Optimized Drilling

D1

Objectives: Developing the participants knowledge and skills in the different theoretical and practical aspects of drilling operations.

Who Should Attend

- Drilling Engineers, Drillers, petroleum engineers, technicians working in the field of drilling with minimum of 3 year’s experience

Introduction to drilling operations

1. The role of drilling practices in the evolution and development oil and gas reservoir
2. Operating company organization and the well design process
3. Drill bits, hydraulics and the drill string
4. Drilling operations key considerations

Drilling fluids

1. Drilling fluids
2. Hole cleaning

Casing and cementing

1. Casing and tubing design and implementation
2. Cementing operation

Directional drilling

Directional drilling policies and safety procedures, directional survey corrections, directional well planning, drilling the well, bottom – hole assemblies (BHAs), surveying the well survey data handing and quality control procedures, equipment handling, well integrity prior to commencement of directional drilling operations.

Well testing and completion

1. Well logging
2. Coring
3. Well clean – up testing
4. Well completion

Well design and subsea consideration (workshop)

1. Key subsea considerations
2. Well abandonment
3. Overview of operations responsibilities
4. Well design

Duration: 4 Weeks

Venue: Beirut, Cairo, Istanbul, Malaysia, Dubi.
Drilling Problems
مشاكل الحفر
D 2

Objectives
Provide participants theoretical and practical information about the problems which may arise during the drilling operations

Who Should Attend:
- Drilling engineering
- Drillers
- Geologists
- Petroleum Engineers

Contents
- Fishing problems and tools used
- Mud lost circulation / causes and remedy
- Problems of fluid flow from some of formations into the well and methods of problem handling
- Drilling pipe stuck / causes and remedy
- Oil & gas wells cementing operations and the problems arising from using:
  - Types of cement and its composition
  - Cement blending and its calculation
  - Main cementing
  - Secondary cementing
- Oil and gas wells blow-out control

Duration
6 days

Venue
Baghdad, Amman, Beirut, Cairo, Istanbul, Malaysia, Dubi.
Drilling
Mud Technology
تكنولوجيا سوائل الخف"ر
D 3

Objectives
Provide participants with newest methods of using drilling fluids to be technically and economically feasible

Who Should Attend:
- Senior petroleum engineers
- Senior drilling engineer
- Senior geologists
- Tool pushers
- Drillers

Contents
- Types of drilling fluids/ composition and specifications
- Functions and operation of drilling fluids circulation into well
- Methods of reconditioning the chemical and physical drilling fluids specification in mechanical ways
- Measuring devices of drilling fluids specifications
- Usage of rheological theories
- Solid materials control
- Base oil mud / composition, advantages and disadvantages
- Lost of circulation / causes, types and remedy

Duration
6 days

Venue
Baghdad, Amman, Beirut, Cairo, Istanbul, Malaysia, Dubi.
Blow-Out Controlin Oil & Gas Wells
تطبيقات في السيطرة على اندلاع الآبار النفطية والغازية
D4

Objectives
Provide participants thorough explanation how to kill the well when kick happens and give scientific and practical approach to how to kill the out-control wells.

Who Should Attend:
- Senior pet. engineer
- Senior drilling engineers
- Senior geologists
- Toll pushers
- Drillers

Contents
- Where and why the well kick happens
- Warning signs, finding out the kick, unusual pressure
- Gas coning, method of well shut-in
- Shut-in pressure of drill pipes and casing
- Methods of well control
- Lost of circulation and how to control it
- Well kick when pipes above bore hole
- Blow-out preventers
- Managing the blow out control operations

Duration
6 days

Venue
Baghdad, Amman, Beirut, Cairo, Istanbul, Malaysia, Dubi.

