



# TRAINING CATALOGUE

**Energy** knowledge **for** the **world**

For updates on scheduled courses see [www.petrad.no](http://www.petrad.no)





# Knowledge for managing petroleum resources

Petrad delivers courses and other programmes for building capacity and competencies for the management of petroleum and other natural resources. Petrad programmes are particularly suited for public administrators, oil company professionals, civil society professionals and others whose work concerns the petroleum sector and its implications for society.

We offer scheduled courses as well as customised programmes suited to the needs of individual countries and institutions. We cover the processes needed to find, produce, and sell oil and gas, the sector's context in nature and society and the challenges of managing them.

Our programmes are based on the premise that petroleum resources can, and should, be converted to lasting benefits for society, and that petroleum operations must protect the health and safety of persons as well as the environment.

## Who we are

Petrad provides tailored courses, advisory services, and other forms of capacity development activities for the petroleum and other natural resource sectors internationally.

Petrad was founded on the vision that oil and gas anywhere in the world should be exploited for the benefit of the societies where they are found. This requires knowledge and capability on the part of those managing the petroleum resources. Petrad is a supplier of such knowledge through its courses and other learning programmes. We provide scheduled courses, for which individuals can register and a participation fee applies. We also provide specialised learning opportunities for institutions, developed to suit their needs. These may be courses, seminars, workshops, visits, advisory services, or extensive programmes.

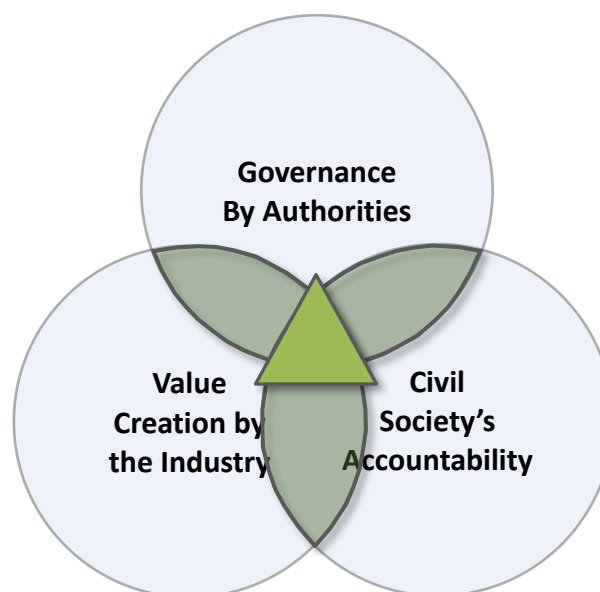
Petrad is based in Stavanger, Norway. Our main courses take place here with participants from many different countries. We also provide courses and specialised events abroad, having worked in more than 50 countries since we started in 1990. Petrad is organised as a not-for-profit foundation for the pursuit of its mission and values.

### Petrad and Capacity Development

The UNDP defines capacity development as the process through which individuals, organisations and societies obtain, strengthen, and maintain the capabilities to set and achieve their own development objectives over time.

Capacity is a function of many different factors: individual skills, ways of organising and physical assets, which all combine to enable an organisation to work towards its mission and achieve targets. Capacity development is complex long-term processes through several phases, all demanding high professional competence and capability.

Petrad's programmes on petroleum resource management are based on the Norwegian experience in balancing the roles and responsibilities of **authorities**, the **industry**, and the accountability of **civil society**. Sharing Norwegian knowledge and experience is based on mutual understanding of these perspectives combined with a description of how integrating them generates sustainable development. However; since knowledge has no nationality, and since Norway's unique conditions cannot easily be replicated elsewhere, we are also committed to providing knowledge which represents global standards and achievements.





## Capacity Assessments

Petrad has also developed comprehensive competence and capacity assessment tools that can be used by petroleum sector authorities as well as (national) oil companies and service companies. Please contact us for further understanding of these tools and processes.

## Learning with Petrad

Petrad believes that adult learning processes are most effective through a combination of presentations, discussions, problem-based learning, role play, simulations, and team-based learning. We have developed a library of role plays, case practices, simulations, and other resources for use in our training deliveries.

Our courses are listed on the following pages. Most of our shorter courses can be delivered to client organisations at their location or another selected location. These courses, may from time to time, also be offered based on individual enrolment at specified locations. Our longer courses are usually delivered in Stavanger based on individual enrolment. Check [www.petrad.no](http://www.petrad.no) for updated information on planned courses.

In addition to the courses listed on the following pages, Petrad can develop other courses and learning programmes in petroleum and energy resource management, by agreement with institutional or company clients. Courses can address technical, managerial, or public governance issues.

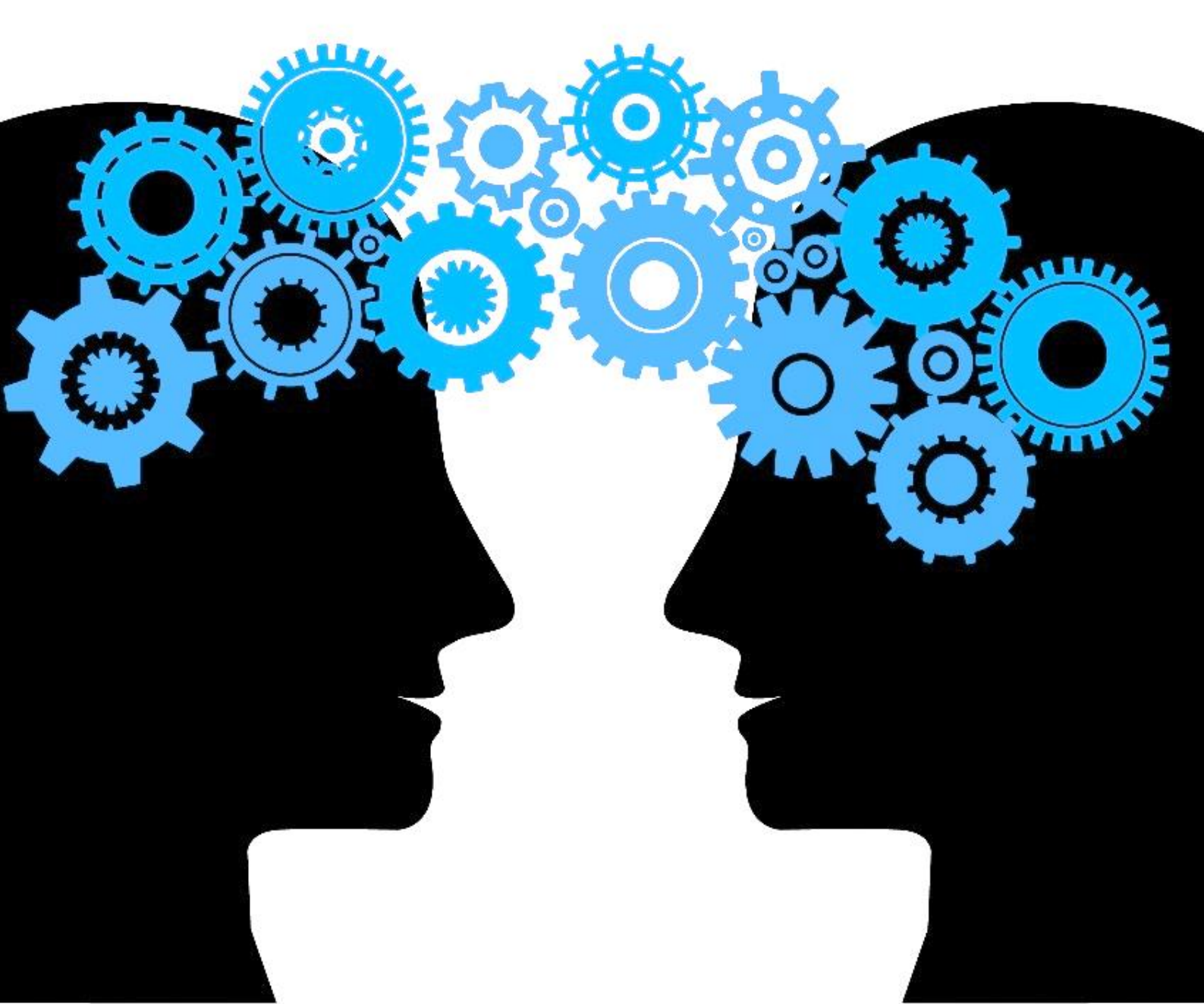
Together with our partners we can also deliver training programs and advisory services within both Technical Vocational Education and Training, University Programmes and within Research and Development for most topics within Natural Resource Management.

