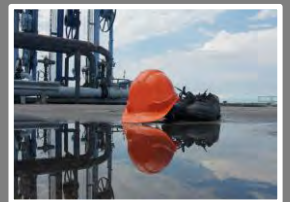


2019

Specialized Technical Courses for Oil & Gas Industry

EURO ENERGY SOLUTIONS
COURSE CENTER



International Course Package
1/15/2019

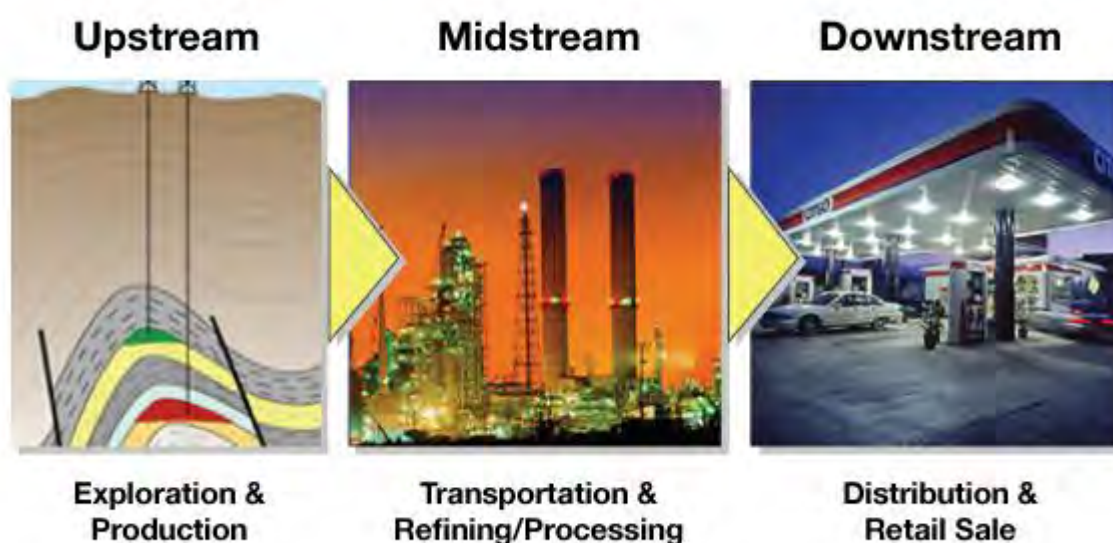


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Course A: An overview of the oil and gas value chain

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| Course name | An overview of the oil and gas value chain |
| Goal | <ul style="list-style-type: none"> ▪ To understand how the oil industry functions. ▪ To know who the actors in the process are. ▪ To recognize the fundamental processes and facilities within the oil and gas value chain. |
| Target groups | <ul style="list-style-type: none"> ▪ Onshore/offshore personnel, including sales & management personnel |
| Prerequisites | <ul style="list-style-type: none"> ▪ None |
| Course length | <ul style="list-style-type: none"> ▪ 16 hours (2 days) |
| Main elements of training program | <ul style="list-style-type: none"> ▪ Oil history ▪ Value chain overview ▪ Exploration ▪ Production ▪ Processing ▪ Transportation ▪ Refining ▪ Marketing ▪ Economic measures ▪ Petroleum reserves and forecasting |
| Location | <ul style="list-style-type: none"> ▪ Norway or GCC countries |
| Learning materials | <ul style="list-style-type: none"> ▪ Course pack, online tools |
| Relevant career prospects | <ul style="list-style-type: none"> ▪ Anyone wishing to enter the O&G industry. ▪ Onshore/offshore personnel, including sales & management personnel. |
| Contact information | Dr. Amir Safari, Euro Energy Solutions AS, Oslo/Norway: safari@energiring.com |



