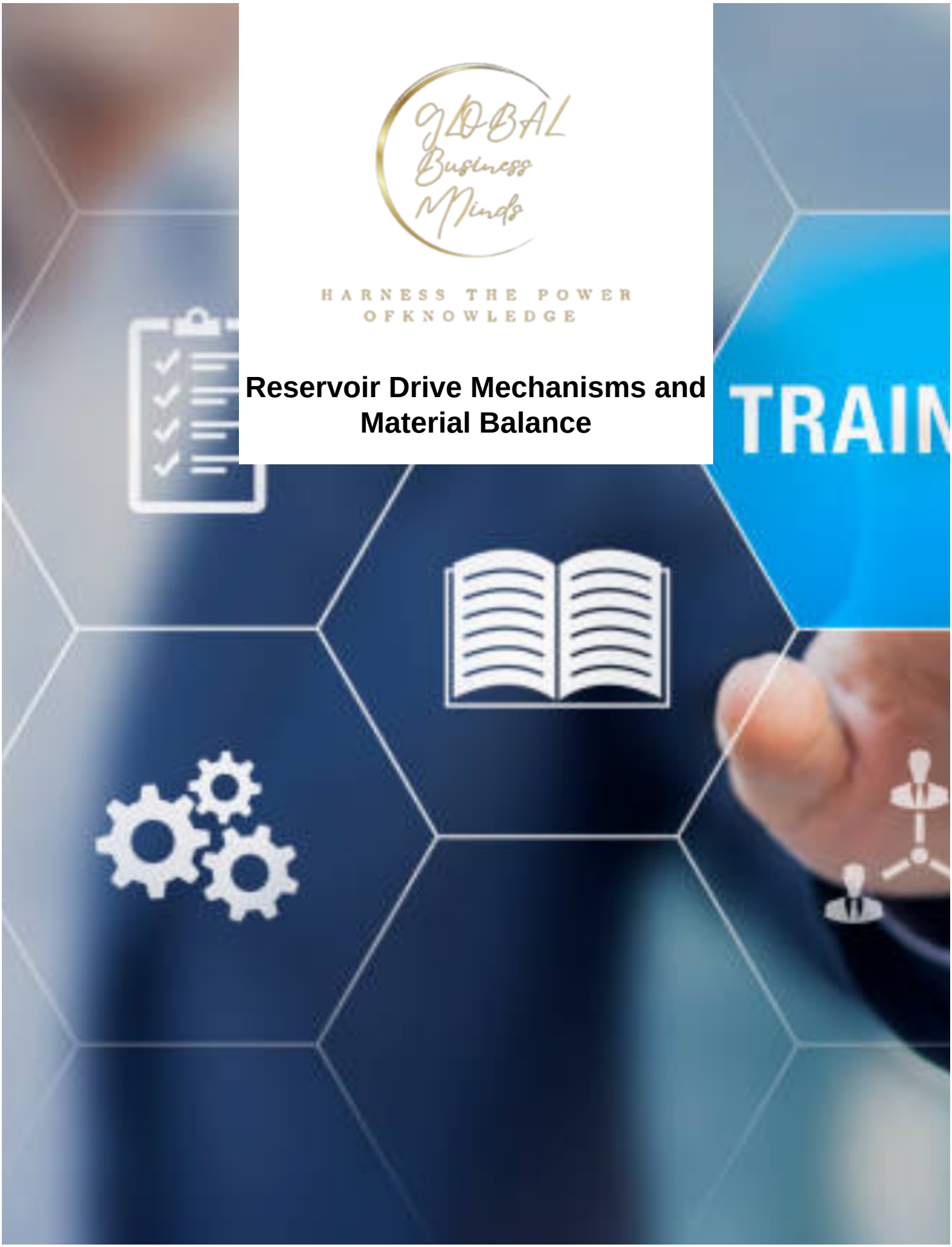
GLOBAL
Business
Minds
HARNESS THE POWER
OF KNOWLEDGE
Reservoir Drive Mechanisms and
Material Balance
TRAIN

