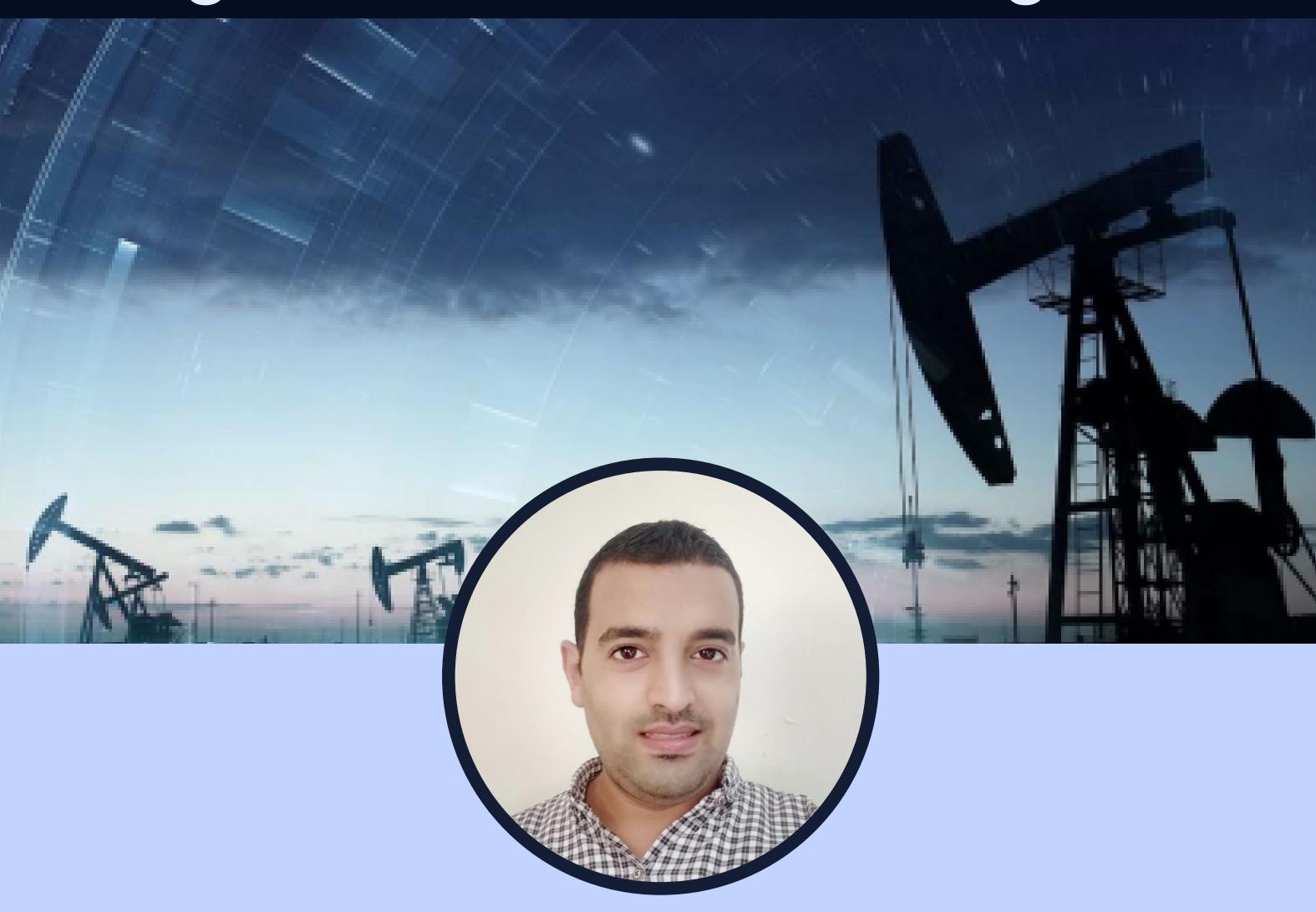
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# 2 WEEKS LONG CERTIFIED HAND ON EXPERIENCE COURSE ON Integrated Reservoir Management



