

## An LDI Training Course

# DRILLING FOR NON DRILLERS (An Introduction to Drilling Engineering)

by  
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### Course Objective

This course covers the basic overview in drilling engineering with an emphasis on field applications. Topics covered include well Rotary Drilling processes; Drilling Fluids; Drilling Cements; Drilling hydraulics, Rotary Drilling Bits, Formation Pore Pressure and Fracture Pressure, Casing Design and Directional Drilling and Control. Drilling Exercise will also be given to the participants during the individual topics. The objective is to develop an understanding and a working knowledge of Drilling Engineering concepts and to be able to use fundamental engineering principles for well design.

By completion of the course, you will be able to understand the concepts of wells design, use and calculate drilling parameters to drill a well effectively, write a simple Drilling Program and understand the principle and calculation used in the design process and fundamental calculations for a well design.

### What you will learn

You will learn the following:

- Rotary Drilling
- Drilling Fluids
- Cements
- Drilling Hydraulics
- Rotary Drilling Bits
- Formation Pore Pressure and Fracture Pressures
- Casing Design
- Directional Drilling and Control

## Course Outline

### Rotary Drilling

1. Drilling Team
2. Drilling Rig
3. Drilling Rig Power System
4. Hoisting System
5. Circulating System
6. The Rotary System
7. Well Control System
8. Well Monitoring System
9. Special Marine Equipments
10. Drilling Cost Analysis

### Drilling Fluids

1. Diagnostic Test
2. Pilot Test
3. Water Based Muds
4. Inhibitive Water Based Muds
5. Oil Muds

### Cements

1. Composition of Portland Cement
2. Cement Testing
3. Standardization of Drilling Cements
4. Cement Additives
5. Cement Placement Techniques

### Drilling Hydraulics

1. Hydrostatic Pressure in Liquid Columns
2. Hydrostatic Pressure in Gas Columns
3. Hydrostatic Pressure in Complex Fluid Columns
4. Annular Pressure During Well Control Operations
5. Bouyancy
6. Non Static Well Conditions
7. Rheological Models
8. Rotational Viscometer
9. Laminar Flow in Pipe & Annuli
10. Initiating Circulation of a Well
11. Jet Bit Nozzle Selection
12. Pump Pressure Schedules for Well Control Operations
13. Surge Pressures Due to Vertical Pipe Movement
14. Particle Slip Velocity

### Rotary Drilling Bits

1. Bit Types
2. Rock Failure Mechanism
3. Bit Selection and Evaluation
4. Factor Affecting Tooth Wear
5. Factor Affecting Bearing Wear
6. Terminating a Bit Run
7. Factor Affecting Penetration Rate
8. Bit Operation

### **Formation Pore Pressure and Fracture Pressure**

1. Formation Pore Pressure
2. Methods for Estimating Pore Pressure
3. Formation Fracture Resistance
4. Methods for Estimating Fracture Resistance

### **Casing Design**

1. Manufacture of Casing
2. Standardization of Casing
3. API Casing Performance Properties
4. Casing Design Criteria
5. Special Design Criteria

### **Directional Drilling and Deviation Control**

1. Definition and Reasons for Directional Drilling
2. Planning the Directional Well Trajectory
3. Calculating the Trajectory of the Well
4. Planning the Kick Off and Trajectory Change
5. Directional Drilling Measurement
6. Deflection Tools
7. Principles of the BHA
8. Deviation Control

### **Who Should Attend**

The course is targeted for new Drilling Engineers who has less than 1 year of drilling experience and for Drilling Supervisors that has not been exposed to Drilling Engineering. The course is also suitable for other Engineers working on the Rig such as Mud Engineers, and Directional Engineers.

### **Why You Should Attend**

This Course provides a complete coverage of Drilling Engineering Material for young Drilling Engineers. By completion of the Course, Participants is expected to better understand the physics behind Drilling Engineering concepts. The participants is expected to be able to write a simple Drilling Program.

LDI Training ensures that our instructor, learning tools and resources will provide course attendants with up-to-date knowledge for direct applications in their professional duties. It will also enable them to extrapolate and extend the provided information to related problems in different industrial situations. By requesting preliminary information about the technical background of our participants we make sure that the course is taught at the appropriate level thus maximizing individual benefit. Furthermore we encourage a comprehensive and fully explorative question and answer teaching style.

## Course Leader

The leader of the training is Rudi Rubiandini, he has 30 years of experience in the oil and gas industry. He has experience as a trainer in almost all Oil and Gas companies in Indonesia, manages Drilling Laboratories, he even created research laboratory equipment, he has been a professor at the Bandung Institute of Technology, has been a high-ranking official at the oil and natural gas institution BPMIGAS and SKK Migas, as well as being Deputy Minister of Energy and Mineral Resources.

Rudi Rubiandini is a frequent speaker at various scientific seminars and discussions in the fields of energy, petroleum and natural gas engineering. From his very long experience, this training will be very interesting in discussing with Trainers in various aspects.

This course introduces the participants to the various techniques and practices of well drilling, completions, post-completion wellbore enhancement and remedial workovers.

## Course Delivery

- This offline (face to face) course is conducted in Bahasa Indonesia
- Training hours are from 08:00 to 16:00 WIB
- Participants will receive course materials
- Participants will receive a certificate after completing the training

## Training Confirmation

LDI Training will provide a Confirmation Letter after we receive registration according to the required quota.

**For course registration and more information please email to**

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