CSPG Short Education Course

Fundamentals of Gas Reservoir Engineering

Instructor: Kamal Malick, P. Eng.

Location: Virtual

Cost: Member - $595.00  
Non Member - $795.00

Date: Tuesday, April 12, 2022 | 9:00am – 5:00pm (MST)

ABSTRACT

This course will provide an introduction to Gas Reservoir Engineering and to the various gas reservoir engineering methodologies applied from discovery to depletion. It will go through the life-cycle of a gas reservoir to determine Original Gas-In-Place, recoverable resource and commercial considerations. The course will start with a detailed discussion on gas PVT properties, their liquids-rich nature and how to maximize liquids recovery. This will be followed by the Volumetric OGIP calculation and the inter-disciplinary nature of determining volumetric OGIP between Reservoir Engineers and Geoscientists will be highlighted. Gas reservoir drive mechanisms and OGIP calculation through production data will be discussed followed by the calculation of drainage areas and depletion risk in both conventional and unconventional plays. Towards the end, gas contracting terms and definitions will be introduced and the economic considerations of a gas field development planning will be discussed. Exercises and relevant examples from the major liquids-rich gas producing formations in Western Canada will be shown throughout the course to make the learning interactive.

The course will cover the following topics:

- Natural Gas & The Global LNG Trade
- Gas PVT Properties - z, Bg and E
- Volumetric Gas-in-Place Calculation
- Drive Mechanisms and Material Balance Gas-in-Place
- Drainage Area and Depletion Risk
- Gas Field / Play Development Economics

WHO SHOULD ATTEND?

Technical personnel and decision makers working on subsurface hydrocarbon reservoirs in multi-disciplinary teams using or considering using geomodelling. This includes geologists, geophysicists, petrophysicists, reservoir engineers, production and operations engineers, technologists, technical managers and geomodelers.
**BIOGRAPHY**

Kamal Malick has been working in the energy industry for over 25 years in a variety of technical and leadership roles. He has worked globally in Canada, USA, North Sea and Asia-Pacific regions on various complex oil and gas fields under natural depletion and EOR schemes.

Kamal is currently working for Abu Dhabi based TAQA North in Calgary. He has worked in multi-disciplinary teams in the Western Canadian Sedimentary Basin on exploitation planning and reservoir characterization for various tight and unconventional oil and liquids-rich gas plays such as the Cardium, Viking, Spirit River, Mannville and Montney formations. Previously, he was the Subsurface Manager for one of the largest onshore gas fields in Indonesia responsible for managing its subsurface development and commerciality. He has also worked on volatile oil and retrograde-condensate gas fields in the Berkine Basin in Algeria and on several fields in the UK North Sea with a Subsurface consultancy after starting his career from Pakistan. Kamal's areas of expertise are in reservoir characterization, field development planning, resource evaluation and enhanced oil recovery.

Kamal has been involved in teaching and mentoring throughout his career. He has been teaching courses through the CSPG since 2019 and has given talks at various universities around the world including at Mount Royal University. Kamal holds a Bachelor’s Degree in Mechanical Engineering from NED University of Engineering and Technology in Karachi, Pakistan and a Master’s Degree in Petroleum Engineering from Stanford University in USA and is an EMBA candidate at the University of Calgary. He holds a Professional Engineer designation from APEGGA and is a member of its Registration Committee.

Figure 1
Figure 2