Tel: 00964 7270000003-00964 7270000002 - P.O Box :6037 Al-Tajiyat-Baghdad –Iraq - E.Mail : aptiapec@yahoo.com
Drilling Equipment Maintenance and Its Importance

Contents

- Introduction to the equipment used in the drilling operations
- Causes of damage and deterioration of drilling equipment
- Methods of avoidance of equipment damage
- Methods of maintenance
- The importance of maintenance
- Introduction to the tools used in testing and way of operating
- Types of tests
- Methods of drill-pipe test
- Test results analysis
- Diagnosis of damages by tasting of tools

Duration
6 days

Venue
Baghdad, Amman, Beirut, Cairo, Istanbul, Malaysia, Dubi.

Objectives: The participants of the course will be familiar with the different drilling equipment and methods of the maintenance and preferable use of them.
Oil & Gas Wells
Cementing Technology of
تكنولوجيا تسمية الآبار
 النفطية والغازية
D6

Objectives
Introduce the cementing technology of the oil & gas wells to the participants/ The types of cement used and chemical additives, methods of cementing, problems of cementing operations and cementing operations design.

Who Should Attend:
Drilling engineers
Petroleum Engineers
Geologists
Technicians working on wells cementing

Contents
- History of cement usage in the oil wells
- Manufacturing and classification of cement
- The aim of wells cementing operations
- The main kinds of cementing operations
- Specification of cementing blends and laboratory tests.
- Chemical additives to the wells cement
- Cementing operation design
- Cementing equipment
- Cementing operation problems and remedy
- Economics of cementing operation and cost calculation.

Duration
6 days

Venue
Baghdad , Amman , Beirut , Cairo , Istanbul , Malaysia , Dubi .
The Role of Drilling Fluids in Preventing and Remedying Drilling Problems

دور سوائل الخفري في تجنب ومعالجة مشاكل الخفر والعمليات الصحبية

D7

Objectives

Develop knowledge and skills of participants with theoretical and practical aspects of solid materials effect on producing formation. Also to enhance the participants knowledge about specifications of drilling fluids used in the drilling operations.

Who Should Attend:

Drilling engineers
Petroleum Engineers
Technicians working on mud preparation

Contents

- The role and importance of drilling fluids
- The problems of mud lost of circulation
- The problems of sand – stone formation damages and movement of marls and salt formation
- Drill-pipe stuck, collar, bit and some-time casing
- The problems of drill-pipe cut
- Krack and blow-out of casing
- Kick and blow-out of wells
- The problems of well-hole path deviation
- The problems arised from impossibility of well cleaning
- Pollution problem with sour gases and other pollutants
- Drilling problems

Duration

6 days

Venue

Baghdad, Amman, Beirut, Cairo, Istanbul, Malaysia, Dubi.

Tel: 00964 7270000003-00964 7270000002 - P.O Box : 6037 Al-Tajiyat-Baghdad –Iraq E.Mail: aptiaopec@yahoo.com
Fishing and repair of Casing
الاصطيادوصلاح أتتيب التبطين
D8

Objectives
Develop knowledge and skills of participants to be aware how to handle the fishing problems and repair the drill-pipe.

Who Should Attend:
Drilling engineers
Petroleum Engineers
Geologists
Technicians working on mud preparation

Contents:
- General rules of fishing
- Types of fishing tools and ways maintenance
- Types of fishing operation & maintenance
- Steps of fishing operations
- Fishing operations
- Causes of formations damages and way of remedying
- Damaged casing repair operations
- Deep wells testing operations and testing stages while drilling
- Modern applications of casing repair
- Cost analysis of pipes repair operations

Duration
6 days

Venue
Baghdad, Amman, Beirut, Cairo, Istanbul, Malaysia, Dubi.
Oil and gas wells testing

اختبار الآبار النفطية والغازية

D9

Objectives

Develop knowledge and skills of participants in theoretical and practical aspects of well testing

Who Should Attend
Petroleum engineers Graduates of Petroleum institutes, working on wells evaluations and reservoir engineering with minimum 3 years experience

Contents

- Definitions and objectives
- Reservoir/locations/oil, gas, water and condensates / and their properties
- Types of tests
- Testing through drilling string in the open hole/cased hole
- Productivity tests
- Pressure control equipment
- Testing operations design/equipment and control
- Analysis of testing data
- Pressure build-up/result analysis
- Productivity index
- Production rate
- Reservoir permeability
- Formation damage
- Production distribution with depth
- Tasting results
- Safety precautions
- Pollution and environmental protection

