COURSE TIMETABLE

Day 1 PVT
- Integrated Production Systems
- Review of PVT Data, Correlations
- Evaluation of Laboratory PVT Reports
- Matching PVT Data in PE Programs
- Examples and Exercises

VLP & IPR THEORY
- Horizontal Flow Theory
- Vertical Lift Performance Theory
- Inflow Performance Relationships
- Intro to PROSPER
- Examples and Exercises

Day 2 PROSPER
- Artificial Lift, Gas Lift Equipment
- Design of Continuous Gas Lift System
- Mandrel Spacing & Valve Sizing
- Calculation of Valve Opening and Closing Pressures
- Introduction to Pump Performance Curves & Basic ESP Sizing
- Troubleshooting
- Gas lift stability problems
- Examples and Exercises

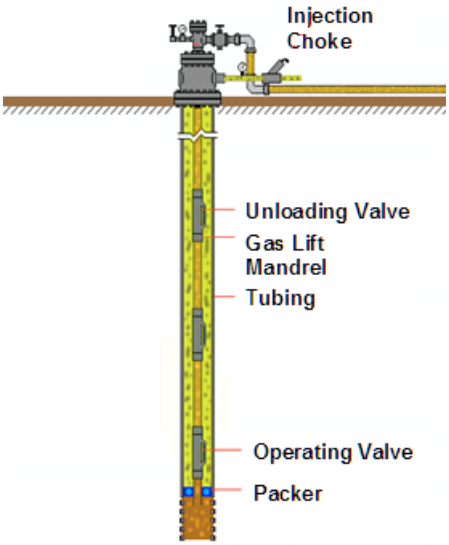
Day 3 ADVANCED GAS LIFT DESIGN AND OPTIMISATION
- Integrated Modeling - building surface network models linking PROSPER and GAP models
- Gas Lift Allocation
- Dual Bore Gas Lift Design

LIFE OF WELL GAS LIFT DESIGN
- LoW gas lift design process
- Use of IPOs as operating valves controlled by surface pressure (New Technology)
- Unloading wells safely during first time gas lift start up
- Scale resistant gas lift design & equipment

Day 4 ESP
- ESP system basics
- Design issues
- VSD effects
- Running and pulling procedures
- Operating procedures
- Optimisation
- ESP monitoring and data acquisition
- Failure modes and teardown
- Review and Discussion
- Examples and Exercises

Day 5 Jet Pumps (PTC)
- Jet Pump system theory
- Completion aspects
- Field examples
- Operating procedures
- Class design exercises

Artificial Lift Course



DESCRIPTION

The aim of this course is to develop the Petroleum Engineers knowledge to a level where they have the skills to independently construct, quality check, and apply Nodal Analysis Modelling in actual Artificial Lift Modelling. Using PROSPER and GAP, the course is designed to improve the participants understanding of both the underlying principles used in building Integrated Production Models, as well as the dexterity skills required to effectively run the programs for artificial lift design problems.

Concepts will be explored & presented interactively. The course includes a number of relevant real-life examples that will reinforce and consolidate the theoretical framework covered.

WHAT IS UNIQUE?

- Practical Worked Examples
- Class Exercises
- Interactive Sessions
- Workshop
- Real examples and experiences

WHO SHOULD ATTEND?

- Reservoir Engineers
- Production Engineers
- Petroleum Engineers

DURATION

- 5 Days

COMPANY BACKGROUND

Sapella is an independent petroleum consulting company who focus on providing engineering and technical services to the global upstream oil and gas industry. Our services and software are utilized by our clients for the planning, development, commissioning and operational phases of their oil and gas projects. Our clientele includes companies ranging from the super majors and national oil companies, to independents, as well as service and equipment supply companies, where we provide niche skills to assist in detailed equipment design.

With offices in Europe and South East Asia, the company is managed by an experienced and reputable workforce. Sapella has developed solutions for the E&P business by combining engineering expertise with economic analysis. We assist our clients to achieve world class performance from their assets by providing skills, novel solutions, and software tools to realize maximum production potential.

Sapella has conducted both reservoir and petroleum engineering centric courses to develop artificial lift modelling skills. Due to the skill sets available in our company, particularly in integrated asset modelling, we have developed several unique tools to improve the functionality of the Petex suite. This combination increases our client's efficiency as well as flattening the learning curve.

Sapella has and is developing tool kits and models, to assist our clients with detailed evaluations and modelling of both subsurface and surface production systems.

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DALE CHENERY (Sapella Engineering Solutions)
Principal Production Technologist

Dale Chenery is a Director and Principal Production Technologist with Sapella Engineering Solutions. Dale graduated from the University of Alberta in 1981 with a Bachelor of Petroleum Engineering. He joined Sapella as a partner in 2013 and has had a lead role in the development of the company. Over his career he has given more than 15 course modules in topics including the modelling of hydraulic fracturing treatments, integrated asset modelling and advanced artificial lift design and troubleshooting.

He has more than 34 years' experience in production technology and reservoir engineering having worked for major and independent oil companies, service companies, and consulting firms in Canada, the United States, Europe, the Middle East, and SE Asia.

HEIKO MORGENROTH
Principal Production Technologist

Heiko Morgenroth is a Principal Production Technologist with Sapella Engineering Solutions. Heiko graduated from the University of Imperial in 1992 with a Masters of Petroleum Engineering and completed the Base Courses for Software Engineering in 2000 to 2002 in Milton Keynes. He has more than 23 years' experience in production and reservoir engineering with major oil companies and independent consulting firms in South East Asia, Continental Europe, the Middle East and the North Sea.

He has completed projects for Shell, BP, Lasmo, Unocal, Chevron Texaco, Talisman, Murphy and others. He has set up a consultancy as a young engineer with five colleagues that grew to renowned 120 man power consultancy. He now has 12 years of petroleum software development and automation of oil industry workflows including programming of semi real time systems.