VIRTUAL TRAINING
Coiled Tubing

Improve your Coiled Tubing Operations, Concept and Applications from the Expert!

27th September - 01st October 2021 at 09.00 am - 17.00 pm (GMT +8)

Petrosync Distinguished Instructor
Magdi El Naggar
Managing Director
Oil Fields Global Consultants (OFGC)

- Officially Certified as Professional Petroleum Engineering Consultant (License 116/7).
- Technical Advisor for several companies in the Middle & Far Easts, Africa and Gulf countries.
- 46 years of professional experience in various phases of Petroleum/Reservoir/Production/Drilling & Workover Engineering and field operations with several multi-national international companies including ARAMCO (Saudi Arabia) and ADCO (UAE).
- Professional in all phases of well intervention operations utilizing coiled tubing and well control as well as extended reach operations.

Course Objectives

- Understand the fundamentals & concept of the coiled tubing unit
- Increase awareness and knowledge of the coiled tubing operations and factors affecting its performance.
- Acquire necessary knowledge of the coiled tubing operational techniques, technologies and equipment
- Understand alternate deployment scenarios and multisensory applications for surveillance and optimization.
- Possess the basic skills required to select and implement various coiled tubing techniques as per operational requirements.
- Be able to handle various coiled tubing emergency situations, plan its operations, monitor and analyze its performance.
- Learn strategies and best practices for coiled tubing operations optimization.
- Understand the geological and basic reservoir properties Understand the formation damage concept and mechanism.
- Understand the effect of formation damage on revenue of the operator.
- Understand the impact of skin damage effect on productivity for both vertical and horizontal wells.
- Gain knowledge about various types of wellbore treatments to remove formation damage.
- Acquire knowledge on how to select the best fluid (less damaging) at every phase of the well development: drilling, completion, cementing, perforating, stimulation, gravel packing, workover, production and injection operations.

HYBRID TRAINING SOLUTIONS

FOCUS TRAINING • REDUCE COST • ENHANCED RESULTS

Over the years, there has been a growing demand for hybrid training programs. It is an excellent option to maximize your training dollar for your specific training needs. We make it possible to run a training program that is customized totally to your training needs at a fraction of an in-house budget!

If you like to know more about this excellent program, please contact us on +65 3159 0800 or email general@petrosync.com
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### Course Overview

This course is designed to introduce an overview of the coiled tubing operations concept and its applications in oil fields. It introduces variety of the coiled tubing technologies with special attention to the unit as surface equipment and downhole tools. The course also covers the main components, application envelope and coiled tubing special applications as well as the contingency plan for all possible situations which could be encountered throughout various operations. Moreover, the course provides better understanding, enhance knowledge and strengthen the decision-making capability of the participants about all types of wellbore treatments implemented to recover or enhance the well performance throughout presentations, case studies, group discussions and exercise as well as practical videos of actual cases.

### Who Should Attend?

- Production Engineers
- Drilling Engineers
- Petroleum Engineers
- Coiled Tubing Operators
- Operations Supervisors
- Field Service Engineers
- Field Operations Engineers
- Reservoir Engineers
- Coiled tubing Supervisors
- Operations Engineers

### Training Methods

The course is based on a balanced combination of classroom teaching and syndicate exercises supported by case studies and exercises. It is designed based on leading industry knowledge and practical case studies discussions and analysis to provide an interactive learning environment. The course further includes practical video clips as visual aids to further develop easier approach for understanding the technical information. During the course, in addition to the group discussions and exercises quizzes are conducted on daily basis to keep the information live, however, evaluation of the learning process will be concluded throughout conducting pre & post course tests at the start and end of the course session.