Course B: HSE in the oil and gas industry

| <i>Course</i> | HSE in the oil and gas industry |
|--|--|
| <i>Goal</i> | <ul style="list-style-type: none"> To understand issues, methods and key words relevant to Health, Safety and Environment (HSE) in the oil and gas industry. |
| <i>Target groups</i> | <ul style="list-style-type: none"> All personnel working in the Oil and Gas industry, including those in management level. |
| <i>Prerequisites</i> | <ul style="list-style-type: none"> None |
| <i>Course length</i> | <ul style="list-style-type: none"> 16 hours (2 days) |
| <i>Main elements of training program</i> | <ul style="list-style-type: none"> <u>PART I: work safe</u> <ul style="list-style-type: none"> Working in a dangerous environment Personal protective equipment Chemical hazards and environment <u>PART II: HSE Culture</u> <ul style="list-style-type: none"> HSE Culture Risk reduction Barrier philosophy HSE management system <u>PART III: HSE tools</u> <ul style="list-style-type: none"> Safe Job Analysis Work Permit System System for handling non-conformities Investigation |
| <i>Location</i> | <ul style="list-style-type: none"> Norway or GCC countries |
| <i>Learning materials</i> | <ul style="list-style-type: none"> Textbook: Førsvoll, Oystein: <i>HSE: Introduction to Health, Safety and Environment</i>, Vett & Viten. Online tools |
| <i>Relevant career prospects</i> | <ul style="list-style-type: none"> Anyone wishing to enter the O&G industry. Onshore/offshore personnel, including sales & management personnel. Personnel working in industry related areas like maintenance, harbour and safety officers. |
| <i>Contact information</i> | Dr. Amir Safari, Euro Energy Solutions AS, Oslo/Norway: safari@energiring.com |

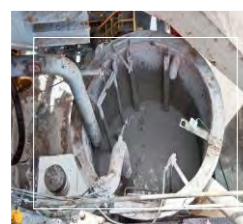


| <i>Course name</i> | Administration & Management for the Oil and Gas Industry |
|--|--|
| <i>Goal</i> | <ul style="list-style-type: none"> ▪ The oil industry has its own language. In this course you will learn the basic terminology of the industry, learn to understand its processes and key applications. |
| <i>Target groups</i> | <ul style="list-style-type: none"> ▪ All personnel working in the Oil and Gas industry, including those in management level. |
| <i>Prerequisites</i> | <ul style="list-style-type: none"> ▪ None |
| <i>Course length</i> | <ul style="list-style-type: none"> ▪ 8 hours (1 day) |
| <i>Main elements of training program</i> | <ul style="list-style-type: none"> ▪ Oil and gas professionals require the technical and business language skills to ensure effective communication in their working lives, reducing risk and improving safety. ▪ The content of this course includes: industry specific vocabulary, terminology, and language structures in contextual, realistic environments such as offshore oil platforms and oil tankers. ▪ The content is relevant for office personnel. |
| <i>Location</i> | <ul style="list-style-type: none"> ▪ Norway or GCC countries |
| <i>Learning materials</i> | <ul style="list-style-type: none"> ▪ Course pack, online tools |
| <i>Relevant career prospects</i> | <ul style="list-style-type: none"> ▪ Anyone wishing to enter the O&G industry. ▪ Onshore/offshore personnel, including sales, secretarial, administration & management personnel. |
| <i>Contact information</i> | Dr. Amir Safari, Euro Energy Solutions AS, Oslo/Norway: safari@energiring.com |



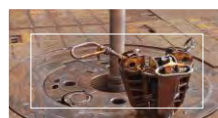
Course D: Technical Oil & Gas

| <i>Course</i> | Technical Oil & Gas |
|--|---|
| <i>Goal</i> | <ul style="list-style-type: none"> ▪ To understand how the oil industry works. ▪ To gain insight into the processes involved in the industry, from start to final product provided to the consumer. ▪ To expand knowledge of technical procedures. |
| <i>Target groups</i> | <ul style="list-style-type: none"> ▪ Offshore/onshore personnel working in technical and maintenance roles. ▪ HR personnel. ▪ Supervisors. |
| <i>Prerequisites</i> | <ul style="list-style-type: none"> ▪ None |
| <i>Course length</i> | <ul style="list-style-type: none"> ▪ 24 hours (3 days) |
| <i>Main elements of training program</i> | <ul style="list-style-type: none"> ▪ Exploration ▪ Drilling ▪ Completion ▪ Production ▪ Well Service ▪ Health, Safety & Environment ▪ Drilling Specialization |
| <i>Location</i> | <ul style="list-style-type: none"> ▪ Norway or GCC countries |
| <i>Learning materials</i> | <ul style="list-style-type: none"> ▪ Course pack, online tools |
| <i>Relevant career prospects</i> | <ul style="list-style-type: none"> ▪ Personnel already active in O&G industry wishing to advance knowledge and career prospects. ▪ Anyone wishing to enter the O&G industry. |
| <i>Contact information</i> | Dr. Amir Safari, Euro Energy Solutions AS, Oslo/Norway: safari@energiring.com |




