

## An LDI Training Course

# WELL DESIGN and ENGINEERING

by

**Dr.-Ing. Ir. Bonar Tua Halomoan Marbun**

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### Course Description

Well Design and Engineering integrates all major well design technologies from pre-spud to TD. Participants are actively engaged in every aspect of the technical activities required to deliver a cost-effective well plan while also gaining valuable perspective on how the overall process should be managed in a dynamic team environment. The workshop content is often customized to address technologies and practices that may be specific to a project or operational situation. The course delivery is carefully balanced to integrate technical lectures and group discussion with roughly half of each day allotted for the teams to apply what they have learned on the project well design. The single most important goal of the workshop is to draw the linkages between the design topics and to leave the participants with an understanding that each decision has influence on those that follow. Intensity mounts as the course progresses and each design topic builds on those that came before. Design iterations are commonly required, especially as the course progresses and seemingly unrelated decisions push the teams into situations of uncomfortable operational risk. Each team will present their completed design before the class and an invited panel of industry professionals. A scientific calculator is required and a laptop computer is strongly recommended.

### Designed For

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

### What You Will Learn

Participants will learn how to:

1. Understand the responsibilities of a well planner as a designer and project manager
2. Review offset analysis and data gathering
3. Understand the influence of completion design and production requirements on well design

4. Identify trajectory design issues and their influence on torque and drag, wellbore stability, and future intervention
5. 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.
6. Perform cement slurry and displacement volume calculations
7. Complete drill string and BHA designs and failure prevention assessment for each hole section. Review for directional well applications
8. Understand different bit types and applications. Perform calculations to support bit run economics
9. Optimize hydraulics for each hole interval based upon wellbore, fluids and drill string configurations
10. Compile risks to well delivery. Develop mitigations and contingency plans
11. Develop minimum rig capability specifications to deliver well requirements
12. Present and defend a well plan to management

## Course Content

1. Trajectory design
2. Wellbore stability and casing point selection
3. Drilling fluids and solids control
4. Casing design
5. Primary cementing
6. Drill string and BHA design
7. Bit technology
8. Circulating system hydraulics and hole cleaning

## 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

## About Instructor:

**Dr.Ing.- Ir. Bonar Tua Halomoan Marbun**

**Associate Professor**

Head of Petroleum Engineering Study Program Institut Teknologi Bandung

### **Education:**

Petroleum Engineering Bachelor Degree Bandung Institute of Technology, Institute of Petroleum Engineering, Bandung, Indonesia.

Petroleum Engineering Diplom Ingenieur Degree Clausthal University of Technology, Institute of Petroleum Engineering, Clausthal-Zellerfeld, Germany.

Dr.-Ingenieur in the field of Material Engineering and Science Clausthal University of Technology, Institute of Non-Metallic Materials, Clausthal-Zellerfeld, Germany.

### **Professional Experience**

Member of Oil and Gas Independent Team Safety Control, General Directory of Oil and Gas, Ministry of Energy and Mineral Resources of Republic of Indonesia

Head of Petroleum Engineering Study Program, Institut Teknologi Bandung

He is currently holding the position of a Senior Trainer of **LDI Training** and he certified to conduct its courses.

**For more information please contact to**

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