



## Fundamentals of Crude Measurement (2.5 Days)

- **General introduction to crude oil from wellhead to refinery**
- **Production allocation: measurement at first point of separation**
  - Two-phase and three-phase separator measurement
  - Multi-phase measurement
- **Tanks**
  - Construction
  - Gauging
    - \* Manual volume gauging
    - \* Automatic volume gauging
    - \* Temperature determination
    - \* Overall function
    - \* Examination of components
    - \* Safety features
    - \* Security
    - \* Sampling systems
- **LACT units**
  - Temperature determination
  - Overall function
  - Examination of components
  - Safety features
  - Security
  - Sampling systems
    - \* Setup
    - \* Maintenance
- **LACT controllers, PLCs and ticketing**
- **Physical properties**
  - Gravity determination
  - Water determination, managing the shake out
  - H2S hazards and safe work practices
- **Proving**
  - Mass
  - Volumetric
  - Meter factor
  - Witnessing
- **Asset balancing**
  - Calculations
  - Meeting API requirements
  - Balancing a gathering system
  - Balancing a pipeline
- **Maintaining an auditable process**