Course E: Drilling Technology


| Course name | Drilling Technology |
|-----------------------------------|---|
| Goal | <ul style="list-style-type: none"> To understand the differences between directional drilling and vertical drilling. To know how to intervene and control the well. To identify the different phases of planning a well. To understand new drilling techniques and how to manage pressure drilling. |
| Target groups | <ul style="list-style-type: none"> Skilled workers with some experience in the field (offshore). Management or Supervisor position. |
| Prerequisites | <ul style="list-style-type: none"> Previous experience in the field. Applications subject to appraisal. |
| Course length | <ul style="list-style-type: none"> 16 hours (2 days) |
| Main elements of training program | <ul style="list-style-type: none"> Drilling <ul style="list-style-type: none"> Rig selection and equipment: <i>Drilling string design</i>: Drill pipes, Drill collar, Stabilizer, Jar, accelerator, Rock bit, PDC bit, diamond bit. <i>Directional Drilling</i>: BHA for directional drilling and autotrack. Surface equipment Drilling string components Drilling problems Casing Drilling fluids Drilling techniques Well Control: modules 1-5 Well Planning: modules 1-4 Drilling Fluids Drill String Calculations |
| Location | <ul style="list-style-type: none"> Norway or GCC countries |
| Learning materials | <ul style="list-style-type: none"> Course pack, online tools |
| Relevant career prospects | <ul style="list-style-type: none"> Anyone wishing to enter the O&G industry. Onshore/offshore personnel, including sales, secretarial, administration & management personnel. |
| Contact information | Dr. Amir Safari, Euro Energy Solutions AS, Oslo/Norway: safari@energiring.com |



Course F: Well Service Technology

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|--|---|---|
| Course name | Well Service Technology |  |
| Goal | <ul style="list-style-type: none"> ▪ To understand the different processes when developing a well. ▪ To understand process equipment systems. ▪ To understand the production system and the process of injecting wells. | |
| Target groups | <ul style="list-style-type: none"> ▪ All onshore/offshore personnel with basic experience in drilling. ▪ Anyone wishing to advance professionally within the field. | |
| Prerequisites | <ul style="list-style-type: none"> ▪ Applications are subject to screening. | |
| Course length | <ul style="list-style-type: none"> ▪ 24 hours (3 days) | |
| Main elements of training program | <ul style="list-style-type: none"> ▪ Process equipment <ul style="list-style-type: none"> - Introduction, development and composition of petroleum. - Chemistry, origin, hydrocarbon characterization. - Petroleum systems. - Offshore and onshore oil production. ▪ Well Construction <ul style="list-style-type: none"> Well classification, well casing and well completion ▪ Production & Injecting Wells 1 <ul style="list-style-type: none"> - Framework regulations, construction phases, environment and safety. ▪ Production & Injecting Wells 2 <ul style="list-style-type: none"> - Well safety and barriers. ▪ Production & Injecting Wells 3 <ul style="list-style-type: none"> - Mechanical factors & preparation. ▪ Production & Injecting Wells 4 <ul style="list-style-type: none"> - Analyses & communicating experience. ▪ Production & Injecting Wells 5 <ul style="list-style-type: none"> - Typical completion operation. ▪ Production & Injecting Wells 6 <ul style="list-style-type: none"> - Well sketch. | |
| Location | <ul style="list-style-type: none"> ▪ Norway or GCC countries | |
| Learning materials | <ul style="list-style-type: none"> ▪ Course pack, online tools | |
| Relevant career prospects | <ul style="list-style-type: none"> ▪ Advance professionally within offshore Drilling Department. | |
| Contact information | Dr. Amir Safari, Euro Energy Solutions AS, Oslo/Norway: safari@energiring.com | |