### PROGRAM SCHEDULE

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>0900</td>
<td>Registration (Day 1)</td>
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<tr>
<td>0910-1100</td>
<td>Session I</td>
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<tr>
<td>1100-1115</td>
<td>1st Tea Break</td>
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<tr>
<td>1115-1330</td>
<td>Session II</td>
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<tr>
<td>1330-1430</td>
<td>Lunch Break</td>
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<tr>
<td>1430-1600</td>
<td>Session III</td>
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<tr>
<td>1600-1615</td>
<td>2nd Tea Break</td>
</tr>
<tr>
<td>1615-1700</td>
<td>Session IV</td>
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<tr>
<td>1700</td>
<td>End of Day</td>
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</tbody>
</table>

*Schedule may vary for each training*

### WHY YOU SHOULD ATTEND PETROSYNC’S EVENTS

- To ensure that all objectives of the course matches yours, all PetroSync programs are developed after intensive and extensive research within the industry.
- PetroSync programs focus on your immediate working issues to ensure that you are able to apply and deliver immediate results in real work situations.
- Application and implementation of industry knowledge and experience are the drivers for our course design, not theoretical academic lectures.
- PetroSync training focuses on practical interactive learning tools and techniques including case studies, group discussions, scenarios, simulations, practical exercises and knowledge assessments during the course. Invest a small amount of your time to prepare before attending the course to ensure maximum learning.
- PetroSync follows a rigorous selection process to ensure that all expert trainers have first-hand, up-to-date and practical knowledge and are leaders of their respective industrial discipline.
Pre-course test

Module 1: Well Completion Types
- Definition of well completion
- Well completion Classification
- X-masTree
- Wellhead
- Casings
- Liners
- Production Tubing String
- Packers
- Sub-Surface Control System (SC-SSSVs)
- Wellhead Control System
- Artificial lift completions (ESP, GL)
- RSsmart Completions
- Impact of well completion selection on future well intervention operations in wells

Module 2: Well Completion Operations
- Definition of well completion concept
- Perforation
  - Types
  - Guns
  - Bullets
  - Phasing
  - TCP
- Stimulation operations
  - Basics and concept
  - Candidates selection
  - Reservoir lithology & impact on stimulation methodology
- Hydraulic Fracturing

Module 3: Well Intervention Operations
- Conventional:
  - Coiled Tubing Operations
    - Well kick-off operations
    - Stimulation
    - Scale Removal
    - Cement Squeeze
    - Fishing Operations
- Well killing & securing for well routine maintenance operations
  - Wireline (Slick, E-line)
  - Snubbing operations
  - Well Testing (PTS, MPFM)
- Non-Conventional
  - Well Control
  - Emergency
- Impact of well completion and well intervention operations

Module 4: Introduction to the Coiled Tubing Unit
- Introduction
- Coiled tubing description
- Coiled tubing equipment design
- Coiled tubing applications
- Coiled tubing advantages
- Coiled tubing disadvantages

Module 5: Coiled Tubing Surface Equipment
- Depth meter
- Goose neck
- Injector head
- Coiled tubing reel
- Prime movers
- PowerPack
- Stripper (conventional, side door)
- BOP

Module 6: Surface Equipment Handling & Testing Procedures
- Depth meter
- Injector head
- Reel
- Power pack
- Control cabin
- Pressure control equipment
- BOP
- Stripper (conventional, side door)
- RTMS
- Auxiliary surface equipment

Module 7: Coiled Tubing Downhole Tools
- Standard threads
- Grapper connectors
- Connectors
- Check valves
- Nozzles & Jetting subs
- Swivel joint Release joints PRV Centralizers Accelerators Jars
- Overshots
- Spears
- Downhole Tractor

Module 8: Pre-Job Safety Procedures
- General requirements
- General HSE aspects
- PTW
- TBM
- Coiled tubing well control drill
Module 9: High Pressure Coiled Tubing
Module 10: Coiled Tubing Applications
- Matrix treatment
- Logging operations (open hole, Cased hole)
- Drilling contingencies
- Squeeze cement
- Under reaming/milling
- Inflatable packers and bridge plugs
- Coiled tubing drilling
- Coiled tubing completion
- Well Kick-off
- Fill Cleaning
- Scale removal
- Well control/killing
- Excessive water/gas shut-off
- Fishing operations
- P&A
- Artificial lift
- Sands/non-cementious materials placement