Duration

6 days

Venue

Baghdad, Amman, Beirut, Cairo, Istanbul, Malaysia, Dubi.
Objectives

Develop knowledge and skills of participants in the theoretical and practical aspects of well completion operations

Who Should Attend:
Petroleum engineers
Drilling engineers
Technicians working on drilling with minimum of 3 years experience

Contents

- Definitions & objectives
- Information & data necessary for planning of well completion operations
- The philosophy of well completion
- Classifications and types of operations
- Tools & equipment
- Design and control of completion operations
- Completion fluids
- Selection of flow lines diameters
- Cementing of production casing / hung casing
- Perforation operations
- Formation damage
- Well stimulation operations
- Problems of completion operations
- Cost analysis of well completion operations

Duration
6 days

Venue
Baghdad, Amman, Beirut, Cairo, Istanbul, Malaysia, Dubi.
Oil base and polymers preparation methods

طريقة تحضير مواد تحتوي على البترول والبوليمرات

D11

Objectives

Develop participant's skills to over coming the problems may raised while drilling

Who Should Attend:
Petroleum engineers
Drilling Engineers
Technicians working in drilling with mime. 3 years experience

Contents

- Oil base mud
- Definition of oil base mud and materials necessary for preparation
- Oil base mud specifications/ suitability for usage
- Necessity of its usage in vertical and horizontal drilling
- Precautions of using oil base mud while drilling gas fields
- How to use the oil base mud and its disadvantages
- Practical result of using oil base mud and recommendations
- polymers
- Definition, types and its using limitation
- Polymers comparison with other drilling fluids
- Advantages & disadvantages of polymers
- How to get benefit of its specs to avoid different problems
- Practical experience of using polymers in drilling and work-over

Duration

6 days

Venue

Baghdad, Amman, Beirut, Cairo, Istanbul, Malaysia, Dubai.
Gas Wells
Drilling Technology

Objectives
Develop the skills of participants to be aware how to handle the problems may arise while gas well drilling

Who Should Attend:
- Drilling engineers
- Tool-pushers
- Drillers
- Petroleum Engineers

Contents
- Preparations for drilling operations
- Casing design for gas wells
- Primary cementing operations for gas wells with high pressure
- Secondary cementing operations for gas wells with low pressure
- Stages of formations testing
- Under – pressure drilling operations in the fractured formations with high pressure
- Rig selection
- Complementary equipment necessary for gas wells drilling
- The problems of gas wells drilling (causes and modern remedy methods)
- Design of production pipes
- Gas wells completions
- Logging operations
- Blow – out of well (case study)
- Time and cost analysis while drilling operations
- Reevaluation and developing of gas fields
- Safety and environmental protection measures

Duration
6 days

Venue
Baghdad, Amman, Beirut, Cairo, Istanbul, Malaysia, Dubi.
Deep wells drilling technology

**Objectives**

Develop the participants skills to handle the problems may arise during deep drilling operations.

**Who Should Attend:**

- Drilling engineers
- Tool-pushers
- Drillers

**Contents**

- Introduction to well planning
- Sensing the formation pressure
- Determination of fractures factor of the formations
- Depth selection for casing
- Parameters affecting on penetration rate while drilling
- Bits design
- Directional drilling
  - depth selection of casing
  - drilling less than formation pressure
- Deep wells testing and tests necessary while drilling operations
- Modern applications concerning casing
- Drilling fluids program
- Piping design / production pipes
- The effect of well planning and completion
- Drilling string design
- Logs necessary for drilling operation
- Rig selection
- Hydraulic program while drilling
- Types of drilling contracts
- Cost evaluation of well drilling

**Duration**

6 days

**Venue**

Baghdad, Amman, Beirut, Cairo, Istanbul, Malaysia, Dubi.