Course G: Subsea Technology

| <i>Course name</i> | Subsea Technology |
|--|--|
| <i>Goal</i> | <ul style="list-style-type: none"> ▪ To understand basic completion techniques and how to solve production problems. ▪ To understand the options at hand when intervening the well. ▪ To understand the purpose and function of injection wells. |
| <i>Target groups</i> | <ul style="list-style-type: none"> ▪ All onshore/offshore personnel with basic experience in drilling. ▪ Anyone wishing to advance professionally within the field. |
| <i>Prerequisites</i> | <ul style="list-style-type: none"> ▪ Applications are subject to screening. |
| <i>Course length</i> | <ul style="list-style-type: none"> ▪ 24 hours (3 days) |
| <i>Main elements of training program</i> | <ul style="list-style-type: none"> ▪ Subsea completion <ul style="list-style-type: none"> - Introduction, subsea completion wells, subsea wells, history. - Subsea completions. ▪ Subsea completion <ul style="list-style-type: none"> - Offshore structures, drill ships. - Fixed platform components, subsea systems. - Production problems & adjustments (modules 1-3) ▪ Well intervention ▪ Wire line ▪ Coiled Tubing ▪ Snubbing ▪ Subsea completion  |
| <i>Location</i> | <ul style="list-style-type: none"> ▪ Norway or GCC countries |
| <i>Learning materials</i> | <ul style="list-style-type: none"> ▪ Course pack, online tools |
| <i>Relevant career prospects</i> | <ul style="list-style-type: none"> ▪ Advance professionally within offshore Drilling Department. |
| <i>Contact information</i> | Dr. Amir Safari, Euro Energy Solutions AS, Oslo/Norway: safari@energiring.com |

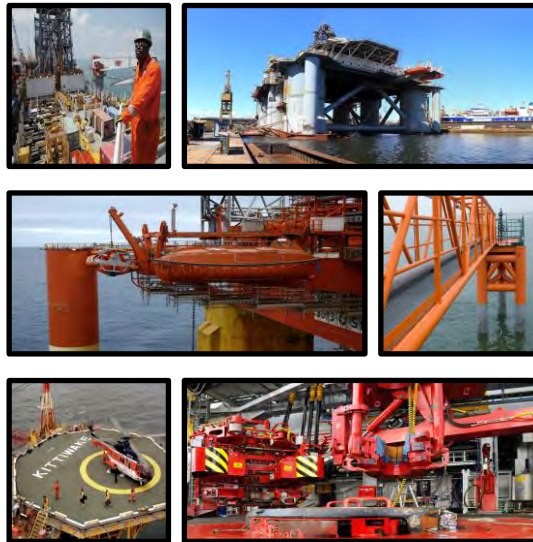
Course H: Laws and Regulations related to the Oil & Gas Industry: *offshore and onshore*

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| Course | Laws and Regulations related to the Oil & Gas Industry: <i>offshore and onshore</i> |
| Goal | <ul style="list-style-type: none"> To give a broad understanding of international rules and regulations in the maritime and oil & gas industries. |
| Target groups | <ul style="list-style-type: none"> Middle and top management, supervisors. |
| Prerequisites | <ul style="list-style-type: none"> None |
| Course length | <ul style="list-style-type: none"> 2 days (16 hours) |
| Main elements of training program | <ul style="list-style-type: none"> Introduction to International standards. Introduction to oil and gas standards: API, NORSOK, IADC, IWCF, OGP. Introduction to maritime standards: STCW. Introduction to pollution standards: Marpol. Introduction to quality standards ISO in the oil industry. Introduction to safety standards OPITO, others. Case studies. |
| Location | <ul style="list-style-type: none"> Norway or GCC countries |
| Learning materials | <ul style="list-style-type: none"> Course pack, online tools |
| Relevant career prospects | <ul style="list-style-type: none"> Advance professionally within oil and gas companies. |
| Contact information | Dr. Amir Safari, Euro Energy Solutions AS, Oslo/Norway: safari@energiring.com |



