

## **(2) Formation Evaluation**

### **WHO SHOULD ATTEND**

This course is intended for all technical professionals in the oil and gas industry, including trainee petroleum engineers, petrophysicists, geoscientists, and operations personnel who need an introduction to technical theory and techniques used in log interpretation and formation evaluation.

### **COURSE OBJECTIVES**

Upon completion of this course, participants will gain an understanding of the concepts of formation evaluation and well logging; an understanding of the physical principles of the tools used in openhole wireline logging; be able to read and interpret well logs; be able to characterise formations based on interpretation of well logs; an understanding of the various corrections applied to the logging tools; ability to discern porosity, water saturation, lithology, and hydrocarbon content from well logs; an understanding of the properties of rocks and fluids that produce characteristic signals.

### **CONTENT**

\*Formation Evaluation overview \*Rock classification system \*Log data acquisition \*Log headers presentation \*Summary of procedures used in log interpretation \*Borehole environment and invasion profiles \*Logging tools including GR, SP, sonic, density, neutron, image logs, NMR and resistivity tools – their principles of operation, data acquisition & interpretation, limitations and various corrections applied to the tools \*Effect of the presence of hydrocarbons, clays, secondary porosity, open fractures, overpressure intervals on the apparent porosity of tools \*Porosity calculation from individual tools \*Determination of lithology and mixture porosity in complex formations \*Saturation determination \*Calculation of formation water resistivity and shale volume

The work sessions will include a series of lectures, class based practical exercises using a suite of wireline log data, and case studies.

### **INTENDED FOR**

\*Trainee petroleum engineers \*Petrophysicists \*Reservoir engineers \*Geoscientists \*Production engineers \*Operations personnel