A Short Course for the Oil & Gas Industry Professionals

INSTRUCTOR:
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TOP-DOWN, INTELLIGENT RESERVOIR MODELING

An Alternative to Traditional Reservoir Simulation & Modeling

*A Short Course Designed for Reservoir Engineers and geoscientists involved in Reservoir Studies. This course focuses on application of **Artificial Intelligence & Data Mining (AI&DM),** in Reservoir Engineering, Simulation and Modeling.*

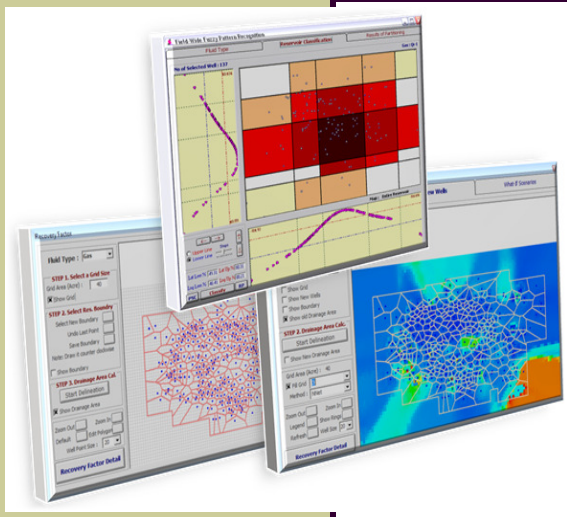
Top-Down, Intelligent Reservoir Model present an alternative technique for modeling fluid flow in the hydrocarbon reservoirs. It starts with production data to build the reservoir model and refine it by adding log, core, well test and seismic data. The final model is calibrated (history matched) using the latest drilled wells.

Course Description:

This short course will cover the fundamentals of artificial intelligence and data mining (AI&DM) and will provide the theoretical background for its most used components such as artificial neural networks, genetic optimization and fuzzy logic.

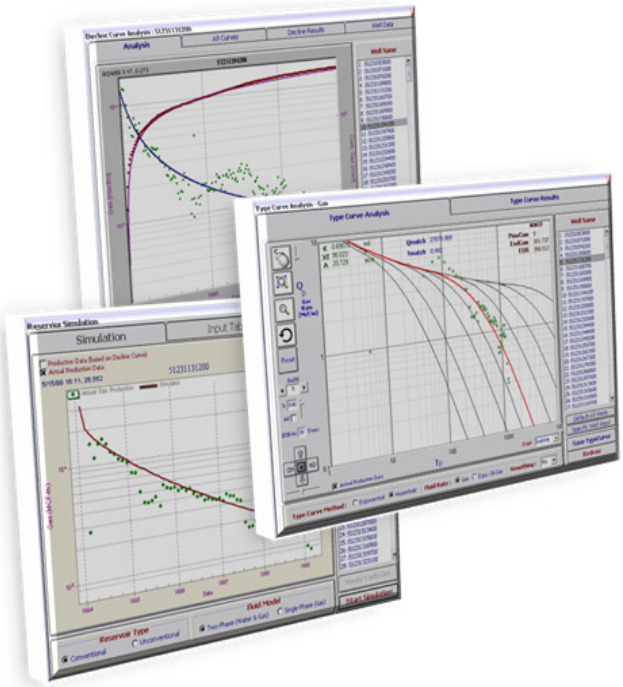
This Course will Provides a Comprehensive Overview of Design, Construction, Calibration and Validation of Top-Down, Intelligent Reservoir Models. The Course will also Cover the Use of Top-Down Models in identifying optimum infill locations, remaining reserves and underperformer wells.

INTELLIGENT SOLUTIONS, INC.



Intelligent Solutions, Inc. introduces a revolutionary and innovative alternative/complement to traditional reservoir simulation and modeling. Top-Down, Intelligent Reservoir Model; may be defined as developing a calibrated (history Matched) model of the hydrocarbon producing reservoir that integrates multiple instance of field measured properties such as production, logs, cores … into a cohesive predictive model of the field. Instead of using first principle physics to model the fluid flow in the porous media, top-down modeling uses Artificial Intelligence and Data Mining (AI&DM) techniques to arrive at a consistent full field reservoir model with all the expected predictive capabilities.