Course I: Barriers and Human Factors

| <i>Course</i> | Barriers and Human Factors |
|--|---|
| <i>Goal</i> | <ul style="list-style-type: none"> To acquire more knowledge about the methodologies and good practices within Barriers and Human Factors. |
| <i>Target groups</i> | <ul style="list-style-type: none"> Personnel from Medium Management level and Safety Department. |
| <i>Prerequisites</i> | <ul style="list-style-type: none"> None |
| <i>Course length</i> | <ul style="list-style-type: none"> 2 days (16 hours) |
| <i>Main elements of training program</i> | <ul style="list-style-type: none"> Introduction to Human factors methodology Introduction to barrier philosophy Various types of barriers and requirements In depth defence of barriers HSE Culture and risk reduction Human factors and barriers in various industries Case studies |
| <i>Location</i> | <ul style="list-style-type: none"> Norway or GCC countries |
| <i>Learning materials</i> | <ul style="list-style-type: none"> Course pack, online tools |
| <i>Relevant career prospects</i> | <ul style="list-style-type: none"> Anyone wishing to enter the O&G industry. Onshore/offshore personnel, including sales & management personnel. |
| <i>Contact information</i> | Dr. Amir Safari, Euro Energy Solutions AS, Oslo/Norway: safari@energiring.com |



Course J: Protecting the Environment in the Oil & Gas Industry

| Course | Protecting the Environment in the Oil & Gas Industry |
|--|---|
| Goal | <ul style="list-style-type: none"> To acquire a broad understanding of environmental challenges in the Oil & Gas industry and how to limit such impacts on the environment. |
| Target groups | <ul style="list-style-type: none"> Onshore/Offshore personnel, including HSE department personnel. |
| Prerequisites | <ul style="list-style-type: none"> None |
| Course length | <ul style="list-style-type: none"> 2 days (16 hours) |
| Main elements of training program | <ul style="list-style-type: none"> A general introduction to environmental aspects of the Oil & Gas industry. International environmental conventions and national policies, laws and regulations relevant to the industry. The role of Environmental Impact Assessment (EIA) in dealing with environmental challenges in the industry. Use of hazardous chemicals in the industry. Discharges to water from the industry. Emissions to air from the industry. Generation of waste in the industry. Accidental spills, preventative measures and contingency preparedness. Environmental permitting, compliance monitoring and enforcement. Monitoring of effects in the environment. |
| Location | <ul style="list-style-type: none"> Norway or GCC countries |
| Learning materials | <ul style="list-style-type: none"> Course pack, online tools |
| Relevant career prospects | <ul style="list-style-type: none"> Advance professionally within offshore Drilling Department. |
| Contact information | Dr. Amir Safari, Euro Energy Solutions AS, Oslo/Norway: safari@energiring.com |




Course K: HSE for Safety Officers


| <i>Course</i> | HSE for Safety Officers |
|--|--|
| <i>Goal</i> | <ul style="list-style-type: none"> To acquire broad understanding of the work area of safety in the oil industry, as well as the rules and methods. |
| <i>Target groups</i> | <ul style="list-style-type: none"> Personnel who wish to move into positions such as: safety officer, safety advisor or have similar occupational needs. |
| <i>Prerequisites</i> | <ul style="list-style-type: none"> None |
| <i>Course length</i> | <ul style="list-style-type: none"> 3 days (24 hours) |
| <i>Main elements of training program</i> | <ul style="list-style-type: none"> To learn how to set goals in HSEQ work. To gain understanding of contract compliance with related legislation. To know how to ensure compliance with all SHE site administration requirements. To know how to schedule and carry out site and project compliance audits. To know how to manage site SHE meetings. To carry out investigation of accidents and incidents. To acquire understanding of client relationships. To manage site occupational health, safety and environmental officers. To have understanding of employee health risk factors. To analyse, control and manage aspects of the SHEQ System. To know how to establish and distribute emergency plan. To know how to maintain good housekeeping principles. |
| <i>Location</i> | <ul style="list-style-type: none"> Norway or GCC countries |
| <i>Learning materials</i> | <ul style="list-style-type: none"> Course pack, online tools |
| <i>Relevant career prospects</i> | <ul style="list-style-type: none"> Advance professionally within offshore Drilling Department. |
| <i>Contact information</i> | Dr. Amir Safari, Euro Energy Solutions AS, Oslo/Norway: safari@energiring.com |