Tel: 00964 7270000003-00964 7270000002 -P.O Box :6037 Al-Tajiyat-Baghdad –Iraq- E.Mail : aptiapec@yahoo.com
Modern techniques in formation water segregation
التكنولوجيا الحديثة في عزل المياه الطبقية

D14

Objectives
Develop participants knowledge and skills with new technique in formation water segregation

Who Should Attend:
✓ Drilling engineers
✓ Reservoir engineers
✓ Production engineers
✓ Tool-pushers
✓ Drillers

Contents
➢ Problems resulted from water production with oil
➢ Reduction of oil, gas production
➢ Increase in production cost
➢ Success percentages in controlled operations on formation water
➢ Sources and problems of formation water
➢ Electrical logging usage to determine the sources of formation water
➢ Operation control on formation water
➢ Local casing implementation
➢ Cement injection and cement plugs implementation
➢ Usage of chemical materials
➢ Formation water segregation inside the well
➢ Technical a economical follow – up of wet – oil movement from well-head to the customer point
➢ Technical and economical follow-up of wet gas from well-head to customer point
➢ Well tests while drilling and production tests

Duration
6 days

Venue
Baghdad, Amman, Beirut, Cairo, Istanbul, Malaysia, Dubi.
Modern Technology of Drilling

Objectives

Develop knowledge of participants about the modern technological principles used in drilling, work over and well completion.

Who Should Attend:

- Drilling engineers
- Tool-pushers
- Drillers
- Petroleum Engineers
- Reservoir Engineers

Contents

- Introduction
- Modern drilling technology
- Aims, advantages, usages and implementation
- Drilling with casing
- Casing repairs
- Dual casing running system (DCRS)
- Continuous circulation
- Lean profiles system
- Under balance drilling
- Multilateral wells

Duration

6 days

Venue

Baghdad, Amman, Beirut, Cairo, Istanbul, Malaysia, Dubi.
Drilling Practices and Work-over

Objectives: To develop participant knowledge about the objectives and reasons of work-over planning executing different type work-over operations.

Who Should Attend

✓ Geologists.
✓ Reservoir engineers.
✓ Production engineers.
✓ Drilling engineers.

Contents

➢ Introduction.
➢ The aim of work-over.
➢ Type and specification of work-over ring.
➢ Work-over fluids.
➢ Work-over operations.
   • reasons.
   • Programming of work-over.
   • Planning for work-over.
➢ Execution of work-over operations.
➢ Repairs of damaged casing.
➢ Lifting and running production pipes.
➢ Bottom-hole cleaning and sand control.
➢ Remedial cementing plugs cement squeezing.
➢ Running, fixing and retrieving different plugs and tools.
➢ Running the telescopic casing.
➢ Fishing.
➢ Others.

Duration

12 days.

Venue

Baghdad, Amman, Beirut, Cairo, Istanbul, Malaysia, Dubi.
Drilling Operations Economics and Cost Accounting
اقتصاديات عمليات الخفاف罩حاسب الكلفة
D17

Objectives
To develop participants knowledge in evaluating drilling economics

Who Should Attend
➢ Drilling engineers
➢ Reservoir engineers
➢ Production engineers
➢ Geologists

Contents
➢ Concepts of well design and completion.
➢ Types of well
  • Vertical
  • Horizontal
  • Multilateral
➢ Types of drilling
  • Exploration
  • Appraisal
  • Development
➢ Projected drilling time
➢ Well cost
➢ Tangible
➢ Casing, tubing wellhead and surface connections
➢ Intangible
➢ Site predation (location and roads)
  • Rig cost and tools
  • Drilling fluid, cementing, bits, coring etc...
  • Transportation
  • Supervision, geology, logging, performance
  • Formation testing completion and stimulation
  • Administration
  • Abandonment and plugging
  • Miscellaneous
  • Rig selection and cost.
  • Types of rigs
  • Daily rig cost.

Duration
12 days

Venue
Baghdad, Amman, Beirut, Cairo, Istanbul, Malaysia, Dubi.

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Managing a Programming of Drilling and Work-over Projects

Objectives
To develop participant knowledge in the best practice to manage and program the drilling and working over projects.