# ENG. HESHAM MOKHTAR ALI

SENIOR RESERVOIR ENGINEER
10 YEARS OF EXPERIENCE IN
OIL & GAS INDUSTRY









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# 2 WEEKS LONG CERTIFIED HAND ON EXPERIENCE COURSE ON Integrated Reservoir Management

# **DESCRIPTION**

Reservoir management is an on-going, dynamic process of collecting, analyzing, validating, and integrating reservoir description data and performance data into an optimal reservoir development and depletion plan. This course will introduce a practical view for reservoir management applications like reservoir evaluation and simulation, production forecasting, material balance calculations, Monte Carlo simulation analysis for reserve estimation, decline curve analysis, and waterflooding design. The course will highlight the theoretical background and the practical application. The course progresses from the measurement fundamentals to the essential evaluation and assessment of the results and onto the practical application in example studies.





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### **OBJECTIVES**

- Model the reservoir throughMBE tool assumings everal scenarios for history matching and prediction.
- Use well model (IPR & VLP) through the MBE calculations to enhance the prediction accuracy
- Monitor fluidcontacts (OWC & GOC) to have a deeper insightfor reservoir management and surveillance.
- Design the field development plan (FDP) for a new field.
- Model multiplejuxtaposed connected reservoirs and transmissibility estimation between them.
- Calculate the originalhydrocarbon in place
- Predict reservoir or well production and determine asset lifetime.
- Design waterflooding project according to reservoir properties and predict production performance
- Prepare integrated studies for reservoir characterization, evaluation and production prediction based on various scenarios according to the included parameters

# WHO SHOULDATTEND

- Reservoir Engineers
- Petroleum Engineers
- Production Engineers









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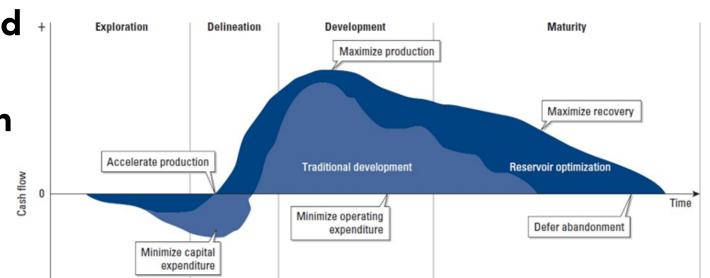


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### **AGENDA**

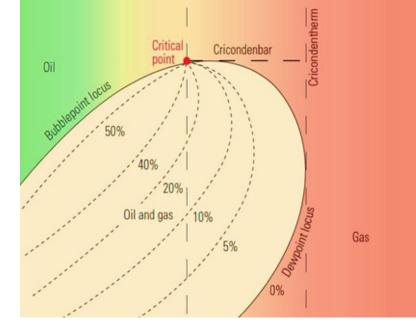
### Day 1: Introduction

- Introduction
- Oil RecoveryProcesses & Full Field Modeling
- Role of Reservoir Rocks & Fluidsin Reservoir Management
- Oilfield Lifetime & Development
- Typical Production Performance



# Day 2: Applications of Core & PVT Data

- ICore Analysis Flowchart
- Conventional Core Analysis
- Flow Unitsand Rock Typing
- Relative Permeability & Capillary PressureData
- Applications of Reservoir Fluid Data
- PVT AnalysisWorkflow in the Reservoir Management Process













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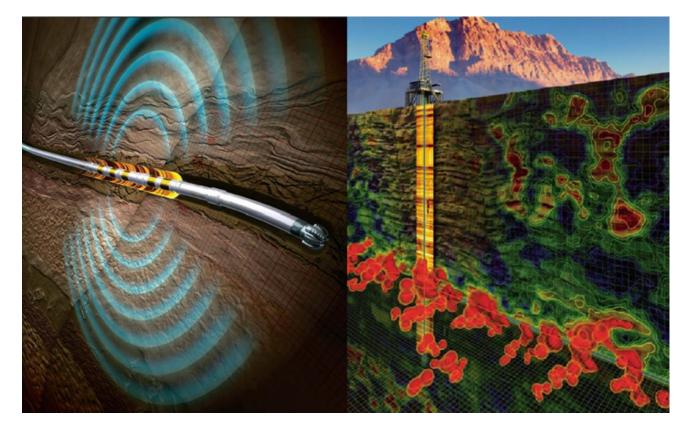