Our website lists courses and programmes which we have delivered over the past decades, as an indication of what we can do for your organisation.

# Petrad Training Catalogue

|  |           |
|--|-----------|
| .....  | 8         |
| <b>Courses for Petroleum Sector Overview .....</b>                                     | <b>8</b>  |
| Introduction to Petroleum – 5 days.....  | 9         |
| The Petroleum Value Chain and Expectation Management - 3 days.....                     | 10        |
| Oil and Gas Business Simulation with OilSim – 2 days.....                              | 11        |
| <b>Courses on Energy and Petroleum Sector Governance .....</b>                         | <b>13</b> |
| National Management of Petroleum Resources - 2 weeks .....                             | 14        |
| Sustainable Energy Development - 4 days.....   | 15        |
| National Governance of the Petroleum Sector - 5 days .....                             | 16        |
| The political economy of natural resource management - 4 days .....                    | 17        |
| Organizing and Developing a Petroleum Sector - 3 days.....                             | 18        |
| Executive Course on Petroleum Resource Management – 3 weeks .....                      | 19        |
| Energy Optimization in the Oil and Gas Industry – 3 days.....                          | 19        |
| <b>Courses on Contracts Governing Petroleum Operations.....</b>                        | <b>20</b> |
| Petroleum Contracts and Negotiations - 3 days .....                                    | 21        |
| Gas and LNG Sales Contracts: Structure, Pricing, and Negotiations - 4 days.....        | 22        |
| Unitization in The Oil and Gas Industry - 3 days .....                                 | 23        |
| Implementation, Monitoring, and Follow-Up of Petroleum Contracts - 4 days.....         | 24        |
| <b>Courses on Strategy, Management, Negotiations, and Decision-Making.....</b>         | <b>26</b> |
| Performance Leadership - 4 days .....  | 27        |
| Persuasion, Influence & Negotiation for Business, and Leaders - 3 days .....           | 28        |
| Advanced Decision Analysis with Portfolio and Project Modelling - 4 days .....         | 29        |
| Competence Development in the Petroleum Sector – 3 days.....                           | 30        |
| <b>Leadership and Management of the Energy Sector – 5 days.....</b>                    | <b>31</b> |
| Corporate Responsibility – 3 days .....  | 31        |
| Portfolio Management – 4 days .....  | 31        |
| <b>Courses on Subsurface Data and Operations .....</b>                                 | <b>32</b> |
| Principles and Methods for Geologic 3D Modelling - 3 days.....                         | 33        |
| Geosciences – from Exploration to Production – customized durations.....               | 32        |
| Managing Resource Data - 3 days.....   | 35        |
| Improving Oil and Gas Recoveries - 5 days.....   | 37        |
| <b>Courses on Petroleum Resource Development, Operations, and Decommissioning.....</b> | <b>41</b> |
| Plan for Development and Operations (PDO) – 3 days.....                                | 42        |
| Practical Management of Oil and Gas Development Projects – 5 Days .....                | 43        |
| Exploration and Field Development - 4 weeks .....                                      | 45        |
| Petroleum Project Management: Principles and Practices - 4 days .....                  | 47        |
| Project Estimation and Cost Management - 4 days.....                                   | 48        |
| Development and Operation of Offshore Gas Fields – 9 days.....                         | 49        |
| Arctic and Cold Climate Offshore Development Technology – 5 days .....                 | 50        |
| Offshore Decommissioning - 3 days .....  | 52        |
| Engineering Management – 5 days .....  | 55        |
| Advanced Project Management – 5 days .....   | 55        |

|  |           |
|--|-----------|
| Procurement – 3 days .....   | 55        |
| LNG Plant Development .....  | 55        |
| Stuck Pipe, Design and Operational Practices for Avoidance – 4 Days.....               | 56        |
| Introduction to HPHT wells – 4 Days.....   | 57        |
| Basic Drilling Technology – 4 Days.....  | 58        |
| Extended Reach Drilling, Safe Effective High Angle Drilling – 4 Days.....              | 59        |
| <b>Courses on Petroleum Economics, Auditing, Markets, and Revenue Management .....</b> | <b>60</b> |
| Introduction to Petroleum Economics - 4 days. ....                                     | 61        |
| Petroleum Fiscal Systems - 4 days .....  | 62        |
| Verification of charges to PSC and Joint Venture activities – 3 days.....              | 54        |
| Fiscal Metering - 5 days .....   | 64        |
| Mid- and Downstream: Processing, Markets and Uses for Oil and Gas - 3 days .....       | 66        |
| Revenue Management – 5 days .....  | 67        |
| <b>Courses on Health, Safety, and Environmental Governance .....</b>                   | <b>68</b> |
| HSE And Contingency Planning - 3 days.....   | 69        |
| Environmental Governance within the Petroleum Sector - 3 days .....                    | 70        |
| Strategic Environmental Assessment (SEA) – 3 days .....                                | 72        |
| Environmental Impact Assessment (EIA) – 5 days.....                                    | 73        |
| Environmental Management in Northern/Arctic Regions - 3 days.....                      | 75        |
| HAZID, HAZOP, LOPA: Implementation of Process Safety Reviews - 3 days.....             | 76        |
| Offshore Safety Audits - 5 days.....   | 78        |
| <b>Courses on Local Content and Social Impact .....</b>                                | <b>79</b> |
| Development of Local Content - 3 days.....   | 80        |
| Gender Equality in the Petroleum and Natural Resource Sectors - 3 days .....           | 81        |
| Developing Supplier Industry in the Oil and Gas Sector – 4 days .....                  | 82        |
| <b>General Information on Our Courses.....</b>   | <b>83</b> |



## Courses for Petroleum Sector Overview



## Introduction to Petroleum – 5 days

Petrad's Introduction to Petroleum course provides an overview of the petroleum sector in terms of its work processes, circumstances, and governance.

### Topics and course objective

The course focuses on the “upstream” portion of the petroleum value chain, where petroleum is found and extracted from the ground. It lays out the life cycle of petroleum resources from exploration, through development and production, to decommissioning. It briefly reviews the essential work processes of the sector, as well as the geological, environmental, technological, social, and economic contexts. The challenges of governing the sector in the national interest as well as commercial interests are outlined. As learning objectives, the course shall enable participants to acquire the following insights:

- Understand the major elements and decision-making points of the petroleum resource life cycle.
- Recognize the significance of geological and environmental conditions, technology, safety imperatives, and market conditions for petroleum operations.
- Recognize the roles of key groups of participants and stakeholders in the petroleum sector, and the challenges of governing the sector consistent with relevant interests.

