Course Perspective
This course is designed to focus on practical methods to design a functional and optimum solids removal system, best practices, and continuous assessment methodologies. The course will highlight why solids removal must be optimized, how to recognize solids build up hole problems, and drilling efficiency, and how to look for culprit or design/operational flaws in the system. This course will greatly benefit all rig hands from the derrick man to the superintendent and from the drilling fluid engineer to the drilling manager.

Objectives
• Fully understand the economics of good solids control and its consequences on mitigating hole problems
• Discuss the effects of different types of solids on drilling performance
• Discuss how to determine the quality and quantity of different solids in a drilling fluid
• Full review of best operating practices and design requirements of solids control equipments, their proper sequences, and rules of thumbs for weighted and unweighted fluids
• Review and practice the different methods to assess solids removal efficiencies for each piece of equipment and for the whole system performance
• Cover the solids removal system efficiency and optimization
• Focus on rig auditing, applying corrective measures and their impact on drilling efficiency and hole problems mitigation.

Course Material Handouts (Provided)
1. Course manual
2. Shale Shaker Handbook

Course Content

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|   | 1. Review of different types of shakers  
|   | 2. Screen selection  
|   | 3. Design of shaker system  |
| 3 | **Cyclones, Centrifuges, Pumps**  
|   | 1. Review of operation fundamentals  
|   | 2. Rig auditing for poor practices  
|   | 3. Measurements of solids removal efficiency  
|   | 4. Assessment of routing design and volumetric processing efficiency  
|   | 5. Economics of using centrifuges  
|   | 6. Pump design problem  |
| 4 | **Overall Processing System Optimization and Efficiency Assessment**  
|   | 1. API method  
|   | 2. Other methods  
|   | 3. Optimization  |
| 5 | **Rig Auditing**  
|   | 1. Rig check list  
|   | 2. Examples from field cases of poor practices in solids control  
|   | 3. Corrective measures and their economic and efficiency ramifications  |
The Instructors: Dr. Saad Saleh

Dr. Saleh holds a Ph.D. and MS degrees in Petroleum Engineering from the Colorado School of Mines. He has over 20 years of professional drilling experience in industry and 6 years in academia. Dr. Saleh is a specialist in real time geopressure, wellbore stability, and drilling analysis. Dr. Saleh is highly experienced in drilling technology frontiers (HPHT deepwater, sub salt drilling to name few) in many parts of the world including Latin America, Gulf Coast, North Sea, Canadian Shelf, and the Far East. Dr. Saleh has been involved in training and mentoring drilling engineers and drilling operation personnel on geopressures prediction, wellbore stability analysis, drilling fluid solids control, and drilling fluids optimization.

Currently, Dr. Saleh is the President of Drill-Sense International, a consulting firm which specializes in advancing real time drilling technologies, training in all aspects of Petroleum Engineering with emphasis on drilling training, as well as providing expert advice to the global drilling industry on drilling diagnostics, optimization, well planning, and real time drilling surveillance.

Dr. Saleh was a Senior Drilling Fluid Specialist with Saudi Aramco (from 2005 to 2007), a Principal Geopressure advisor for Knowledge Systems (6 years from 2000 to 2005) in Houston, Texas, a Drilling Advisor for PDVSA-Intevep (3.5 years from 1997 to 2000), Assistant Professor at the Colorado School of Mines (4 years from 1994 to 1997) and the University of Alaska (2 years from 1988 to 1990), and a Drilling Engineer for BP Exploration in Alaska (4 years from 1990 to 1994) and Northern Petroleum (2 years from 1977 to 1979).