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## **AGENDA**

# Day 3: Formation Evaluation & Well Logging

- Formation Evaluation Overview
- Wireline LoggingOperations
- Basic Conceptsof Log Analysis
- Open hole Logging Measurements
- Integrated Formation Evaluation
   Plan



# Day 4: Hydrocarbon Inplace & ReserveEstimation

- Why ReserveEstimates?
- Petroleum
   ResourceManagement System:
   PRMS
- Reserves Estimation Techniques: Deterministic vs. Probabilistic Techniques
- Volumetric ReservesEstimates:
   Data Sourcesand Common
   Pitfalls





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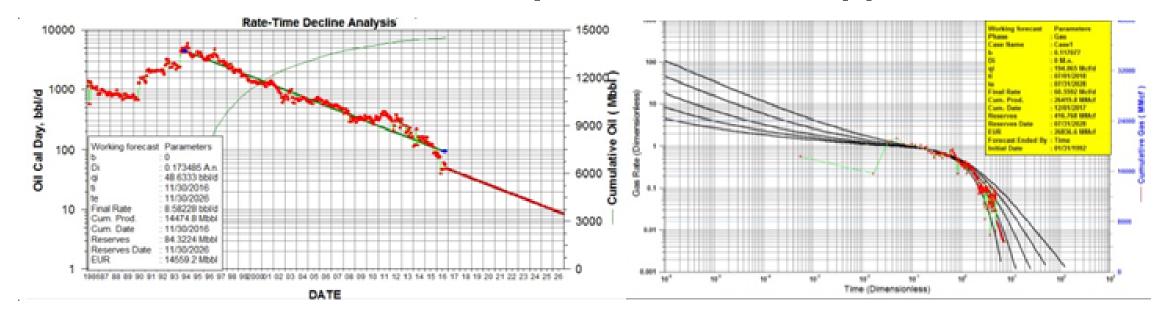


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# **AGENDA**

# Day 5: DeclineCurve Analysis (DCA) & Production Forecasting

- Performance-based ReserveEstimates
- Reservoir DrivingMechanisms & Production Characteristics
- Applications of Decline CurveAnalysis
- Conventional DeclineCurve Analysis (Arps' Approach) & Assumptions
- Advanced DeclineCurve Analysis (Fetkovich Approach) & Pitfalls



### Day 6: MaterialBalance Analysis

- Material BalanceAnalysis: Concept and General Form
- Havlena-Odeh Approach: Approach, Typical Analysis
  Techniques, Dake & CampbellDiagnostic Plots,
  Pitfalls, Case Studies
- Input data collection and QAQC
- History Matchingand Reservoir Performance Prediction
- Better ReservoirPerformance Prediction Using Well Model









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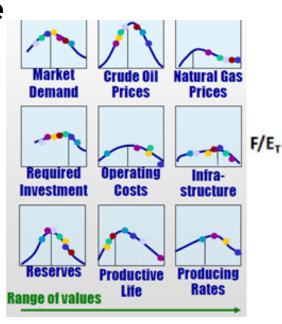


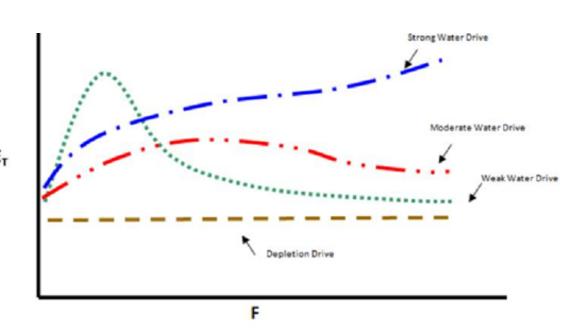
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## **AGENDA**