### Who should attend

The course is intended to benefit anyone who will be engaged with the petroleum sector in a commercial, regulatory, or civil capacity. No prior knowledge specific to the petroleum sector is required. The course is also suitable for persons who have worked with the petroleum sector from some time and wish to broaden their understanding of it beyond their own professional focus.

There are two versions of the course:

- Introduction to Petroleum (basic): Using traditional classroom delivery and group work.
- Introduction to Petroleum - with OilSim: Including a computer assisted simulation game provided in co-operation with our partner NExT.

### Lecturers

Lars Tveter is a Chemical Engineer (M.Sc) and also holds an MBA in international management. He has held senior managerial and technical positions in oil firms North Energy and Total and in several companies supplying engineering and drilling services to the oil industry. He has broad international work experience from assignments in the UK, France, Argentina, Egypt, Libya, and other African countries.

Sjur M. Aasheim contributes to the OilSim version of the course. He is a geologist with a cand.real. degree from the University of Bergen, 1977. He was employed with Statoil for 30 years, where his positions have included Exploration and Production Manager UK, Vice President for Exploration in Norway and Vice President for Field Development for parts of Norway's offshore sector.

## The Petroleum Value Chain and Expectation Management - 3 days

Expectation Management is the process of gathering, incorporating, and measuring stakeholder expectations during the life of a project. Petroleum development projects have great potential to benefit the community in which they are developed. The local communities must be positively engaged during the development, construction, and operation phases of the project to balance the expectations of the people with the benefits of the project. Community expectations have a direct impact on the effectiveness of community involvement measures.

**The objective** of the course is to provide stakeholders and local change agents with information on large petroleum projects with respect to the technicalities involved, its time perspective and the resulting local spin offs, if the project is managed properly. Topics covered during the course are:

- The petroleum value chain and its various phases
- Maximizing national participation during project phases
- Defining the expectation management process
- Understand the stakeholders - understanding of what key stakeholders want
- Expectation management deliverables
- Large International projects – examples on expectation management

### Who should attend

Participants should be local change agents, community politicians and members, contractors and suppliers to the petroleum industry, NGO's, journalists, and other stakeholders who can leverage a realistic understanding of the petroleum industry and its local and national potential.

### Lecturers

Lecturers to be announced from the Petrad Faculty <http://www.petrad.no/about-petrad/petrad-faculty-0>

# Oil and Gas Business Simulation with OilSim – 2 days

## Course Description

This course will provide participants with an enhanced understanding of the whole petroleum exploration and production value chain from geoscience, engineering, and economical perspective. On completion of this course, participants are expected to be able to:

- Explain the overall oil and gas exploration, development, and production process
- Interpret geophysical, geological, and engineering data used in exploration, development and production
- Assess the economic viability of reservoirs. Know elements of reservoir depletion, including secondary recovery issues
- Compare and evaluate different field development designs
- Create field development project plans and understand the practical implications when implementing the plans
- Know the implications of different decisions in the operations phase

Participants are grouped in teams and each team acts as a virtual petroleum company in the business simulation OilSim. The team challenge is to explore and discover oil and gas, then create and implement a plan for developing the field, and finally operating it until it is abandoned. An experienced OilSim instructor guides the participants through the process.

## Audience for this course

The course is for anyone working in or around the oil and gas industry and who needs to have an overall understanding of upstream value chain.

## Prerequisites

None.

We mix team members based on background like a degree or experience in the geosciences, engineering or a financial area (finance, accounting, etc.) etc.

## Course Schedule

- |             |   |
|-------------|---|
| Challenge 1 | Initial Screening: Your challenge is to identify the sedimentary basins using gravimetric and magnetic surveys.   |
| Challenge 2 | Prospecting: Your challenge is to find the best acreage and win the bid in competition with the other teams. You study environmental surveys, regional geological maps, 2D seismic surveys and topographic maps and decide on a bidding strategy with your team.  |
| Challenge 3 | Exploration Drilling: Your challenge is to find out if the block you operate contains oil and/or gas in commercial quantities. You negotiate with other teams to share the risk. You study 3D seismic surveys, you do an environmental impact assessment, you contract drilling rigs and service providers, you make a budget, and study the results from drilling. |
| Challenge 4 | Depletion Plan: Your challenge is to make plans to deplete the reservoirs using injection and production wells. You study the reservoir characteristics, nodal analysis, and production profiles to make optimal well plans.  |
| Challenge 5 | Facilities Plan: Your challenge is to choose and dimension the facilities and equipment needed to process and transport the oil and gas from the reservoirs. You study metrological surveys, production platforms, pipelines, and flow-lines.   |
| Challenge 6 | Construction Project: Your challenge is to plan and then execute the construction of the asset. You study activity network diagrams, providers, local content.  |

## Delivery method

This can be delivered both as classroom and remote/virtual.

**Course IP**

This is a **Schlumberger NExT** course that is often delivered via Petrad.

It is often included in the Petrad 2 and 3 weeks courses. But also a very good stand alone course.

**Instructors**

One of the certified lead instructors. (both Norway based or international) Instructor list can be sent upon request. For groups more than 25 people we will add a co-instructor for working the challenges.

For further information contact Sverre Jåsund – Project Director at Petrad in Norway at email [sj@petrad.no](mailto:sj@petrad.no) or mobile +47 909 98 527



*Courses on Energy and  
Petroleum Sector Governance*



## National Management of Petroleum Resources - 2 weeks

### An advanced course in managing a nation's resource endowment

This course is based on the premise that nations should manage their petroleum resources to create long-term benefits for the nation and its population. Most countries choose to involve commercial enterprises in petroleum operations to benefit from the capabilities that such enterprises can bring. The relationship between national authorities and commercial enterprises is, therefore, central to successful management of petroleum resources.

The course aims to expand participants' understanding of the requirements for managing the petroleum sector of a nation. It provides expert lectures and team practices on the following topics:

- Managing natural resources: general principles and international practice
- Governance, policy, and regulation
- Organisation and regulatory capacity-building
- Managing the petroleum field life cycle
- General issues in resource management

### Team practices

Building on Petrad's unique methodology in applying educational scenarios resembling real-world challenges, participants will immerse themselves in the imaginary country of Eldorado. Eldorado faces several issues regarding the management of its petroleum resources, often highlighted by disturbing reports in the daily newspaper. It has a ministry of petroleum, some oil companies, and an assertive civil society organisation (all represented by teams of course participants). Participants, therefore, must work in teams and draw on insights from course lectures to resolve Eldorado's various challenges.

### Who should attend

The course is designed for senior public administrators, politicians, petroleum company professionals and others who are engaged in petroleum sector issues from a societal perspective. A university degree and several years of relevant professional experience are desirable. Proficiency in the English language is required. Participants shall be expected to participate actively throughout the course including team practices, and must be prepared for two weeks of intense learning work.

We also recommend the course to previous participants of our 8 weeks' programmes, as an opportunity to refresh and expand their insights in the field. Preferably they should have attained at least 4 years of relevant professional experience between the two courses.

### Lecturers

Several from the Petrad Faculty <http://www.petrad.no/about-petrad/petrad-faculty-0>

## Sustainable Energy Development - 4 days

The primary focus for this course will be to explore different cost-effective energy alternatives available in addition to the emerging technologies that need to be considered when planning for a stable, environmental friendly and secure energy supply. Both conventional and non-conventional energy sources will be discussed, how they can be combined to meet the requirement for a secure power supply in a sustainable and environmental friendly manner. Framework to achieve stable, cost effective and environmental friendly energy supply will be discussed in addition to challenges related to security of supply.