Who Should Attend
- Drilling engineers
- Reservoir of engineers
- Productions engineers
- Geologists

Contents
- Planning essentials prior to drilling
- Collection and preparation data for well planning
- Well types and classification
- Selection of offset well data
- Bit records
- Mud logging
- Production of pressure and fracture gradient
- Well trajectory hole, trajectory and well size and casing selection
- Bit, mud and cement plan
  - Type of bit
  - Calculation of mud and volume for each hole section
  - Estimation of basics materials and additives
  - Type of casing, grade, weight
- Completion planning
- Type of completion
  - Single tubing, artificial lift
  - Multiple completion
  - Surface and subsurface equipment
  - Rig sizing and selection
  - Work over operation

Duration
6 days

Venue
Baghdad, Amman, Beirut, Cairo, Istanbul, Malaysia, Dubi.
Open Hole Log & Cement Log

D19

Objectives

To develop participant knowledge on the different logging techniques.

Who Should Attend

Exploration, Drilling and Petroleum Engineers

Contents

- Basic cement evaluation log & physics
- Newer acoustic logs, Ultrasonic physics & CBL/ Ultrasonic example in the same hole
- Ultrasonic log interpretation inputs (problems)
- Proper evaluation of lightweight cement including gas cut or foam
- Log parameters, resistivity, SP Gamma ray and porosity
- Gas effect & lithology from logs & calculating water saturation
- Methods used to recognize quality log & logging tool limitations
- Using excel spreadsheets for log analysis
- Taking logs beyond just porosity & water saturation

Duration

6 days

Venue

Baghdad, Amman, Beirut, Cairo, Istanbul, or any place suitable for client.
Horizontal And Directional Drilling
الحرف الافقي والموجه
D20

Objective: To introduce the fundamentals of design and operational consideration of directional and horizontal drilling.

Who should attend:
The course is being introduced for drilling engineers, drilling supervisors, trainee directional drillers, asset team members and service company personnel.

Contents:
- Directional drilling fundamentals.
- Directional well planning.
- Survey calculation / accuracy methods.
- Anti-collision and advanced well planning.
- Surveying tools.
- MWD and LWD.
- Downhole equipment.
- BHA design.
- Rotary steerable systems.
- Directional well path design.
- Horizontal well planning.
- Hydraulics calculations.
- Hole cleaning.
- Tools used to deflect a wellbore.
- Torque and drag calculation.
- Well design workshop "software session".

Duration:
6 days

Venue:
Baghdad, Amman, Beirut, Cairo, Istanbul, or any place suitable for client.
Stuck pipe and fishing operation
عمليات الاصطيادو تسليك الآبار

D21

Objective: To provide understanding of preventing causes of stuck pipe, wellbore instability, loss of circulation...etc in drilling operations.

Who should attend
The course is being presented to drilling supervisors, drilling, petroleum and completion engineers, drillers, directional drillers and specialist service company engineers.

Contents:
- Stuck pipe causes and prevention.
- Basics rock mechanics.
- Wellbore stress.
- Wellbore instability.
- Hole cleaning.
- Differential sticking.
- Wellbore geometry.
- Tripping practices.
- Lost circulation.
- Fishing practices.
- Fishing causes and prevention.
- Fishing tool types and operation.
- Fishing tool selection.
- Fishing economics and risk analysis.

Duration
6 days

Venue
Baghdad, Amman, Beirut, Cairo, Istanbul, or any place suitable for client.
Dipmeter and Borehole Image Logging

Objective: To acquaint participants in dipmeter and borehole image logging

Who Should attend: Geologists, Geophysicists, Petrophysicists, Engineers and technicians interested with using borehole image and dipmeter data more effectively for integrated studies

Contents:

- Introduction to dipmeter and Borehole image
  - Modern Dipmeters
  - Basic Continuous Dipmeter Calculations
  - Image log type
- Visualization
- Structural Interpretation
- Fracture Characterization
- Wellbore stability
- Stratigraphic/sedimentologic interpretation
- Azimuthal petrophysical analysis
- Reservoir navigation and lateral well placement

Duration
6 days

Venue
Baghdad, Amman, Beirut, Cairo, Istanbul, or any place suitable for client

Organization Of Arab Petroleum Exporting Countries (AOPEC)
Arab Petroleum training Institute
APTI

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Page | 72
D23

Objectives

Provide participants thorough explanation how to kill the well when kick happens and give scientific and practical approach to how to kill the out-control wells.