### Day 7: Material Balance Applications

- Field Development Plan (FDP)
- Monitor Fluid Contacts (OWC & GOC)
- Determine Asset Lifetime
- Monte Carlo Simulation

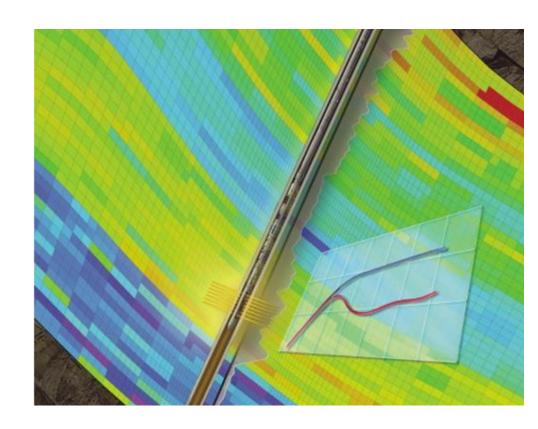




### Day 8: Well Testing Analysis

- Role of Well Testing in Reservoir Management
- Surface Testing Facilities
- Types of Pressure Testing
- Basic Theory & Diffusivity Equation
- Type Curve Matching and Pressure Derivative
- Reservoir Modeling Using the Pressure Transient:
- Well Testing Interpretation Process













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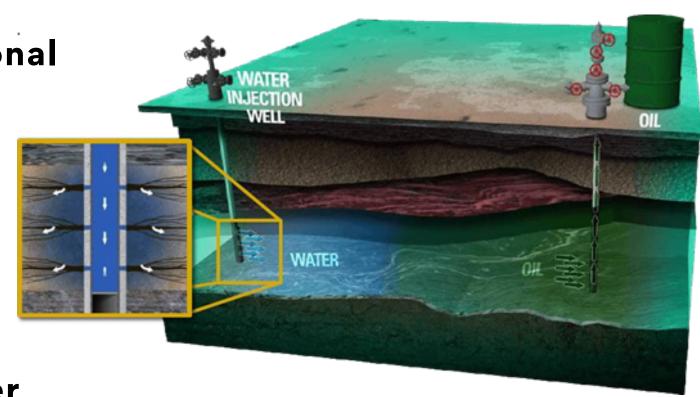
## **AGENDA**

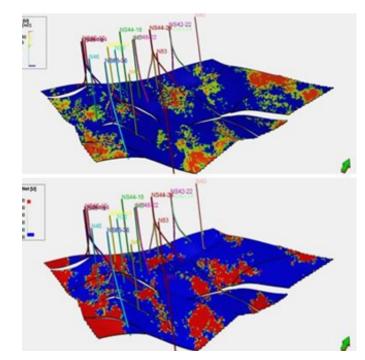
### Day 9: Waterflooding Design

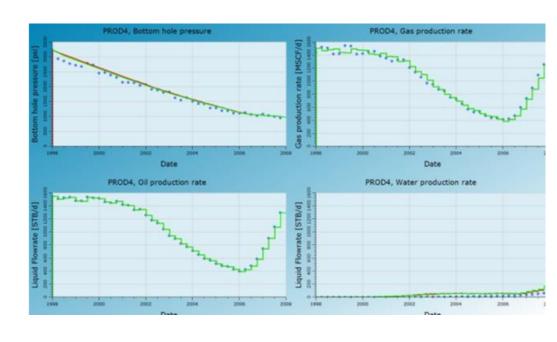
- Principles and Applications of Waterflooding
- Voidage Replacement & Fractional Flow Equation
- Analytical Methodsfor
   Waterflooding Design and
   Performance Prediction
- Displacement Efficiency Calculations
- Managing and Optimizing Water Injection

# Day 10: Modeling Applications for Reservoir Management

- Reservoir Simulation Overview,
   Workflow, and Benefits
- Reservoir Model Initialization
- Making a Development Strategy
- Defining a Simulation Case













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TELEGRAM CHANNEL