### Topics

- Energy sources and challenges - examine various renewable and conventional energies
- Energy policies – national and international
- Energy technologies - resources, extraction, conversion, and end-use technologies
- Energy efficiency – optimization and planning
- Energy storage – the challenges with renewable energy
- Energy security and sustainability – securing supply, and dependency
- Environmental challenges and climate change – the challenges and possible remedies
- Renewables and the economy – the price of going green

### Who should attend?

Authorities responsible for national, regional, and local level energy systems, enterprises/private sector, civil society organizations and media, who work with or are interested in energy in a broader context. Personnel from the petroleum industry would also benefit from the course as a part of the course also will relate to conventional fossil fuel and the potential role in the energy supply locally and globally.

### Lecturer

Anne-Grete Ellingsen has a broad experience in the energy sector. She has experience from several executive positions such as: CEO of Global Centre of Expertise NODE, a network of 79 leading companies in the marine and energy sector, CEO of Vestavind Offshore, Norway's first offshore wind farm, Executive Director of Strategy and Business Development with Statkraft Agder Energy (SAE) Vind, Managing Director of Agder Produksjon AS, in charge of hydropower production. Ellingsen's previous work experience includes Director of the Affinity/Partner marked (banking, insurance) Gjensidige Group, Managing Director of the Federation of Norwegian Commercial and Service Enterprises (HSH), several management positions in up- and downstream operations with Statoil and Elf Aquitaine (now Total) in Norway abroad and both in operations on- and offshore. She has been Secretary General of the World Petroleum Congress and State Secretary at the Ministry of Oil and Petroleum. Ms. Ellingsen has more than 15 years of experience as a board member of privately owned and listed companies. Ms. Ellingsen holds a BSc in chemistry, a MSc. in Petroleum Technology, a BSc. in Economics and an Executive Master in Energy Management.

## National Governance of the Petroleum Sector - 5 days

Revenue from resource exploitation should be utilized in a sustainable manner to create and continue to improve economic and social development for the country's citizens. A decision by a nation to embark on the exploitation of non-renewable natural resources should be based on a set of clearly defined objectives. These can best be expressed in an overriding petroleum policy.

Managing petroleum resources is a multi-faceted task, at both the operational and management levels and regardless of whether it is done by a company or a government institution. It typically demands that a multitude of considerations, uncertainties and risks be carefully, and often collaboratively, considered by decision-makers.

### Objective

The immediate objective is to improve the participants' understanding of challenges and opportunities within the petroleum sector. The participants shall, upon successful completion of the course, be able to better understand;

- Good governance
- Designing and implementing petroleum policy
- Efficiency in resource management
- Mitigating harmful effects on the environment
- Mitigating harmful effects on the economy
- Revenue management
- The resource base / the market and enterprise capacity
- Uncertainty and risk management
- Role of government / role of the oil company
- Balancing economic interests

### Lecturers

Lecturers to be announced from the Petrad Faculty <http://www.petrad.no/about-petrad/petrad-faculty-0>

## The political economy of natural resource management - 4 days

The course provides an overview of the political and economic factors that affect states' failure and success in management of petroleum resources. The Norwegian experiences in petroleum management will provide the framework for the course, and the main features of the Norwegian policy regime will be reviewed and evaluated against alternative policies applied in other parts of the world.

### Topics covered

The following topics will be given specific attention:

- National and international context
- Petroleum administration
- Resource curse
- Dutch disease
- Government take
- Local content
- Health, safety and environment
- Corporate social responsibility

### Delivery model

The focus of the workshop will be adapted to the geographical context it is given (i.e. country specific), or provided in a way such that the political and economic factors important for national resource management are discussed at a generic level. The workshop will be designed to give the participants a thorough understanding and awareness of the various challenges facing countries rich in natural resources. Key stakeholders will be identified, and their role discussed. Interaction with the IOC's and the supply industry will be elaborated. Various country experiences, including Norway's, will be highlighted.

### Who should attend?

The workshop is designed for personnel working with the authorities, institutions and governmental bodies involved with the petroleum industry. In addition, stakeholders such as journalists, NGOs and IOCs could participate. The workshop is part of Petrad's product portfolio and will either be included in the annual calendar or be delivered upon request. It is preferably delivered in the country requesting the workshop to ensure cost efficiency.

### Lecturers

Jonathon Moses is Chairman of the Board at the Center for Petroleum Management (CPM) and a Professor of Political Science at the Norwegian University of Science and Technology (NTNU), in Trondheim, Norway. He holds a PhD in political science from the University of California, Los Angeles (UCLA) and has been working at NTNU since 1993. He is the author of several books and articles, most of which address the sundry challenges of economic management in a global economy. Among these titles is a forthcoming book, entitled *Managing Resource Abundance and Wealth: The Norwegian Experience* (Oxford University Press, co-authored with Bjørn Letnes). At NTNU, and at various universities and workshop locations around the world, Moses has been teaching petroleum management to students and practitioners including engineers, social scientists, government officials, and oil industry representatives.

Bjørn Letnes is Managing Director at Center for Petroleum Management (CPM) and Associate Professor at the Norwegian University of Science and Technology (NTNU), in Trondheim, Norway. He holds a PhD in Political Science and a Master of Science in Petroleum Engineering from NTNU. After working ten years as a petroleum engineer on the Norwegian continental shelf, he spent two years working with clients in the Norwegian petroleum industry as a senior researcher for the Norwegian research institute SINTEF. Since 2009 he has developed the research and consultancy company CPM and has worked with clients to manage petroleum operations at a corporate level as well as petroleum resources at a national level.

## Organizing and Developing a Petroleum Sector - 3 days

A workshop on international practices in organizing the petroleum sector. The policy and regulatory functions and the business interest of the state are often dealt with by separate state institutions. In this course examples of different institutional solutions to efficient petroleum sector management will be discussed. The petroleum industry comprises international oil companies as well as national oil companies, some of which have evolved into international companies. The position and importance of commercial enterprises in relation to national goals for resource management will be reviewed.

### Learning objectives

- Understand and discuss how international oil companies may contribute to national goals for petroleum resource management
- Recognize different historical models for the role of international oil companies in resource-rich nations
- Discuss the pros and cons of establishing a national oil company, and how such companies can contribute to national goals for resource management.
- Identify and discuss potential regulatory and economic challenges deriving from national oil companies
- Recognize alternative governance models for national oil companies
- Identify and discuss the requirements for authorities to monitor petroleum activities at different stages of petroleum operations
- Recognize key aspects of modern human resource management practices
- Discuss the relevance of organizational practices which are common in international firms, in a national context
- Understand the need for systematic capacity building
- Ability to contribute to identifying capacity requirements on the national level

### Who should attend

This workshop is designed for a broad range of personnel from parliamentarians to civil servants from authorities, institutions and governmental bodies involved in the petroleum industry as regulators.

### Lecturers

To be announced from the Petrad Faculty <http://www.petrad.no/about-petrad/petrad-faculty-0>



## **Courses in Development for This Discipline**

Following are courses which we are aiming to be able to provide soon. Contact us if your organisation has an interest in any of them. Beyond this, we can develop courses and training programmes on a wide range of topics related to petroleum and energy, as indicated by the list of past projects which you can find on our website.

