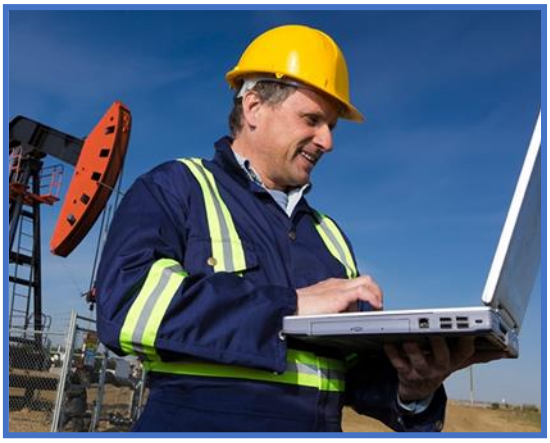
COURSE OVERVIEW DE1006
Nodal Analysis - Prosper Modeling/Production System Optimization (E-Learning Module)

Course Title
Nodal Analysis - Prosper Modeling/Production System Optimization (E-Learning Module)



Course Reference
DE1006

Course Format & Compatibility
SCORM 1.2. Compatible with IE11, MS-Edge, Google Chrome, Windows, Linux, Unix, Android, IOS, iPadOS, macOS, iPhone, iPad & HarmonyOS (Huawei)

Course Duration
30 online contact hours
(3.0 CEUs/30 PDHs)
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Course Description

This E-Learning course is designed to provide participants with a detailed and up-to-date overview of prosper modeling/production system optimization using nodal analysis. It covers the basics of well construction, well completion and configuration of casing and tabular completion; the tubing, downhole equipment and completion techniques; the information for completion and cross-sectional view of perforating gun discharging; the advantages and disadvantages of open-hole completion; the well stimulation, multiple zone completions and well evaluation; the artificial lift, pumpjack unit, bottom hole pump, electric submersible pump, progressive cavity pump and gas lift system; and the PIPESIM fundamentals, total production system, nodal analysis and pressure loss in system.

During this course, participants will learn the single branch operations, flow correlation matching and system analysis; the reservoir tables, artificial lift performance, horizontal well performance and optimum horizontal well length; the Vogel's correlation for IPR below BPP and the design of a continuous gas lift system to initiate production in a dead well; the importance of crude oil, well deliverability and nodal analysis; and the production and system performance analysis software (PROSPER), inflow performance relationship (IPR) and vertical lift performance (VLP).

Course Objectives

Upon the successful completion of this course, participants will be able to:-

- Apply and gain an in-depth knowledge on prosper modeling/production system optimization using nodal analysis
- Discuss the basic of well construction and well completion as well as configure casing and tabular completion
- Recognize tubing and downhole equipment and apply completion techniques
- Review information for completion and cross-sectional view of perforating gun discharging
- Explain the advantages and disadvantages of the open-hole completion
- Employ well stimulation, multiple zone completions, well evaluation and the completion program
- Identify artificial lift, pumpjack unit, bottom hole pump, electric submersible pump, progressive cavity pump and gas lift system
- Discuss PIPESIM fundamentals, total production system, nodal analysis and pressure loss in system
- Carryout single branch operations, flow correlation matching and system analysis
- Review reservoir tables, artificial lift performance, horizontal well performance and optimum horizontal well length
- Explain Vogel's correlation for IPR below BPP and the design of a continuous gas lift system to initiate production in a dead well
- Discuss the importance of crude oil as well as carryout well deliverability and nodal analysis
- Describe production and system performance analysis software (PROSPER) including inflow performance relationship (IPR) and vertical lift performance (VLP)

Who Should Attend

This course provides an overview of all significant aspects and considerations of prosper modeling/production system optimization using nodal analysis for production, operations and reservoir engineers as well as senior technicians and field supervisors with an engineering background.

Course Fee

As per proposal

Course Certificate(s)
Internationally recognized certificates will be issued to all participants of the course.

Certificate Accreditations
Certificates are accredited by the following international accreditation organizations: -

- USA International Association for Continuing Education and Training (IACET)

  Haward Technology is an Authorized Training Provider by the International Association for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 1-2013 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 1-2013 Standard**.

  Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Association for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

  Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

Training Methodology

This Trainee-centered course includes the following training methodologies:-

- Talking presentation Slides (ppt with audio)
- Simulation & Animation
- Exercises
- Videos
- Case Studies
- Gamification (learning through games)
- Quizzes, Pre-test & Post-test

Every section/module of the course ends up with a Quiz which must be passed by the trainee in order to move to the next section/module. A Post-test at the end of the course must be passed in order to get the online accredited certificate.

Course Contents

- Well Construction & Well Completion Basic
- Casing and Tabular Completion Configurations
- Typical Configuration
- Casing Review
- Tubing and Downhole Equipment
- Completion Configurations
- Tubing and Completion Configurations
- Wellhead
- Cross Sectional View of Wellhead
- Completion Techniques
- Information for Completion
- Perforating
- Cross-sectional view of perforating gun discharging
- View of perforating gun positioned for perforating
- Advantages of the Open-Hole Completion
- Disadvantages of the Open-Hole Completion
- Well Stimulation
- Hydrostatic Pressure

- Multiple Zone Completions
- Cons
- Pros
- Well Evaluation
- The Completion Program
- Artificial Lift
- Pumpjack Unit
- Bottom Hole Pump
- Pumps
- Electric Submersible Pump
- Progressive Cavity Pump
- Gas Lift System
- PIPESIM Fundamentals
- A Brief History of PIPESIM
- Total Production System
- Nodal Analysis
- Pressure Loss in System
- Tulsa University Fluid Flow Projects
- Single Branch Operations
- Flow Correlation Matching
- Pressure/temperature profile
- System analysis
- System analysis – Variables Permuted
- System analysis – Variables Change in Step
- Nodal analysis
- Reservoir tables
- Artificial lift performance
- Horizontal well performance
- Optimum Horizontal Well Length
- Workflow/Solutions Training

- A Tour of the User Interface
- PIPESIM toolbars and menus
- Output Files
- Plots
- Single Branch Operations
- Well Pipeline Tutorial
- The primary Output contains 16 columns
- The Auxiliary Output
- The Auxiliary output also contains of 17 columns
- Perquisites
- Review of Fundamentals
- Fundamentals - System Performance
- Vogel's Correlation for IPR below BPP
- Well modelling exercise
- PIPESIM Software
- General Data
- Well Construction (CSG & TBG)
- Deviation Survey
- Down Hole Equipment gas Lift & Surface Equipment
- CSG Design
- CSG Data
- Liner Data
- PKR Data
- Reservoir Model
- Design of a continuous gas lift system to initiate production in a dead well
- Importance of crude oil
- Well deliverability and Nodal Analysis
- Artificial lift
- PROduction and System PERformance analysis software (PROSPER)
- Well Deliverability

- Nodal Analysis
- Inflow Performance Relationship (IPR)
- Vertical Lift Performance (VLP)
- Multiphase Flow
- Artificial Lift
- Selection of an Artificial Lift System
- Types of Artificial Lift
- Gas Lift
- Model Setup in PROSPER
- About PROSPER
- Input Data
- Setting up the Model in PROSPER
- Gas Lift Design in PROSPER
- Real Time Production Optimization
- Background
- Real Time Production Optimization
- A Production Optimization Example
- Operations Main Activities
- Regional Top Bahariya Depth Map over ERQ Block
- ERQ Potential Reserves (31-August 2013)
- 2013 Facilities Projects
- ERQ Oil Shipment Destinations
- 2013 Oil Handling and Transport Cost
- ERQ TCM Agenda
- 2014 Work Program
- Intersection Line through Diaa-1 Diaa-2
- Shahd SE-8 and 9 Upper Bahariya Depth Map
- Rana SE-2A
- Al Zahraa-4 Upper Bahariya Depth Map
- Shebl East-2 Proposed Well Location
- ERQ Development Leases Future 3D Seismic Campaign
- Geochemical Modeling of Khattatba SR