Top-Down Model: Top-Down, intelligent reservoir modeling approaches the reservoir simulation and modeling from an opposite angle. It attempts to build a realization of the reservoir starting with well production behavior (history). The production history is augmented by core, log, well test and seismic data in order to fine tune the Top-Down model and increase its accuracy. Although not intended as a substitute for the conventional reservoir simulation of large, complex fields, this innovative and novel approach to reservoir modeling can be used as an alternative (at a fraction of the cost) to conventional reservoir simulation and modeling in cases where performing conventional modeling is cost (and man-power) prohibitive. In cases where a conventional model of a reservoir already exists, Top-Down modeling should be considered a compliment to, rather than a competition for the conventional technique, to provide an independent look at the data coming from the reservoir/wells for optimum development strategy and recovery enhancement.



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Who Should Attend?

This course is designed for reservoir engineers and geoscientists that are involved in all aspects of Reservoir Simulation and Modeling.

Every participant in the short course will receive:

- A Course Manual including all the slides used during the presentation of the short course.
- An electronic copy of all the slides.
- Electronic copy of technical material as support for the topics covered in the short course. This technical material takes you beyond the summarized slides and help you review in detail all you have learned in the short course.
- A copy (full features with limited time license) of IPDA™ suite of software applications, the most comprehensive AI&DM tool for the Oil & Gas industry. During the short course you will learn how to work with IPDA™ suite of software applications.

Course Outline:

Part One:

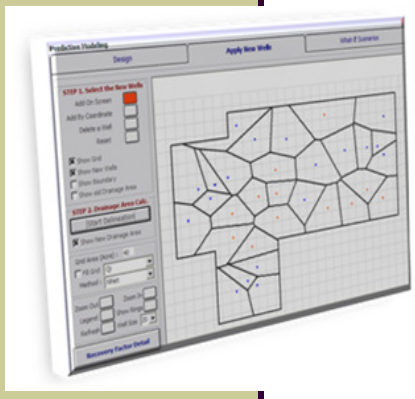
Artificial Intelligence & Data Mining (AI&DM); Theoretical Background.

Part Two:

Reservoir Simulation & Modeling.

Part Three:

Top-Down, Intelligent Reservoir Modeling (TDIRM);



Definition and specifications
Development of Top-Down Modeling

Decline Curve Analysis
Conventional Decline Curve Analysis
ISI's Intelligent Decline Curve Analysis

Type Curve Matching
Single-Well Simulation & Modeling
Single Well Volumetric Reserve Estimation
Single Well Recovery Factor Estimation
Discrete, Single Well Predictive Modeling
Incorporation of Analyzed Data
Incorporation of Log Information
Incorporation of Seismic Information (upon availability)

Field-wide Fuzzy Pattern Recognition
Time-Successive, Complete, Full Field Modeling

Calibration of the Top-Down Model
Analysis in the Predictive Mode

Part Four:

Software Application.

About the Instructor

Dr. Shahab D. Mohaghegh is professor of Petroleum & Natural Gas Engineering at West Virginia University and founder and president of Intelligent Solutions, Inc., the leading company in providing the oil and gas industry with solutions based on artificial intelligence & data mining (AI & DM).

With more than 16 years of experience, Dr. Mohaghegh has been a pioneer in the application of "AI&DM" in petroleum industry, applying hybrid forms of neural networks, genetic optimization and fuzzy logic to smart wells, smart completions, and smart fields as well as to drilling, completion, well stimulation, surface facility optimization, formation evaluation, seismic inversion, reservoir characterization, reservoir simulation and reservoir management.

He has published more than 100 technical papers during his career and has been a technical editor/reviewer for various SPE journals as well as other petroleum-related publications such as Oil, Gas and Coal Technology, Journal of Petroleum Science and Engineering, Computers & Geosciences, Geophysics, and Energy & Fuels. His technical articles on the application of "AI&DM" in the oil and gas industry and their recent developments have appeared in the Distinguished Author Series of SPE's Journal of Petroleum Technology during September, October and November of 2000 as well as the April 2005. He is a SPE Distinguished Lecturer for 2007-2008. He is an associate editor of SPE Reservoir Evaluation and Engineering Journal 97-99, & 2007- present. He has also served as discussion leader and technical presenter in SPE forums and has served as a steering committee member in SPE Applied Technical Workshops. He has been a panelist in several international conference discussing topics related to "AI&DM" and smart fields. He is the Co-Chair of the 2009 SPE Forum on Artificial Intelligence in Exploration and Production Industry.

Shahab D. Mohaghegh holds B.S. and M.S. degrees in Natural Gas Engineering from Texas A&I University and Ph.D. in Petroleum & Natural Gas Engineering from The Pennsylvania State University.

For More Information Please Contact:

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