Course L1: Technical College Petroleum – Level I

| <i>Course name</i> | Technical College Petroleum – Level I |
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| <i>Goal</i> | <ul style="list-style-type: none"> At the end of this level, participants will have acquired the theoretical knowledge and competence for the level of Derrickman for the Drilling Department on an Oil Rig. |
| <i>Target groups</i> | <ul style="list-style-type: none"> All onshore/offshore personnel with basic experience in drilling. Anyone wishing to advance professionally within the field. |
| <i>Prerequisites</i> | <ul style="list-style-type: none"> Applications are subject to screening. |
| <i>Course length</i> | <ul style="list-style-type: none"> 6 months |
| <i>Main elements of training program</i> | <p>The program is divided into 4 main subject areas:</p> <ul style="list-style-type: none"> <i>Exploration, Drilling & Completion</i> (Topics: Petroleum Geology, Logging, drilling equipment, drill string components, casing, drilling fluids, mud rheology, cementing, completion, etc.) <i>Production & Well Service</i> (Topics: Process equipment, well construction, production and injecting wells 1-6, subsea completion, etc.) <i>Health, Safety & Environment</i> (Topics: Hazard recognition, Work Permits, lifting operations, safe job analysis, management, reporting, etc.) <i>Drilling Specialization</i> (Topics: Rig equipment, drilling string design, directional drilling, well control 1-5, well planning 1-5, drilling fluids, drilling techniques, etc.)  |
| <i>Location</i> | <ul style="list-style-type: none"> Fully internet based |
| <i>Learning materials</i> | <ul style="list-style-type: none"> Access to a learning management system (Its-learning) Online didactic material (El-petroleum) Streamed lectures jointly with presentations. Instructor availability via email, skype and phone. |
| <i>Relevant career prospects</i> | <ul style="list-style-type: none"> To advance professionally within offshore Drilling Department or as a means to enter the industry. To obtain theoretical qualification as Derrickman. |
| <i>Contact information</i> | Dr. Amir Safari, Euro Energy Solutions AS, Oslo/Norway: safari@energiring.com |

Course L2: Technical College Petroleum – Level II

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| Course name | Technical College Petroleum – Level II |
| Goal | <ul style="list-style-type: none"> At the end of this level, participants will have acquired the theoretical knowledge and competence for the level of Driller for the Drilling Department on an Oil Rig. |
| Target groups | <ul style="list-style-type: none"> All onshore/offshore personnel with basic experience in drilling. Anyone wishing to advance professionally within the field. |
| Prerequisites | <ul style="list-style-type: none"> Applications are subject to screening. |
| Course length | <ul style="list-style-type: none"> 12 months |
| Main elements of training program | <p>The program is divided into 10 main subject areas:</p> <ul style="list-style-type: none"> General Drilling Knowledge (Topics: Surface equipment, drilling, casing, cementing, drill pipes, etc.) Production (Topics: Production & injection wells, fluid flow in reservoir, coiled tubing 1-2, wireline 1-2, etc.) Reservoir Geology (Topics: Wireline logging, well testing, reservoir characterization, etc.) HSE (Topics: Drilling waste, CO2 storage, First Aid, etc.) Well Planning (Topics: Risk assessment process 1-2, well cost process, rig selection & components, directional drilling, etc.) Well Control I (Topics: Surface equipment, pressure in fluids, wireline operations, pore pressure observation, etc.) Well Fluids (Topics: Chemical composition of petroleum fluids, hydrocarbons, water drive reservoirs, recovery efficiency, etc.) Drilling & Completion Fluids (Topics: Completion & workover fluids, air drilling systems, down-hole fires, fluid design for deep water drilling, deep water mud systems, coring fluid types, etc.) Pneumatics & Hydraulics: (Topics: Fluid mechanics, hydraulic components 1-2, hydraulic drilling equipment 1-2, etc.) Maintenance Strategy (Topics: Functional requirements, work order flow, maintenance & safety, operating reliability, etc.) Drilling Technology (Topics: Deep water drilling, HPHT drilling, under balanced drilling 1-7, etc.)  |
| Location | <ul style="list-style-type: none"> Fully internet based |
| Learning materials | <ul style="list-style-type: none"> Access to a learning management system (Its-learning) Online didactic material (El-petroleum) Streamed lectures jointly with presentations. Instructor availability via email, skype and phone. |
| Relevant career prospects | <ul style="list-style-type: none"> To advance professionally within offshore Drilling Department or as a means to enter the industry. To obtain theoretical qualification as Driller. |
| Contact information | Dr. Amir Safari, Euro Energy Solutions AS, Oslo/Norway: safari@energiring.com |