Module 11: Coiled Tubing Operation Procedure
- Pre-Job requirements
- Scaffolding
- Pre-job equipment requirements
- Coiled tubing rigging-up & function testing
- Treating line rigging-up & testing
- General running procedures
- Operational procedures:
  - Well Control/Killing
  - Well Kick-off
  - Nitrogen properties & uses
  - Fill cleaning
  - Scale removal
  - Excessive water/gas shut-off
  - P&A
  - Well stimulation
- Production logging pressure deployment procedures
- Fishing operations
- Rigging down and HSE requirements
- Coiled tubing stability during mobilization

Module 12: Coiled Tubing Technical Data
- Definitions
- Coiled tubing operating limits
- Burst pressure
- Collapse pressure
- Coiled tubing ovality
- Fatigue and corrosion
- Stress and strain
- Forces affecting the coiled tubing performance
- Buckling
- Depth correction and stuck point calculations
- Helicalock-up
- Catastrophic buckling
- Coiled tubing sizes, volumes and displacement volumes
- Coiled tubing components (Dims & Wts)
- Coiled tubing speed limits
- Common nipples and lock system data
- Coiled tubing pressure drop curves

Module 13: Coiled Tubing Contingency Procedures
Module 14: Coiled Tubing Operational Troubleshooting & Case History
Module 15: Coiled Tubing Maintenance
Module 16: Reservoirs and Rock Properties
- Definition of Reservoir
- Reservoir Heterogeneities
- Reservoir Characteristics:
  - Porosity
  - Permeability
  - Relative Permeability
  - Saturation
  - Natural Fracturing
  - Pressures
  - Reservoir Pressure
  - Basic Pressure calculations
  - Pressure Differential
  - Well Temperature
  - Drilling Fluids
  - Completion Fluids

Module 17: Formation Damage
- Types of formation damage
- Scaffolding
- Classification of Formation damage by process
- Sources of formation damage
- Skin and impact on well productivity
- Formation damage laboratory tests (return permeability test, formation initiation pressure test, cake lift off test, etc.)
- Formation damage from drilling mud/processes
- Formation damage from perforations
- Formation damage from completion and Workover fluid
- Formation damage from oil and gas production activities
- Formation damage from scales
- Formation damage from organic deposits
- Formation damage from Wettability changes
- Formation damage from Acid stimulation
- Formation damage from Injection (water injection, CO2 injection, polymer flooding, steam flooding)
- Laboratory Techniques:
  - Core flood test
  - Formation damage test
  - Screen plugging test
  - Sand retention
  - Particle size distribution (PSD)
  - Rheological measurements
  - Compatibility tests / Emulsion stability
  - Solubility Tests
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Module 18 : Stimulation of Sandstone Reservoir
- Why stimulating a Sandstone reservoir?
- Sandstone reservoir description - mineralogy
- Acid formulation and lab tests e.g., acid response curve, compatibility test, return permeability test, etc.
- How much overflush is required
- How to avoid fluoride precipitation in sandstone stimulation

Module 19 : Stimulation of Carbonate Reservoir
- Why stimulating a carbonate reservoir?
- Carbonate reservoir description - mineralogy
- Acid formulation and lab tests e.g., acid response curve, compatibility test, return permeability test, etc.
- What is the big deal about wormholes?
- How to ensure the best acid coverage? Open hole? Cased hole?
- Acid placement in heterogeneous reservoir? Use of diverting agents
- How to ensure the best zonal coverage?
- Practical guidelines on how to select and evaluate acid treatment

Module 20 : Introduction to Hydraulic Fracturing
- Basic principles in fracturing
- Frac height prediction
- Frac height design
- Frac pressure prediction
- Completion design for frac well candidates
- Perforation strategy
- Fluid selection,
- Proppants edition

