

Course Code

PE05

Course Title

Reservoir Fluid Properties

Instructor

Dr. enol Yamanlar



Professional Career

He is an Assistant Professor in the Department of Petroleum and Natural gas engineering at Istanbul Technical University, Turkey. His expertise and interests are experimental hydrocarbon phase behavior; waterflooding of natural gas and condensates through porous media; petroleum, natural gas and natural gas liquids chromatography; simulated distillation using gas chromatography; PVT modeling of petroleum and natural gas laboratory experiments using equation of states; hydrocarbon thermodynamics; and natural gas hydrates phase equilibrium (formation, prevention and modeling). He holds a BS degree from the Istanbul Technical University in Turkey and both MS and Ph.D. degrees from the Colorado School of Mines, Golden, Colorado, USA, all in petroleum engineering. He developed a software called CONDENSE distributed through Gas Research Institute to predict natural gas condensate compositions during a CVD depletion process. A further detailed CV is upon request.

Course Objective and Description

The course provides a fundamental concepts, definitions and methods used in petroleum engineering fluid studies (petroleum, natural gas, and condensates). Basic and intermediate level of fluid properties subjects are introduced in detail. The course will also cover gas chromatography and PVT analysis in brief. During the 5-day course, several examples for each method will be given to help the audience to better understand the concepts and applications.

Homework will be assigned to the attendees during the course, and a final exam will be given at the end of the course to evaluate each attendee's learning outcomes.

Who Should Attend

Reservoir and production engineers, personnel dealing with PVT studies, petroleum geologists

Prerequisite

None

Learning Level

Intermediate

Duration

5 days

Course Outline

Day One

- Introduction and general definitions
- Classification of crude oils depending on their composition
- Basic hydrocarbon chemistry and homologous series
- Example applications and class exercises
- Phase behavior of single component hydrocarbon systems
- Phase behavior of two and multi component hydrocarbon systems
- Classification of reservoirs based on the fluid types
 - o Black oil
 - o Volatile oil
 - o Natural gas condensates
 - o Wets gases
 - o Physical ranges and production characteristics used to classify the fluid content of a hydrocarbon reservoir
 - o Example applications and class exercises

Day Three

- Properties of oils
 - o Bo
 - o Bg
 - o Bt
 - o Rs
 - o Isothermal gas compressibility
 - o Crude oil viscosity
 - o Bubble point pressure
 - o Surface tension
 - o Estimating the petroleum physical properties from correlations
 - o Properties of volatile oils
 - o Example applications and class exercises

Day Four

- Properties of wet and dry natural gases
 - o Behavior of ideal gases and ideal gas mixtures
 - o Behavior of real gases (z factor)
 - o Effect of non-hydrocarbon components on the z factor on correction for non-hydrocarbons
 - o Correction for high-molecular weight gases
 - o Compressibility of natural gases
 - o Gas formation volume factor
 - o Gas viscosity and methods of calculating gas viscosity
 - o Heating value of natural gases
 - o Natural gas hydrates
- Example applications and class exercises

Day Five

- Equations of state and their applications in petroleum engineering
 - o Generalized form of equation of states
 - o vdW, SRK and PR EOS
- Basics of vapor-liquid phase equilibria
 - o Equilibrium ratios
 - o Bubble point calculations
 - o Dew point calculations
 - o Constant P,T flash calculations
- Compositional and descriptive analysis of petroleum, natural gas and natural gas liquids (gas chromatography and distillation)
- PVT analysis of hydrocarbon reservoir fluids (CCE, CVD, and differential experiments)
- Example applications and class exercises

Antalya, Turkey
10-14 May
US\$ 2,950

Istanbul, Turkey
1-5 Nov
US\$ 2,950

Course Code

PE06

Course Title

Drilling Well Control (IWCF certified)

Who Should Attend

Petroleum, drilling and well completion engineers

Limited Participant

3 – 6 persons

Course Objective and Description

Drilling Well Control Course for IWCF (International World Control Forum) Certification program is hold in Ankara. The center where the course is carried out is an International Well Control Assessment center accredited by IWCF with effect from 26th November 1997. To meet the well control training requirements of operators, drilling contractors and service company personnel in both onshore and offshore operational environments, a full-size drilling and well control simulator (DRILLSIM 5000) is used in the course. Two years internationally valid IWCF Certificates are given to the successful candidates. Drilling Well Control Course for the certification program is conducted according to IWCF standards at two separate categories and two different levels as follows:

- Surface BOP Stack (Onshore)
 - o Drilling supervisor Level
 - o Driller level
- Combined surface/Subsea BOB Stack (Onshore + Offshore)
 - o Drilling supervisor Level
 - o Driller level

Scheduled on demand

US\$ 2,450