### **Executive Course on Petroleum Resource Management – 3 weeks**

- Understanding the petroleum resources value chain, i.e. the activities required to explore, produce, and sell petroleum resources, including the requirements for health, safety, and environmental protection in the operations.
- The three cardinal elements:
  - The resource base
  - Markets
  - Enterprise capacity
- Roles and Responsibilities
- Understanding the societal context and the governance requirements for petroleum resources, i.e. how the activities can be managed to create lasting benefits for society.
- Increased professional skills for working in multi-disciplinary and multi-cultural teams to solve complex problems, as well as capabilities for analysis and communication.
- Industry visits, case studies and simulations.

### **Energy Optimization in the Oil and Gas Industry – 3 days**

- Impacts of global energy waste on profitability and sustainability
- Opportunities for energy efficiency
- Energy management systems
- Audits and certifications
- Cost-effective energy optimization solutions
- Benchmarks
- Energy mitigation strategies



*Courses on Contracts Governing  
Petroleum Operations*

## Petroleum Contracts and Negotiations - 3 days

The petroleum legislation and regulatory framework for petroleum operations shall reflect the petroleum policy. Different legal framework instruments and examples of key regulatory provisions are discussed, as well as the balance between the requirement for stable framework conditions and contractual flexibility. There are many contract options used in the petroleum industry. The major differences between a concessionary regime and contractual regime are reviewed. This 3-day course includes formal instruction in the art of successful negotiations, the importance of proper planning, and the implementation of certain behavioural rules that must be applied for a successful resolution. The delegates will participate in interactive role-playing to learn concepts and develop skills in applying them.

### Topics and objectives

- Contract types and model contracts for different purposes
- Worldwide trends in contracting regimes
- Stable and predictable contracts as the basis for investments
- Identifying negotiation issues
- Identify the dynamics and basic requirements for negotiating successfully
- Understand the importance of proper planning and positioning for success in negotiations
- Effectively gather information to produce the best results that satisfy the needs of all parties
- Better resolve divergence in views or deadlocks to the host country's advantage

### Lecturers

To be announced from the Petrad Faculty <http://www.petrad.no/about-petrad/petrad-faculty-0>



## Gas and LNG Sales Contracts: Structure, Pricing, and Negotiations - 4 days

The course objective is for participants to understand the value chain context, structure, and main issues of contracts for selling natural gas delivered by pipeline and as LNG.

### Course topics

Sources, transport, and applications of natural gas.

- Production as associated or non-associated gas; implications for marketing
- Transportation and storage
- Uses of natural gas: Heating, industries, power generation, transport fuel.
- Current developments in global markets

Gas market participants, trade, and regulatory framework

- Sellers, buyers, and traders; strategic orientations
- Forms of trade and the role of commodity exchanges
- Regulatory framework: EU energy market directives; applications

Contracts: Outline content and main issues

- Sales/purchase agreement for pipeline-delivered gas and LNG
- Gas pipeline transportation agreement
- LNG shipping agreement (charter party)

Supply administration: Managing deliveries

Practices and discussions

### Prior knowledge

Depending on their prior knowledge, participants attending this course may find it useful to first attend our course on Contracts and Negotiations.

### Lecturers

Otto Granli holds a Master degree in economics and statistics and have more than 30 years of experience in the energy sector (ministries, directorate, and Statoil). His career in Statoil includes senior positions in several business areas of the corporation, both in line-management and project management. His experience and competence are focused on: Leading and executing transactions along the gas value chain; Acquisitions and divestments of assets; Organic and non-organic business development in most parts of the hydrocarbon chain; Establishment and liquidation of companies; Development of management systems and governing documents; Government relations. In his last years in Statoil he was project manager and commercial lead for several large upstream transactions in Norway and internationally. These included closing of agreements and transfer of large operatorships. After leaving Statoil he established his own consultant company, advising several petroleum and infrastructure companies.

Erik Jarlsby is an advisor and lecturer on energy and economics through his own firm Erik Jarlsby AS. He holds a Ph.D. on strategies in hydrocarbon markets from the University of Twente in the Netherlands, and a business degree from St. Gallen in Switzerland. He was employed with oil firms Mobil and Statoil, and petrochemical firm Borealis Polymers with responsibilities within the full range of upstream and downstream petroleum commercial issues, including trade in natural gas liquids. In 1997 he became an independent consultant and lecturer based in Stavanger, working on issues involving energy, strategy and economics. Erik consults and lectures within the fields of petroleum economics, petroleum fiscal systems, natural gas and LPG applications and marketing, downstream and integrated energy systems, petroleum sector management and competitive strategy. He designs and facilitates educational practices for courses on petroleum resource management.

## Unitization in The Oil and Gas Industry - 3 days

Recently, emerging developments abound in the oil and gas industry, one of which is unitization as a means of oil development and production. With increasing needs for production efficiency, cost reduction techniques and alternative funding sources, unitization as a production methodology is increasingly getting attention, consideration, and acceptability.

### Topics covered

- Fundamentals of unitization in the oil and gas industry
- Issues and challenges to obtaining agreement on the joint development of petroleum resources
- Terminology, definitions, and concepts
- Unitization agreement
- Unitization operations and modalities
- Approaches / alternatives to unitization
- Equity determination and re-determination: conditions and procedure
- Unitization accounting and reporting
- Cross border issues and international law applications

### Lecturers

Mrs. Berit Tvedt is currently the Managing Director of Petrad, and has been a member of the Petrad Board of Directors. She received her Master's Degree in Economics and Statistics from the University of Oslo in 1976. She worked at the Chr. Michelsen Institute, Norway, on research for development in developing countries (1974-1978), and at the Haukeland University Hospital, Norway, in positions related to management of planning and budget processes (1978-1985). She joined the Norwegian Petroleum Directorate (NPD) in 1985 and held management positions within exploration/concession round economics, and field development economics. She moved to Statoil in 1990 and has extensive experience from management positions in all phases of the upstream value chain, including 13 years abroad within business development focusing on offshore opportunities in countries such as USA (Gulf of Mexico and Alaska), Canada, Brazil, Venezuela, Mexico, and Azerbaijan. She returned to Norway in 2013 and joined Petoro as Asset Manager at the end of the year. Her responsibilities were within license management where she oversaw a portfolio of Petoro licenses offshore Norway, including producing fields, on behalf of the SDFI (the State's Direct Financial Interest).



## Implementation, Monitoring, and Follow-Up of Petroleum Contracts - 4 days

With most projects being carried out as a contract, it is becoming increasingly important to ensure that the performance of the contract is managed correctly. Failure to do so leads to quality being compromised, clauses falling into disuse (or even misuse), and disputes and claims proliferating. The signing of a contract is the beginning of possibly a fifty-year or longer relationship. The challenge of managing petroleum resources for optimal economic value and benefit to the society, requires that the contract partners follow-up and monitor activities and contractual obligations the whole contract period. This also includes the late phases when need for redevelopment for increased recovery may be relevant. In addition, the monitoring of possible impact on environment, health and safety is necessary both to ensure adherence to national regulations and contract terms. Monitoring and follow-up processes is also beneficial to respond efficiently to requests and proposals from relevant stakeholders.

### Topics covered

- Contract types
- Deliveries, requirements, and consequences of the various contract types
- Monitoring practices and principles
- Requirements for: Security, Environment, Health, and Safety
- Resource management – high recovery and regularity
- Cost efficiency and cost control
- Contractual reporting and quality control
- Procurement – international contracts, local content
- Plan for development and operations (PDO)
- Field Development – drilling, facilities, infrastructure
- Master plan to secure optimal Infrastructure
- Tools to improve model documents

### Delivery model

The course will be delivered as short lectures with international best practice examples on monitoring and follow-up of petroleum contracts. Active group work and open dialogue and discussions are used to strengthen understanding and involve the participants in the real-life examples and challenges.

