- Perform cement slurry and displacement volume calculations
- Complete drill string and BHA designs and failure prevention assessment for each hole section, and review for directional well applications
- Understand different bit types and applications, and perform calculations to support bit run economics
- Optimize hydraulics for each hole interval based upon wellbore, fluids and drill string configurations

WHO SHOULD ATTEND

Drilling engineers, completion engineers, and drilling supervisors involved with drilling operations and well planning.

TRAINING METHODOLOGY

Highly Interactive program with exercises, individual approach and group role playing alternate with practical statements based on theory and supplemented with practical tips based on actual experience. During the course the first draft of a strategic plan at company or department levels will be made by the participants. Power point presentation will be presenting the main points with appropriate time for discussions. Videos will be watched, Exercises to provide practical experience, and case studies to support different ideas will be supporting the learning. Participants will be encouraged to bring their own experiences and challenge the learned concepts and practices. The course is based on a combination of interactive activities - group and individual exercises, case studies, role plays and discussions - along with formal inputs.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work& Practical Exercises
- 20% Videos& General Discussions

THE PROGRAM CONTENTS ... definetraining.com

Day 1: Fundamentals of Well Engineering

- Introduction to the drilling lifecycle and well objectives
- Key components of well design
- Overview of well types (vertical, directional, horizontal)
- Drilling environments and challenges (onshore, offshore, HPHT, deepwater)
- Regulatory and safety standards in well planning

Day 2: Geological and Formation Considerations

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- Formation pressure and pore pressure prediction
- Fracture gradient and geomechanics
- Wellbore stability concepts
- Mud weight window and casing setting depth design
- Formation evaluation basics

Day 3: Casing and Cementing Design

- Casing functions and types
- Casing design principles and load cases
- Casing string selection and depth planning
- Cementing objectives and slurry design
- Zonal isolation and cement placement techniques

Day 4: Drill String, BHA, and Hydraulics

- Drill string components and design considerations
- Bottom Hole Assembly (BHA) types and selection
- Directional drilling tools and techniques
- Drilling hydraulics fundamentals
- Optimization of rate of penetration (ROP) and hole cleaning

Day 5: Well Control, Risk Management, and Emerging Technologies

- Well control principles and pressure regimes
- Kick detection and blowout prevention
- Risk assessment and mitigation strategies in well design
- Introduction to digital well planning and automation
- Overview of emerging technologies (MPD, ERD, intelligent wells)

NOTE:

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Pre & Post Tests will be conducted

Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.

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