

# Training solution

## Instrumentation for FPSO

### Tailor made solution with hardware and teachware

#### Learning objectives

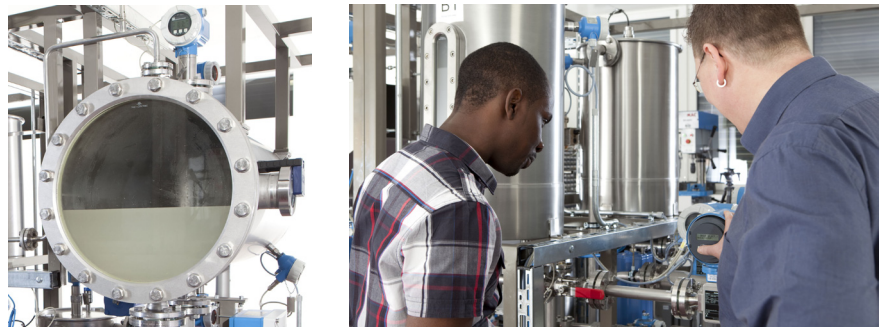
- Overview about measuring technologies
- Select, install and commission process instrumentation
- Set-up field devices like level, pressure, flow, temperature, control valves and frequency inverters

#### Special skills

- Handle difficult process conditions, e.g. air bubbles in a pipe

#### Additional know how

- Understand the different elements of a PID control loop
- Understand the basics of Life Cycle Management of a field device



Hands on lessons under real process conditions are the base for the best learning result

Endress+Hauser offers customer specific training solutions developed and built by the specialists of our Application Training Center in Reinach Switzerland.

**Customer requirements** Maintenance staff on a FPSO (floating, production storage and offloading) vessel must be trained on how to handle Endress+Hauser field instruments, including some basic training on control valves, frequency inverters and control loops. The training should include practical hands-on experience as well as training on the theory.

**Training solution** A training rig that simulates some of the processes on an FPSO such as the separation of a water/oil mixture in a gravity separator.

The corresponding training package also includes a complete documentation and a trainer guide.

**Hardware** Two vessels, each with 100 liters capacity, serve as storage tanks for water and paraffin oil. In a subsequent mixing tank an agitator produces a homogenous emulsion out of the two components, which serves as a replacement for crude oil. The water/oil mixture is then separated again and pumped into buffer tanks before it finally returns to the storage tanks.



The FPSO training rig simulates the production process on a floating production storage and offloading facility

**Training package** This course involves all elements of process instrumentation, basic measurement principles, selection, installation, set-up (under regular and difficult process conditions), operation and device exchange.

The course is designed to offer participants practical experience with hands on exercises and theoretical knowledge via classroom training.

#### The training rig includes

**Flow** Coriolis, electromagnetic and DP flowmeters  
**Level** Radar, guided radar, radiometric, hydrostatic pressure and vibronic switches  
**Pressure** Gauge and absolute pressure with ceramic and metallic cells  
**Temperature** RTD sensors  
**Configuration tools** Process display, handheld configuration tool, Fieldcare

**Actuators** Centrifugal pumps, control valves, frequency inverter, agitator, heating element

**Control system** Rockwell Automation ControlLogix

**Operation software** Rockwell Automation Factory Talk View

**Configuration software** Fieldcare

**Communication** 4-20mA HART

**The training documentation comprises** Trainer guide as screen-play, PowerPoint presentations for theoretical sessions, exercises with solutions, hand-out for trainees, assessment and a detailed documentation of the training hardware.

#### Application Training Center

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