### Who should attend?

The course is primarily designed for those responsible for implementing, monitoring and follow-up of different petroleum contracts. This could be civil servants at the national and local levels, personnel from a national oil company, the petroleum industry and representatives from other enterprises/private sector. Also, civil society organizations and media, who have an interest in this subject and wants to be a meaningful partner in the dialogue on contracts monitoring and transparency could benefit from this course.

### Lectures

Mrs. Berit Tvedt is currently the Managing Director of Petrad and has been a member of the Petrad Board of Directors. She received her Master's Degree in Economics and Statistics from the University of Oslo in 1976. She worked at the Chr. Michelsen Institute, Norway, on research for development in developing countries (1974-1978), and at the Haukeland University Hospital, Norway, in positions related to management of planning and budget processes (1978-1985). She joined the Norwegian Petroleum Directorate (NPD) in 1985 and held management positions within exploration/concession round economics, and field development economics. She moved to Statoil in 1990 and has extensive experience from management positions in all phases of the upstream value chain, including 13 years abroad within business development focusing on offshore opportunities in countries such as USA (Gulf of Mexico and Alaska), Canada, Brazil, Venezuela, Mexico, and Azerbaijan. She returned to Norway in 2013 and joined Petoro as Asset Manager at the end of the year. Her responsibilities were within license management where she oversaw a portfolio of Petoro licenses offshore Norway, including producing fields, on behalf of the SDFI (the State's Direct Financial Interest).

Mr. Helge Hatlestad has more than 40 years of experience in the Oil and Gas industry, including 3 years with Aker, 37 years with Statoil, and to date, as a Senior Advisor at Acona. He held key roles within Project Control / Project Services and Field Development the first ten years, mainly on NCS. Over the next ten years he served in senior management positions as VP of Field Development, Project Director, Asset Manager and Production Director in Norway. From 1996 he held Senior Vice President positions both internationally and domestically. He has considerable managerial experience with all parts of the E & P business with an in-depth competence on decision-making processes and governing systems requirements.





*Courses on Strategy, Management,  
Negotiations, and Decision-Making*

## Performance Leadership - 4 days

Companies are transforming into a flatter, team-based structure and supervisors and team leaders will need to learn how to combine a leadership role with fulltime operational responsibilities. This course will be aimed at developing core leadership and supervisory skills in people who are new to this demanding role. Participants will learn how to manage themselves and their time, how to delegate effectively and motivate staff, and how to apply coaching, problem solving, and conflict management skills to improve team performance.

### Objectives

- To enable each supervisor to clarify roles and responsibilities in relation to managing individuals and teams.
- To develop the knowledge and skills required to manage people effectively.
- To commit to an action plan designed to improve effectiveness over the next six months.

### Topics

- Effective communication
- Behavioural styles
- The role of the supervisor
- Conflict management
- Managing performance
- Documenting discipline
- Coaching for positive results
- Team building
- Situational leadership
- Motivating people

### Target audience

Those who have been appointed to a supervisory position recently, or who are about to be appointed to such a position. Those supervisors who have not received any formal training in this field.

### Training Methods

- Highly participative
- Group discussion
- Giving presentations
- Syndicate exercises
- Case studies
- Action plans
- Role play exercises

### Facilitator

Bengt Hope is currently the Manager of Business Development in Acona. Previously he was Managing Director of Petrad. He has more than 25 years of broad experience with the Petroleum Sector. His educational background is in electronic engineering, business strategy, organisational development, adult learning processes, business and administration, and knowledge management. He joined Petrad in 2005 as a project director with responsibilities for organisational and needs analysis, design and facilitation of petroleum sector capacity development processes and activities. Prior to that, he worked at Baker Hughes, an oilfield service company, for 15 years, where he held managerial positions in technical disciplines, organisation, training, and development in Norway and abroad.



## Persuasion, Influence & Negotiation for Business, and Leaders - 3 days

Persuasion, Influence, and Negotiation (PIN) skills differentiate impactful leaders from the rest. The essence of any leader's role -regardless of mandate, seniority, or industry -is the ability to positively influence followers, deliver well, and continuously negotiate with teams, managers, stakeholders, or adversaries to make real progress. As the world becomes ever more connected and integrated in business, cross-cultural communication and influence are a critical skill for any leader or professional.

When you walk into a negotiation meeting and your agenda needs to prevail, you're leading a team or project and need to draw out the best in others, or challenges in collaboration arise in your culturally diverse workforce, you will benefit from sharpening your PIN skills to give you the edge. Our built-in learning from the Harvard Negotiation Institute at Harvard Law school means you get the best training there is on offer right on your doorstep, individually, in teams or groups. A pipeline of training programs on solving actual business cases serves leaders and professionals from basic skills for newcomers to master classes for seasoned executives and board members. Our new boot camp program is the perfect match for those who need to hit the ground running or have limited time and need an intensive up-skilling experience. All training is pragmatic, industry-relevant and based on engaging case simulations and role play with live feedback and coaching.

### Learning Objectives:

Train leadership skills you need to:

- Communicate in a way that gets results – among your team, stakeholders, peers
- Work across cultural boundaries and teams
- Negotiate a shared vision for your organization – and get buy in for it
- Lead people over whom you have no real authority – and gain real cooperation and collaboration
- Build strong relationships in business negotiations – that are sustainable and valuable
- Develop your own unique leadership style – improve your strengths and identify your blind spots

### Build knowledge:

- Common traps in negotiation and how to avoid them
- Negotiating with your head – not your heart
- When NOT to negotiate
- Neutralize threats, insults, and lies
- Deal with someone who is more powerful than you
- Shape important deals
- Identify and control your own tendencies in the face of conflict
- Negotiate in uncertain environments
- Claim and create more value

### Facilitator

Dr Nashater Deu Solheim holds a doctorate in Psychology from University of Surrey, UK and advanced studies in Negotiations from Harvard Law School, at the Harvard Negotiation Institute. She is the CEO and founder of Progressing Minds AS specialising in negotiation and influence training, strategy leadership and organisational development. In her career, so far, she has gained over 23 years of business leadership experience in diverse, complex organisations and across industries including Government UK & Norway, Corporate, Private & Public Health, Oil & Gas and including building her own businesses. During that time, she has also moderated events and conferences at the national level, has been an executive coach for senior leaders and teams, and has trained on competence in strategic thinking and influence. In Norway, as VP of Learning and Development at Statoil, she was globally responsible for the strategic governance and operations of competence development across the company's value chain. Later she became VP of Strategy and Organisation at Petoro AS leading HR, ICT, HSE, procurement, communication and was directly responsible for establishing and developing Petoro's business strategy.



## Advanced Decision Analysis with Portfolio and Project Modelling - 4 days

Forecasts and evaluations depend upon well-designed project and portfolio models that are based upon clear decision policy, sound professional judgments, and a good decision process. In this course participants learn to build good models. We use the familiar Microsoft Excel spreadsheet as the platform for project and risk assessment models. Add-in software provides Monte Carlo and decision tree capabilities. The course emphasises the evaluation of concepts and techniques, rather than particular software programs.