Module 21 : Multi-Stage Fracturing Technology
- Application in open hole horizontal well using swelling packer and stimulation sleeves
- Application in cased hole vertical to deviated wells using composite plug technology
- Real life field case history from planning, design, completion installation, stimulation to clean-up
- Example from carbonate reservoir

Module 22 : Sand Control Completion Overview
- Sand production problem
- What are the consequences of sand production?
- Sand Detection
  - Sand monitoring
  - Measuring Sand production
- Sand Prediction and Monitoring
  - What causes sand production?
  - Types of sand failure
  - How to predict sand production in new wells
  - How to predict sand failure during well production
- Sand Control Completion
  - Selective perforation method
  - Cased hole gravel pack
  - Frackpack
  - Perforating for sand control
  - Frac pack completion: success of a frac pack, frac pack limitations,
  - Frac pack fluids, frac pack installation and treatment procedure
  - Gravel pack I Frac pack evaluation
  - Sand Control field operations step

Case study

Petrosync Quality
Limited Attendees
The course has limited seats to ensure maximum learning and experience for all delegates.

Certificate of Attendance
You will receive a Certificate of Attendance bearing the signatures of the Trainer upon successful completion of the course. This certificate is proof of your continuing professional development.

Interactive Training
You will be attending training designed to share both the latest knowledge and practical experience through interactive sessions. This will provide you with a deeper and more long-term understanding of your current issues.

High Quality Course Materials
Printed course manual will provide you with working materials throughout the course and will be an invaluable source of reference for you and your colleagues afterward. You can follow course progress on your laptop with soft copies provided.
Magdi El Naggar is officially Certified as Professional Petroleum Engineering Consultants (License 116/7)

He has 46 years of professional experience in various phases of Petroleum Engineering including Petroleum/Reservoir/Production/Drilling & Workover Engineering as well as field operations with several multi-national international companies including ARAMCO (Saudi Arabia) and ADNOC (UAE).

He has extensive professional experiences in all phases of well intervention operations including coiled tubing, especially during well emergency cases, well control and extended reach operations.

He specialized in well intervention operations, especially, during emergency cases and well blowouts. He also has extensive experiences in full field development studies, Production Enhancement for oil fields as well as various types of wells, CO2 Injection and EOR operations, IWCF & IADC certification.

Publications

- Coiled Tubing Operations Standard Procedures
- Production Engineering Operations Standard Procedures
- Recently, completed a total of 3,000 research papers in various topics of O & G industry since 2014

Partial Client List

- SHELL
- TOTAL (Indonesia)
- Schlumbersers (Iraq)
- EXXON - ARAMCO
- ADCO
- Murphy
- Sapura (Malaysia)
- Arabian Gulf
- GUPCO (Egypt)
- ARAMCO
- Osterreichische Mineralol (OMV)
- OGS (Egypt)
- APEX
- Petromentor (China)
- CNPCIC (China)
- Oman Gas
- Oman Petrogas
- Sohar Aluminum (Oman)
- Petrofac
- OXY (Oman)
- Talisman

IN-HOUSE SOLUTIONS

SAVE COST • IMPROVE PERFORMANCE • REDUCE RISK

Petrosync understands that in current economic climate, getting an excellent return on your training investment is critical for all our clients. This excellent training can be conducted exclusively for your organization. The training can be tailored to meet your specific needs at your preferred location and time. We will meet you anywhere around the globe.

If you like to know more about this excellent program, please contact us on +65 3159 0800 or email general@petrosync.com
INVESTMENT PACKAGES

Please checklist the package that you are attending!

<table>
<thead>
<tr>
<th>Package</th>
<th>Time</th>
<th>Price</th>
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<tbody>
<tr>
<td>Coiled Tubing</td>
<td>09.00 am - 17.00 pm (GMT +8)</td>
<td>USD 2,995</td>
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* Price is net excluding Withholding Tax if any and will be quoted separately. Please send us the withholding tax payment receipt.

* Price include certificate of attendance.

