

# SPE TECHNOLOGY WORKSHOP

## Petroleum Technology Short Course



By:  
Dr. Amininan  
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## CONTENT'S OF THE PETROLEUM TECHNOLOGY SHORT COURSE

### I. Common Knowledge.

- A. Principles of mathematics and the physical sciences.
- B. Petroleum engineering terminology
- D. Relevant industry regulatory/environmental law.
- .E. Industry and/or company-provided technical software/informational databases.
- F. Project management techniques (costing, scheduling, contracting, logistics).
- G. Geoscience principles (pore pressure, fracture gradients, wellbore stability, etc.).
- H. Risk analysis/contingency planning.
- I. Surveillance/optimization techniques.
- J. Economic principles.
- K. Multidisciplinary team participation.
- L. Professionalism, including ethics and due diligence.

### II. Drilling

- A. Tubulars.
- B. Cementing.
- C. Drilling fluids.
- D. Drillstring.
- E. Drilling mechanics.
- F. Hydraulics.
- G. Rig equipment capabilities.
- H. Directional/horizontal drilling.
- I. Wellheads.
- J. Well control/BOP.
- K. Solids control.
- L. Bits.

### III. Completion , Production and Facilities

#### Common Knowledge.

- A. Principles of mathematics and the physical sciences.
- B. Petroleum engineering terminology.
- C. Gas lift, including intermitters, plunger lift, or gaslift valves.
- D. Downhole pumps including ESPs, .progressive cavity pumps, or jet pumps
- E. Well and completion systems including nodal analysis.
- F. Inflow performance curve analysis.
- G. Production logging.
- H. 2Dsand fracture treatments.
- I. Matrix acid treatments.
- J. Tubing and downhole equipment.

- K. Plug and abandonment procedures.
- L. Remedial/recompletion operations (squeezing cementing, sand control, perforating, etc.).
- M. Selections of piping to accommodate flow rate, total pressure and pressure drop considerations.
- N. Compressor application and sizing parameters.
- O. On-site processing equipment including separators, heater treaters, or dehydrators.
- P. On-site storage vessels including piping, valves and venting.
- Q. Logging methods (wireline, MWD/LWD, open hole, cased hole).
- R. Well testing (wireline, production test, DST, well test analysis).
- S. Derivation of properties from formation evaluation data included lithology, mechanical rock Properties fluid properties and borehole dimension.
- T. Mechanical rock properties.

#### **IV. Reservoir**

- A. Reservoir geoscience.
- B. Oil/gas reservoir performance.
- C. Methods to determine net pay.
- D. Phase behavior/reservoir fluids.
- E. Single/multiphase flow in porous media.
- F. Gravity/capillary and viscous forces.
- G. Methods for estimating reserves and recovery.
- H. Reservoir development techniques (patterns, rates, stimulation, etc.).
- I. Water/gas injection.
- J. Reservoir simulation techniques.
- K. Physical measurements (e.g., acoustic, nuclear, electrical).
- L. Lithology.
- M. Fluid properties.
- N. Coring (SWC, full hole core, petrophysical/lab analysis)

## **Biography**

### **Khashayar. AMINIAN, Ph.D.**

#### **EXPERIENCE**

- 1992-Present Professor, Petroleum and Natural Gas Engineering, WVU
- 1981-1992 Associate Professor, Petroleum and Natural Gas Engineering, WVU
- 1983-1987 Assistant Professor, Petroleum and Natural Gas Engineering, WVU
- 1979-1983 Reservoir Engineer, Michigan Consolidated Gas Co., Detroit, Michigan

#### **EDUCATION**

- Ph.D. Chemical Engineering, University of Michigan, 1982
- M.S. Chemical Engineering, University of Michigan, 1978
- B.S. Chemical Engineering, Tehran University, 1976

#### **RESEARCH AND TEACHING INTERESTS**

- Natural Gas Production and Storage, Reservoir Characterization and Modeling, Coalbed Methane Development, Pressure Transient Analysis, Improved Oil and Gas Recovery, Environmental Aspects of Oil and Gas Production

#### **AWARDS**

- - Recipient of 1999 Regional Service Award, Society of Petroleum Engineers
- - Recipient of 2000 West Virginia University Outstanding Teaching Award

## **PROFESSIONAL ACTIVITIES**

1. Coordinator of North American Coalbed Methane Forum (1993-present)
2. Member of Board of Directors, Northern WV SPE Section (1991-present)
3. Member of SPE Education and Accreditation Committee (2002-present)
4. Technical Editor, SPE Formation and Reservoir Evaluation Journal (1998-present)
5. SPE Eastern Regional Conference Technical Program Committee Chair (2005 and 2000)
6. NSF Graduate Fellowship Review Panel (1998-2001)

## **PUBLICATIONS**

1. Evaluation of the Results of Gas Storage in a Gas/Condensate Reservoir in the Appalachian Basin, SPE 111193, Proceedings of SPE Eastern Regional Conference, October 2007.
2. Type Curve-Based Production Prediction Tool for CBM Prospects, SPE 111194, Proceedings of SPE Eastern Regional Conference, October 2007.
3. A Simple and Reliable Method for Gas Well Deliverability Determination, SPE 111195, Proceedings of SPE Eastern Regional Conference, October 2007.
4. Gas Storage in Depleted Gas/Condensate Reservoir in the Appalachian Basin, SPE 104555, Proceedings of SPE Eastern Regional Conference, October 2006.