### Topics covered

- Multi Objective Decision Modelling
- Decision Tree Analysis
- Monte Carlo Simulation
- Portfolio Modelling and Management
- Sensitivity Analysis
- Implementation

The course includes the book: “Making Good Decisions” by Reidar B. Bratvold and Steve Begg  
<http://store.spe.org/Making-Good-Decisions-P413.aspx>

### Lecturer

Reidar B. Bratvold is Professor of Petroleum Investment and Decision Analysis at the University of Stavanger as well as at the Norwegian Institute of Technology (NTNU) in Trondheim. His research interests include decision analysis, project valuation, portfolio analysis, real-option valuation, and behavioural challenges in decision-making. Prior to academia, he spent 15 years in the industry in various technical and management roles. He is a co-author of the book Making Good Decisions. Professor Bratvold has thrice served as an SPE Distinguished Lecturer. He is the 2015 recipient of the North Sea Region SPE Management & Information award and was recently appointed Executive Editor of the SPE Economics & Management Journal. He is a fellow and board member of the Society of Decision Professionals and was elected to the Norwegian Academy of Technological Sciences in 2007. He holds a Ph.D. in Petroleum Engineering and an MSc in Mathematics, both from Stanford University, and has business and management science education from INSEAD and Stanford University.

## Competence Development in the Petroleum Sector – 3 days

Human capital is essential to any organization and thus the need to continually maintain and support personnel to always give their best. How do you cope with the constant changes in technology and rapid fluctuations in oil prices and the following cut in training budgets? Those responsible for staff training and evaluation are relied upon by organization to give maximum return to the huge financial cost of training. This course is designed for the benefits of managers responsible for planning and executing staff training and evaluation.

### Objectives and topics

- Competence and competence development
- Organisational roles and responsibilities
- Managers as coaches
- Needs analysis
- Competence assessments
- Manage skills gap
- Trends in learning and development
- Learning management systems
- Competency based systems in the petroleum sector
- Methods to evaluate training
- Planning and designing training programmes
- Selecting the best courses
- Training delivery methods
- Training for purpose
- Training evaluation
- Case studies

### Facilitator

Bengt Hope is currently the Manager of Business Development in Acona. Previously he was Managing Director of Petrad. He has more than 25 years of broad experience with the Petroleum Sector. His educational background is in electronic engineering, business strategy, organisational development, adult learning processes, business and administration, and knowledge management. He joined Petrad in 2005 as a project director with responsibilities for organisational and needs analysis, design and facilitation of petroleum sector capacity development processes and activities. Prior to that, he worked at Baker Hughes, an oilfield service company, for 15 years, where he held managerial positions in technical disciplines, organisation, training, and development in Norway and abroad.

## **Courses in Development for This Discipline**

Following are courses which we are aiming to be able to provide soon. Contact us if your organisation has an interest in any of them. Beyond this, we can develop courses and training programmes on a wide range of topics related to petroleum and energy, as indicated by the list of past projects which you can find on our website.

### **Leadership and Management of the Energy Sector – 5 days**

- Global energy perspectives, markets, and trends
- Strategy, sustainability, leadership
- Negotiation strategies and decision-making in view of uncertainties
- Adapting organizations to future needs in the energy sector, creating a performance culture
- Entrepreneurship and innovation
- The digital world collides with the traditional energy sector
- Individual development activities
- Networking, social and explorational activities
- Keynote speakers

### **Corporate Responsibility – 3 days**

- Separation of roles
- Human rights and Labour standards
- Anti-corruption and integrity standards
- Effective stakeholder communication
- Legal and regulatory framework
- Strengthening the business case for responsible conduct
- Intergovernmental cooperation
- Investment agreements and instruments
- International trade agreements
- International principles of corporate governance
- Key elements of corporate strategies
- Key components of corporate reputation management
- How organizations develop their corporate identities
- The nature of strategic public relations
- Ethics and communication in challenging times
- Media relations and information communication technologies
- Government relations
- Community and investor relations
- Sponsorship and corporate social responsibility

### **Portfolio Management – 4 days**

Procedures and Execution of Acquisitions and Divestment of Petroleum Assets in the Petroleum Industry



## Courses on Subsurface Data and Operations

## Principles and Methods for Geologic 3D Modelling - 3 days

This course is designed for those who have a geologic/reservoir engineering background and need to know the principles, methods, and goals for building 3D geologic models. The different data types of elements in the 3D modelling process will be briefly described, as well as the process of preparing and integrating the data into the work process. The course is aimed at providing a background and understanding for the geoscientist to be able to follow up with specific application training within 3D modelling or just to understand the process and results from such a product.

### Target audience

Geoscientists and reservoir engineers who need to understand the principles for building a geologic 3D model, the data needed for this process and the methods that are used to build.

### Prerequisites

Geoscience background, familiarity with seismic and well log interpretation methods

### Topics covered

- Definition of a 3D geologic model and the reason for building one
- Introducing the three main elements of a model; structural framework, facies model and petrophysical model
- Identifying and describing input data elements from conventional mapping, seismic interpretation (surfaces and faults) in time or depth, well tops
- Describe process to import the data needed to build a structural model
- Data types used for facies definition from well log analysis or conceptual depositional model
- Import facies information and build model to allow different facies types within the structural framework
- Describe the data source for petrophysical data such as net to gross, porosity and hydrocarbon saturation and how to import these data and use them to build a petrophysical model
- Conversion from time to depth domains
- Data analysis methods that allows for averaging, distribution and prediction of data outside the well locations
- Volume calculations (in-place and recoverable reserves) based on a petrophysical model with porosity and saturation and PVT data, such as recovery factor, Bo, Bg, GOR
- Sensitivity analysis to understand the impact of variations and uncertainties in the parameters affecting the calculated volumes
- Workflows that will automate the process of building the model in order to allow fast rebuilding after changes in input data, keep consistency and document the steps

### Lecturer

Mr. Dagfinn Arstad has a Master's Degree in Geology from the University of Oslo. He has more than thirty years of experience from various oil companies and as consultant. He has ample experience and background in the different technical aspects of the petroleum industry: license work on the Norwegian continental shelf, seismic interpretation, building 3D geological models (structural, facies and petrophysical) in Petrel and RMS, and calculating volumes (Petrel and GeoX) to bring forward the necessary information about the resource basis for further economic evaluation.

## Geosciences – from Exploration to Production – customized durations

Petrad is partnering with CGG GeoTraining to bring the E&P community unique geoscience learning path solutions that leverage CGG's comprehensive range of skills development programs.

CGG works with clients to customize its learning programs to their specific requirements and objectives. Training programs are based on a wide variety of blended learning and development methodologies and include a mix of practical application and theory as well as software and digital learning. In addition, On-The-Job training is given on the client's own data so that trainees can learn the skills that match their performance requirements and also gain the practical experience they need to apply innovative workflows.

### Topics covered

- Learning paths (an integrated and tailored learning development program)
- Health, safety & environment (essential of HSE for Oil & Gas)
- Seismic acquisition methods (land & marine)
- Subsurface imaging methods (essential of processing & imaging of seismic data)
- Geophysical interpretation (seismic and non-seismic methods)
- Reservoir characterization and modelling (interpretation, inversion and subsurface characterization & modelling)
- Field Development Planning (including static & dynamic modelling)
- Petroleum geology (clastics & carbonates)
- Data management (digitalization & Machine Learning)
- Global Field courses (tailored to the requirements)

### Who should attend?

All geoscientists, geophysicists, geologists and engineers working in oil & gas exploration, from acquisition to prospect identification and evaluation; anyone involved in integrated projects, including basin evaluations and field appraisal; and all professionals seeking to become skilled practitioners.

### Lecturers

All GeoTraining programs are delivered by CGG specialists.

## Managing Resource Data - 3 days

Managing valuable resource data has, for a period of time, been a vital part of the energy and extractive sector. The typical roles and responsibilities and the strategic importance of the resource data to attract good business partners serious about developing the petroleum resources in a country, have become increasingly important.

