A 1-Day Short Course on

DRILL BITS DESIGN, OPTIMIZATION,
AND SELECTION FOR ENHANCED
DRILLING PERFORMANCE

HRDF CLAIMABLE

Organized by Centre for Advanced and Professional Education (CAPE) Universiti Teknologi PETRONAS
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INTRODUCTION

The process of drilling a hole in the ground requires the use of drilling bits. Indeed, the bit is the most basic tool used by the drilling engineer, and the selection of the best bit and bit operating conditions is one of the most basic problems that the drilling engineer face.

An extremely large variety of bits are manufactured for different situations encountered during rotary drilling operations.

It is important for the drilling engineer to learn the fundamentals of drill bit so that he/she can fully understand the differences among the various bits available. This short course will introduce participants to the current industry practice on drill bit design, optimization and selection for enhanced drilling performance.

OBJECTIVES

Upon completion of this course, participants will be able to:

- Identify different bit types
- Select the most suitable drill bit for certain applications
- Identify the applications that are not suitable to other bit types
- Give a proper dull grading which will benefit the operations

COURSE CONTENT

<table>
<thead>
<tr>
<th>No.</th>
<th>Topic</th>
<th>Sub-topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction to Drill Bits</td>
<td>- PDC: Terminologies, cutters, designs criteria</td>
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<td>- Roller Cone: Terminologies, mill tooth &amp; TCI,</td>
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<td>- IADC, seal &amp; bearing, Krevs in details</td>
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<td>- Impregnated Bits &amp; Reamer</td>
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<td>2</td>
<td>Dull Gradings for Both PDC and Roller Cones</td>
<td>- IADC dull grading system</td>
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<td></td>
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<td>- Dull characteristics</td>
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<td>3</td>
<td>Bit Selection and Optimization</td>
<td>- Bit operating procedures and best practices</td>
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<td>- Bit records</td>
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<td>- SPARTA™ - Formation hardness &amp; lithology</td>
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<td>- Mud logs</td>
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<td>- Bit selection with no prior experience</td>
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<td>- Bit selection based on previous bit runs</td>
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<tr>
<td>4</td>
<td>Drill Bits Hydraulic</td>
<td>- Pressure losses through jet</td>
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<td>- Optimization of bit hydraulics, nozzle velocity,</td>
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<td>and diameter</td>
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Drilling engineers, drilling representatives, drilling fluid engineers and contractor personnel, drilling supervisors, mud engineers, cementing engineers, tool pushers, managers, data engineers, well engineers, academics, graduate trainees.

Dr. Titus Ntow Ofei, is a lecturer at the Universiti Teknologi PETRONAS, UTP, Malaysia in the department of Petroleum Engineering. He holds a BSc. (Hons) degree in Mechanical Engineering, an MSc. and Ph.D degrees all in Petroleum Engineering. He has been teaching both undergraduate and postgraduate petroleum engineering students in drilling engineering courses such as drilling engineering, advanced drilling engineering, and drilling hydraulics for more than three (3) years. He is also actively involved in research with emphasis on cuttings transport in high-temperature and high-angle wells, plastering effect phenomenon in casing-while-drilling operation, innovative drilling mud design for hydrajet, shale and HPHT wells, and computational fluid dynamics (CFD) modelling. He has supervised more than 35 undergraduate and postgraduate project students and has authored and co-authored many peer-reviewed journals and conference publications, as well as book chapters to his credit.

Mr. Sabri Mohamed, is the Asia Pacific Technical Advisor for HDBS (Halliburton Drill Bits and Services) based in Kuala Lumpur, Malaysia. He has a BSc. degree in Petroleum Engineering from University of Louisiana, USA. He has held various positions in drill bits companies such as HDBS and Smith Bits (a Schlumberger company) with total experience of 16 years – all in engineering department. Among his job responsibilities are:

- Providing technical support on drill bits for both PDC and Roller Cone product lines for Asia Pacific region
- Hard rock drilling development in term of drilling bits:-
  - Roller Cones basement drilling in Vietnam and Malaysia
  - Roller Cones and PDC development in geothermal drilling in Indonesia and The Philippines
- Internal and external training on drill bit technologies and also providing specific drill bits solution for specific projects.
- Technical papers:-
  - Tandem SHO (staged hole opener) runs in Brunei Shell. Won the on bronze medal in “Performed By Schlumberger” segment award 2014.

**COURSE FEES**

* RM 810 (Professionals)
* 10% Discount (UTP Alumni, PETRONAS & Group Registration)
* 20% Discount (Student)

Course fee is inclusive of 6% GST.

Group registration is applicable for 3 pax and above from the same company.

The fees include refreshments and the course materials.

A certificate of attendance will be issued upon successful completion of the course.

**CONTACT DETAILS**

**Course Coordinator:**
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**Course Registration:**
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**HOW TO APPLY**

Email to cape@utp.edu.my for registration by 1st August 2018.

Seats are limited. A seat will be confirmed once the payment / LOU is received. Confirmed participants will be informed via email.