Course Overview:
Understanding reservoir drive mechanisms and the material balance equation is crucial for accurate reservoir characterization, production optimization, and enhanced oil recovery (EOR) techniques
This comprehensive 5-day professional training course will equip geoscientists and engineers with the essential knowledge and skills to identify drive mechanisms, apply the material balance equation, and optimize production strategies for various reservoir types

Course Objectives:
By the end of this course, participants will be able to:
1
Define and classify different reservoir drive mechanisms, including solution gas drive, gas cap drive, water drive, and combination drives
2
Apply the material balance equation to estimate reservoir volume, initial fluid volume, and fluid production
3
Analyze reservoir performance data to identify dominant drive mechanisms and predict reservoir behavior
4
Utilize drive mechanism understanding and material balance calculations to optimize well placement, production strategies, and EOR techniques
5
Apply material balance principles to evaluate reservoir depletion and unproduced hydrocarbon volumes
Course Agenda:
Day 1: Introduction to Reservoir Drive Mechanisms
• Delve into the significance of reservoir drive mechanisms in understanding reservoir performance and production optimization
• Explore the fundamental principles of fluid flow and pressure maintenance in subsurface reservoirs
• Discuss the classification and characteristics of different reservoir drive mechanisms, such as solution gas drive, gas cap drive, water drive, and combination drives
• Analyze the impact of reservoir geology, fluid properties, and drive mechanisms on reservoir behavior
Day 2: Material Balance Equation and Reservoir Volume Estimation
• Introduce the concept of the material balance equation and its application in reservoir characterization
• Discuss the assumptions and limitations of the material balance equation
• Derive the material balance equation for different reservoir drive mechanisms, including solution gas drive, gas cap drive, and water drive
• Apply the material balance equation to real-world reservoir data to estimate reservoir volume and initial fluid volume
Day 3: Reservoir Performance Analysis and Drive Mechanism Identification
• Analyze reservoir performance data, including production history, pressure decline, and fluid production trends
• Utilize material balance calculations to identify dominant drive mechanisms and quantify their contributions
• Apply material balance principles to assess reservoir depletion and unproduced hydrocarbon volumes
• Discuss the impact of drive mechanisms on well productivity, production strategies, and EOR selection
Day 4: Material Balance Equation in Enhanced Oil Recovery (EOR)
• Explore the application of the material balance equation in EOR techniques, such as miscible flooding, polymer flooding, and thermal EOR
• Analyze the impact of EOR on reservoir performance, fluid properties, and drive mechanisms
• Utilize material balance calculations to design and optimize EOR processes for specific reservoir conditions
• Discuss the integration of material balance principles into reservoir simulation and field development

planning
Day 5: Advanced Material Balance Applications and Future Trends
• Discuss advanced material balance concepts, such as non-ideal fluid effects, multiphase flow, and reservoir heterogeneity
• Explore the application of material balance to unconventional reservoirs, such as tight gas and shale formations
• Discuss the future trends and advancements in material balance modeling, reservoir characterization, and production optimization
• Network with other geoscientists and engineers to foster collaboration and knowledge sharing in the field of reservoir drive mechanisms and material balance
Who Should Attend:
• Geoscientists and engineers involved in reservoir characterization, production optimization, and EOR techniques
• Reservoir engineers responsible for well placement, well performance modeling, and field development planning
• Production engineers involved in well testing, fluid flow analysis, and reservoir management
• Students and professionals interested in pursuing a career in reservoir engineering, fluid properties, and subsurface analysis
Course Benefits:
• Develop a comprehensive understanding of reservoir drive mechanisms, material balance principles, and their applications
• Gain hands-on experience in applying the material balance equation to real-world reservoir data
• Enhance your ability to identify dominant drive mechanisms, optimize production strategies, and evaluate EOR potential
• Stay updated on the latest advancements in material balance modeling, reservoir characterization, and EOR applications
• Network with other geoscientists and engineers to foster collaboration and knowledge sharing