☐ Course title: OLGA Flow Assurance (5 days)

☐ Course overview

1. Name of instructor: Azwan Shaharun
2. Level of training: Foundation
3. Training duration: 5 days
4. Number of trainees: 10
5. Training contents:

During this five-day course, you will learn how OLGA dynamic multiphase flow simulator is used to understand and solve typical flow assurance challenges.

This interactive and practical course includes step-by-step instructions to build and run simple transient simulation models. Key operational procedures are covered, like shutdown, start-up and pigging. Best practices and workflows are also presented for liquid and hydrate management, slugging recognition and mitigation, and fluid handling in OLGA.

The last two days are focused on advanced OLGA workflows to model separators, controllers, and how to model thermal interactions between pipes and surroundings.
All the main features of the OLGA GUI are covered, allowing you to easily build, edit and run models, create parametric studies, and view the results.

8. Training schedule (summary)

Date	Program	Note
Day 1	OLGA Simulator Fundamentals	
Day 2	Fluids in OLGA	
Day 3	Flow Assurance with OLGA	
Day 4	Equipment and Controllers in OLGA	
Day 5	Pipeline and Advanced Heat Transfer Modeling in OLGA	

9. Daily lesson plan

- Day 1
  - 09:30~13:00:
    Browse the OLGA GUI
    Create a new OLGA case and make a simple model
  - 13:00~14:00: Lunch
  - 14:00~17:30:

Run Simulations
Extract Simulation Results

- Day 2
  - 09:30~13:00:
    Start Multiflash from the OLGA GUI
    Enter a fluid composition from a PVT report and characterize the fluid in Multiflash
  - 13:00~14:00: Lunch
  - 14:00~17:30:
    Select thermodynamic and transport models to be used to calculate fluid properties in Multiflash
    Save Multiflash fluid files that contain all model information (*.mfl)

- Day 3
  - 09:30~13:00:
    How to address some of the common flow assurance challenges using OLGA
    How to build a more complex model
    How to set up a time series
    How to run a parametric study
    How to recognize terrain and hydrodynamic slugging
  - 13:00~14:00 : Lunch
  - 14:00~17:30 :
    Slug mitigation alternatives
    Surge volume calculations
    Hydrate curves and how to monitor hydrate risk
    Hydrate inhibition in OLGA

- Day 4
  - 09:30~13:00:
    Model a pig in OLGA and run a pigging simulation
    Use OLGA Viewer for animated plotting
    Specify mass sources using standard conditions
    Study the liquid accumulation and pressure drop in a gas condensate pipeline as a function of flow rate
  - 13:00~14:00: Lunch
  - 14:00~17:30:
    Model a separator in OLGA
    Control the separator pressure and liquid level using PID controllers

Model an ESD controller in OLGA
Model a modulating PSV in OLGA
Prepare a separator model for simulation of an overpressure scenario

- Day 5
  - 09:30~13:00:
    Simplify detailed geometries using the OLGA Profile Generator
    Model (and modify) a pipeline using the OLGA Pipeline Editor
  - 13:00~14:00: Lunch
  - 14:00~17:30:
    Build fluid bundle models in OLGA
    Model solid bundles in OLGA
    Plot the results from a solid bundle simulation in FEMTherm Viewer

□ Introduction of lecturer (submission of curriculum vitae required)

- See attachment.