Course L3: Technical College Petroleum – Level III

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|--|--|
| Course name | Technical College Petroleum – Level III |
| Goal | <ul style="list-style-type: none"> At the end of this level, participants will have acquired the theoretical knowledge and competence for the level of Toolpusher for the Drilling Department on an Oil Rig. |
| Target groups | <ul style="list-style-type: none"> All onshore/offshore personnel with basic experience in drilling. Anyone wishing to advance professionally within the field. |
| Prerequisites | <ul style="list-style-type: none"> Applications are subject to screening. |
| Course length | <ul style="list-style-type: none"> 6 months |
| Main elements of training program | <ul style="list-style-type: none"> Well Control 2: (Topics: Gas behaviour & fluid hydrostatics, equipment 1-3, shut in methods & procedures, snubbing, well kill, blowout control 1-2, etc.) Casing: (Topics: casing types, accessories, wellhead equipment, casing setting depths 1-2, mechanical properties, casing design 1-3, etc.) Hydraulic Equipment: (Topics: Fluid mechanics fundamentals 1-4, hydraulic components 1-6, equipment 1-6, etc.) HSE: Quality Assurance 2 (Topics: Barriers 1-2, risk reduction 1-2, MTO, etc.) Drilling Technology 2: (Topics: Drill string calculations 1-2, directional drilling autotrack, DD calculations 1-2, drilling techniques MLD 1-3, etc.) Control System: (Topics: equipment coding system, use of pneumatics in control systems, electrical controls and motors, etc.) |
| Location | <ul style="list-style-type: none"> Fully internet based |
| Learning materials | <ul style="list-style-type: none"> Access to a learning management system (Its-learning) Online didactic material (El-petroleum) Streamed lectures jointly with presentations. Instructor availability via email, skype and phone. |
| Relevant career prospects | <ul style="list-style-type: none"> To advance professionally within offshore Drilling Department or as a means to enter the industry. To obtain theoretical qualification as Toolpusher. |
| Contact information | Dr. Amir Safari, Euro Energy Solutions AS, Oslo/Norway: safari@energiring.com |



Course M1: Hydraulics I

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| Course name | Hydraulics – Level I |
| Goal | This course provides a basic introduction to hydraulics and is a natural basis for operation and maintenance personnel working with hydraulics equipment in various sectors. |
| Target groups | <ul style="list-style-type: none"> ▪ All onshore/offshore personnel with basic experience in drilling. ▪ Anyone wishing to advance professionally within the field of O&G. ▪ Operation and maintenance personnel working with hydraulics equipment. |
| Prerequisites | <ul style="list-style-type: none"> ▪ No special prerequisites |
| Course length | <ul style="list-style-type: none"> ▪ 5 days (38 hours) |
| Main elements of training program | <p>Basic principles of hydraulics:</p> <ul style="list-style-type: none"> • Pascal's Law • Pressure, pressure drop • Flow, laminar and turbulent • Hydraulic power transmission <p>Component Description:</p> <ul style="list-style-type: none"> • Pumps, motors and cylinders • Pressure valves • Directional valves • Flow control valves • Accumulators • Hydraulic fluids • Filtration, cleanliness • Couplings, pipes and hoses <p>Reading symbols and schematics:</p> <ul style="list-style-type: none"> • Symbols according to ISO 1219 <ul style="list-style-type: none"> ▪ Symbols put together into a system <p>System understanding:</p> <ul style="list-style-type: none"> • Components assembled into a system • How to control the power, speed, direction • Mounting • Start-up • Maintenance • Troubleshooting |
| Location | <ul style="list-style-type: none"> ▪ Norway |
| Learning materials | <ul style="list-style-type: none"> ▪ Theoretical: Course pack, online tools ▪ Practical: Hydraulics laboratory |
| Relevant career prospects | NORSOK Standard R-003 and R-005 N recommend using CETOP standard for personnel who will perform maintenance on hydraulics equipment. This course is in accordance with CETOP recommendations. |
| Contact information | Dr. Amir Safari, Euro Energy Solutions AS, Oslo/Norway: safari@energiring.com |