Who Should Attend:

Senior pet. engineer, Senior drilling engineers, Senior geologists
Toll pushers, Drillers

Contents

- Where and why the well kick happens
- Warning signs, finding out the kick, unusual pressure
- Gas coning, method of well shut-in
- Shut-in pressure of drill pipes and casing
- Methods of well control
- Lost of circulation and how to control it
- Well kick when pipes above bore hole

Duration
6 days

Venue
Baghdad, Amman, Beirut, Cairo, Istanbul, Malaysia, Dubi
Drilling Operations, Equipment and Safety

D24

Objective :
To acquaint participants with safety drilling operation and practices.

who Should attend:-
All drilling rig crew

Contents

- Introduction to basic drilling operations (fishing, casing, cementing...).
- Borehole location, positioning and clearance.
- Mobilization and demobilization
- Well construction development and abandonment.
- Drilling equipment.
- Gas separation equipment.
- Mud pump drilling fluid properties & measuring devices.
- Drill stem and auxiliaries.
- Rotating and circulating system.
- Introduction to safety limitation.
- Drilling HSE Management system.

Duration
6 days

Venue
Baghdad, Amman, Beirut, Cairo, Istanbul, or any place suitable for client
Rig Inspection and Testing

Objective :-

To Enhance participants capabilities to inspect and test rigs to insure integrity and operability.

who Should attend:-

Drilling supervisors, drilling engineering, rig managers maintenance supervisors drillers.

Contents

- Checking rig overall status.
- Understanding common well control equipment.
- Analyze certificates and its content.
- Basic requirements of rig inspection.
- Critical items affecting safety.
- Rig acceptance testing.
- Drilling contractor management system and its.
- Rig efficiency and drilling efficiency studies and programs.
- Environment and pollution control and audit.
- Safety audit.

Duration
6 days

Venue
Baghdad, Amman, Beirut, Cairo, Istanbul, or any place suitable for client.
Electric Motors Control, Operation, Protection Testing
D26

Objective :-
To Acquaint the participants with industry accepted practice of operation, testing and maintenance.

who Should attend:-
Drilling supervisors, drilling engineering, rig managers, maintenance supervisors, drillers, electrical engineers, and experience electrical technicians with testing and maintenance.

Contents
- Principles and concepts.
- Motor specification.
- Single Phase motors.
- Three phase motors
- Characteristics.
- Code of design (NEMA & IEC).
- Name plate.
- Motor selection.
- Motor control and protection.
- Maintenance & troubleshooting.

Duration
6 days

Venue
Baghdad, Amman, Beirut, Cairo, Istanbul, or any place suitable for client.
Drilling Calculation and Rig Mathematics

D27

Objective :
To acquaint participants with the application of every day rig calculation.

Who should attend:-

Contents

➢ Introduction to unit system and basic mathematics.
➢ Basic formula .
   • Pressure gradient and hydrostatic pressure .
   • Converting pressure into mud weight
   • Specific gravity .
   • Capacity formula .
   • Bouyanacy factor .
   • Hydrostatic pressure decrease .
   • Formation temperature .
   • Drill pipe /drill collar calculations
➢ Pump pressure /pump strokes .
   • Volume and stroke
   • Slug calculations Accumulator capacity –usable volume per bottle .
   • Ton mile ( T M ) calculations .
   • Cementing calculations .
   • Mud inside the casing .
   • Stuck pipe calculations
   • Calculation required for spotting pills

Duration
10 days

Venue
Baghdad , Amman , Beirut , Cairo, Istanbul, or any place suitable for client