* Recording with any kind of media from PetroSync online training session without permission will be taken into copyright issue and legal action.

* We will arrange technical briefing one week prior to the training date, to make sure all participants do not have any problem with their laptop/PC/internet connection to experience the live online training session.

* Attendance form will be presented with print screen

DELEGATE DETAILS

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<tr>
<th>Delegate Name</th>
<th>Direct Line Number</th>
<th>Mobile Number</th>
<th>Job Title</th>
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<tr>
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<td>3rd Delegate Name</td>
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*Please fill all the details including mobile number. This helps us to contact participant if they are late in class or if there is any urgent update (through whatsapp/call)

INVOICE DETAILS

Attention Invoice to: ____________________________

Fax: +65 6826 4322

Email: registration@petrosync.com

Name: Cay Aagen

Company: PetroSync Global Pte Ltd


Account no.: • SGD : 288-901898-0 • USD : 0288-002682-01-6

Bank Code: 7171 • Bank Swift Code : DBSSSGSGXXX • Branch code : 288

Address: ____________________________

Postcode: ____________________________

Country: ____________________________

Email: ____________________________

Phone: +65 3159 0800

Payment Terms: Payment is due in full at the time of registration. Full payment is mandatory for event attendance.

PAYMENT METHODS

- By Credit Card
- By Direct Transfer: Please quote invoice number(s) on remittance advice

PetroSync Global Pte Ltd Bank details:

Account Name: PetroSync Global Pte Ltd
Bank Name: DBS Bank Ltd
Bank Code: 7171 • Bank Swift Code : DBSSSGSGXXX • Branch code : 288

Account No. • SGD : 288-901898-0 • USD : 0288-002682-01-6


All bank charges to be borne by payer. Please ensure that PetroSync Global Pte Ltd receives the full invoiced amount.

CERTIFICATE OF ATTENDANCE

80% attendance is required for PetroSync’s Certificate of Attendance.

DETAILS

Please accept our apologies for mail or email that is incorrectly addressed.

Please email us at registration@petrosync.com and inform us of any incorrect details. We will amend them accordingly.

FIND US ON SOCIAL MEDIA:

PetroSync 
PetroSync Global Pte Ltd
PetroSync

CHARGES & FEE(s)

- For Payment by Direct Telegraphic Transfer, client has to bear both local and overseas bank charges.

- For credit card payment, there is additional 4% credit card processing fee.

DISCLAIMER

Please note that trainers and topics were confirmed at the time of publishing; however, PetroSync may necessitate substitutions, alterations or cancellations of the trainers or topics. As such, PetroSync reserves the right to change or cancel any part of its published programme due to unforeseen circumstances. Any substitutions or alterations will be updated on our web page as soon as possible.

DATA PROTECTION

The information you provide will be safeguarded by PetroSync that may be used to keep you informed of relevant products and services. As an international group we may transfer your data on a global basis for the purpose indicated above. If you do not want us to share your information with other reputable companies, please tick this box.

CANCELLATION POLICY

Delegates who cancel after the training is officially confirmed run by email, are liable to pay the full course fee and no refunds will be granted. You may substitute delegates at any time as long as reasonable advance notice is given to PetroSync.

In the event that PetroSync cancels or postpones an event for any reason and that the delegate is unable or unwilling to attend in on the rescheduled date, you will receive a credit voucher for 100% of the contract fee paid. You may use this credit voucher for another PetroSync to be mutually agreed with PetroSync, which must occur within a year from the date of postponement.

PetroSync is not responsible for any loss or damage as a result of the cancellation policy. PetroSync will assume no liability whatsoever in the event this event is cancelled, rescheduled or postponed due to any Act of God, fire, act of government or state, war, civil commotion, insurrection, embargo, industrial action, or any other reason beyond management control.

I agree to PetroSync’s terms & conditions, payment terms and cancellation policy.

Signature: ____________________________

Date: ____________________________

PetroSync Global Pte Ltd