Course M2: Hydraulics II

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| Course name | Hydraulics – Level I |
| Goal | Hydraulics II is a continuation of Hydraulics I. The participants will gain sound knowledge in reading schematics, acquire an understanding of systems and components |
| Target groups | <ul style="list-style-type: none"> ▪ All onshore/offshore personnel with basic experience in drilling. ▪ Anyone wishing to advance professionally within the field of O&G. ▪ Operation and maintenance personnel working with hydraulics equipment. |
| Prerequisites | <ul style="list-style-type: none"> ▪ Hydraulics I or equivalent qualifications |
| Course length | <ul style="list-style-type: none"> ▪ 5 days (38 hours) |
| Main elements of training program | <p>Refresher and specialization in basic skills:</p> <ul style="list-style-type: none"> • Basic fluid dynamics • Laminar and turbulent flow • Pressure loss in pipes, bends and couplings • Formulas for pressure, flow and power <p>Refresher and specialization in component learning:</p> <ul style="list-style-type: none"> • Pump Controllers • Pressure relief valves • Pressure Reducing Valves • Directional Valves • Flow regulating valves • Brake and load lowering valves • Accumulators <p>Open and closed circuits:</p> <ul style="list-style-type: none"> • Training in reading schematics, understanding components and systems |
| Location | <ul style="list-style-type: none"> ▪ Norway |
| Learning materials | <ul style="list-style-type: none"> ▪ Theoretical: Course pack, online tools ▪ Practical: Hydraulics laboratory |
| Relevant career prospects | NORSOK Standard R-003 and R-005 N recommends this course for personnel who will perform maintenance on hydraulics equipment: "Future training should be consistent with curriculum that is in accordance with the guidelines and requirements developed by CETOP, minimum competence level 2". This course is in accordance with CETOP recommendations. |
| Contact information | Dr. Amir Safari, Euro Energy Solutions AS, Oslo/Norway: safari@energiring.com |



Course N: Fundamentals of EX

| <i>Course name</i> | Fundamentals of Ex |
|--|--|
| <i>Goal</i> | <p>After completing the training, participants will have acquired the necessary knowledge of electrical installations in explosion hazardous areas so that they can perform installations and maintenance in a safe manner.</p> <p>The course provides the necessary information in:</p> <ul style="list-style-type: none"> • Fundamentals of Ex • Ex maintenance |
| <i>Target groups</i> | Personnel working with electrical, automation, and other personnel working in Ex areas who wish to obtain a basic understanding of intrinsically safe systems. |
| <i>Prerequisites</i> | <ul style="list-style-type: none"> ▪ No specific prerequisites |
| <i>Course length</i> | <ul style="list-style-type: none"> ▪ 3 days |
| <i>Main elements of training program</i> | <ul style="list-style-type: none"> • Introduction to Ex • Basic safety philosophy • Introduction to existing laws, standards and directives • Use of intrinsically safe systems • Basic safety philosophy • NEK EN 60079-14 • IEC 61892-7 • Fundamentals of Ex i • Introduction to grounding • Explosion theory • Equipment and gas groups • Marking • Marking and zone classification • Demonstration of equipment • Cables, nipples and grounding • How to install, operate and maintain equipment |
| <i>Location</i> | <ul style="list-style-type: none"> ▪ Norway |
| <i>Learning materials</i> | <ul style="list-style-type: none"> ▪ Theoretical: Course pack, online tools ▪ Practical: workshop |
| <i>Relevant career prospects</i> | Personnel working or wishing to work with electrical, automation, and other Ex areas. |
| <i>Contact information</i> | Dr. Amir Safari, Euro Energy Solutions AS, Oslo/Norway: safari@energiring.com |