This course on managing resource data will primarily use experiences from the petroleum and the mining sectors as an outset for learning. Data management is a large industry, and this course can be seen as a starting point for awareness and the importance of resource data. Those who make decisions must be made aware of this area to see the potential and importance it has to the development of natural resources.

### Topics covered

- Overview of data management and the various disciplines;
- Policy, legislation, regulations, stakeholders, the industry;
- Perspectives of extractives data management – national, private, service providers;
- Data gathering methodologies in the mining and petroleum industry;
- Document and records management (DRM);
- Well and production data challenges;
- Geographical Information Systems (GIS);
- Data processing and analysis;
- Management of physical data, storage facilities and data centres;
- Information security;
- Experiences and lessons learned around the world.

### Who should attend

The course is designed for personnel of authorities as well as private sector professionals who work with Information Management or are interested in this topic and its context.

### Lecturers

To be announced from the Petrad Faculty <http://www.petrad.no/about-petrad/petrad-faculty-0>



## Application of the United Nations Framework Classification for Resources (UNFC) – 2 days

The UNFC has been developed by the Expert Group on Resource Classification of the UNECE under a global mandate from the UN Economic and Social Council. It is gathering momentum worldwide, building a new narrative in resource management, in alignment with the Sustainable Development Goals (SDGs). This course will give an introduction to the basics of the UNFC and its application to policy formulation, Government resource management, industry business process management and capital allocation.

### Topics and course objectives

The objectives of the course are to provide an understanding of the basic structure of the UNFC, to familiarize participants with the four principal areas of application, and to illustrate the above with case studies to provide government managers with knowledge and tools address critical risks immediately and to establish systems for continuous improvement.

Course topics include:

- Classification background

- Relationship between UNFC and classifications bridged to quality assurance, aggregation, accounting and disclosure

- UNFC in policy formulation, policy formulation, government resource management, industry business process management, and capital allocation.

### Who should attend

The target group for this course are geoscientist, engineers, economists, lawyers, analysts and communications/investor relation experts involved in policy development, government resource management, industry business process management, and capital allocation and financial reporting

### Lecturers

Sigurd Heiberg has spent most of his working life in government and industry working on petroleum resources management and strategy. He chaired the Oil and gas reserves committee of the Society of Petroleum Engineers when the SPE Resource classification that later became the SPE-PRMS was developed and the UNECE Expert group on resource classification when the UNFC-2009 classification was developed. He has also chaired the Bureau of the UNECE Intergovernmental Committee on Sustainable Energy. Sigurd has engaged in education by helping to form and build PETRAD. He has been a lecturer at the MIT Sloan Executive Education and at the University of Stavanger. He joined PETRAD as a Project Director in 2017.

Per Blystad holds a Cand. Real (Master degree) in geology from University of Bergen. He worked at the Norwegian Petroleum Directorate (NPD) for more than 30 years on petroleum resource management and project management. His working experience includes exploration and licensing, annual reporting to government from companies in relation to the revised annual national budget, resource assessments and methodology development of yet-to-find potential of petroleum on the Norwegian continental shelf. Per has been engaged in developing NPD's petroleum resource classification system. In 2001 he joined the UNECE Expert group on resource classification (EGRC). He was member of the Bureau and chaired the Petroleum group until 2004. He later chaired the EGRC Mapping Task Force prior to and necessary for developing the UNFC-2009 classification. He is member of the EGRC.

## Improving Oil and Gas Recoveries - 5 days

The ultimate recovery factor varies between 5-70% globally, leaving 30-95% of the oil originally in place, in the ground at abandonment. The most important decisions impacting field recovery are the selection of:

- Recovery strategy (primary-secondary – tertiary)
- Drainage point distribution in the reservoir, and
- Reservoir management strategy to optimize production performances

The course reviews the most important factors impacting production rates and ultimate recovery.

### Course Outline

Basic reservoir engineering concepts

Depositions (Sand/Carbonates)

Recovery Impact of:

- Reservoir characteristics
- Recovery strategies; Primary – Secondary – Tertiary
- Injection fluids

Recovery Strategy Options of:

- Gas; conventional/unconventional
- Condensates
- Light oil
- Heavy oil
- Oil with gas caps

Recovery Strategy Impact on:

- Uncertainties and risk
- Economics
- Environment

### Who should attend

Engineers and others involved in, or responsible for sustaining or increasing oil and gas production and enhancing oil recovery from reservoirs under primary depletion, pressure maintenance by water or gas injection, and enhanced oil recovery schemes, as well as, other professionals and managers participating in the above effort on a multi-disciplinary team who need to gain better understanding of the concepts, practices, benefits, and limitations of the various conventional and emerging technologies.

### Lecturers

Mr. Reidar Kristensen is a reservoir engineer with more than 40 years at University of Bergen, Statoil, and Norwegian Petroleum Directorate as a subsurface manager and EOR specialist. He has ample experience with reservoir diagnostics and EOR application of WAG, silica gel and PASF in Gullfaks, as well as international experience with projects in Venezuela, China and other countries.

Mr. Odd Skontorp is a Reservoir Engineer with more than 40 years at University of Oslo, Norwegian Petroleum Directorate, and Statoil. He has ample reservoir management and IOR/EOR experience at NCS and internationally in Azerbaijan, Iran, and Sudan. He was Chairman of the SPOR IOR/EOR R&D Technical Committee and of European IOR Symposia.

## Introduction to Upstream Technical Data; 3 days

The Introduction to Upstream Technical Data course provides an overview of the technical data that is a crucial to operating a successful oil company. It covers the estimation of data's impact, the key categories of data, effective governance, defining standards and measuring data quality.

### Topics and course objectives

The course focuses on all aspects of “upstream” technical data, that is the data that enables petroleum to be found and extracted from the ground. It first establishes a number of ways to measure the impact that data has on the overall success of any oil company. It outlines the different categories of data that are employed during the exploration and production phases and the best way to define, standardize and assess the data. It also explains data governance and how the data flows can be documented. As learning objectives, the course shall enable participants to acquire the following insights:

- Articulate the impact that poor quality data can have on overall company success
- Employ a range of techniques to assess the value that technical data realizes
- Outline the main data categories employed during exploration and production activities
- Map the key data flows and recognize typical issues that can impact results
- Describe a range of data governance approaches and select appropriate options
- Document effective data standards, enforce and track adoption
- Implement effective data quality monitoring and correction workflows

### Who should attend

The course is intended to benefit those involved in the petroleum sector. No prior knowledge specific to the petroleum sector or to data management is required. Those with some prior experience in either the management of oil companies, or geoscience disciplines or data management practice will benefit most from the course.

The course is highly interactive with a mix of lecturer presentations, group discussions, participant presentations and class discussions.

### Facilitator

Steve Hawtin is an independent consultant that has been improving the data handling of oil companies for more than 30 years. He is the author of the book “The Management of Oil Industry Exploration & Production Data”.

# Theory and Application of Seismic Attributes

In exploration settings with limited well control, ranking of leads and prospects can be challenging. We typically have seismic data but traditional seismic interpretation can only identify horizons, faults and structures. Seismic attributes give additional information to the interpreter to help improve interpretation and potentially to rank prospects. We will look at the theory and application of attributes for identifying fractures, for looking for direct evidence of hydrocarbons and for identifying stratigraphic packages.

## **Online: 3 Sessions x 4 hours   In-person: 2 days**

- Short History and Theory of Seismic Attributes
- Colours and Visualization of Attributes
- Surface Attributes
- Noise Reduction
- Fault Interpretation (Edge Detection and Ant Tracking)
- Stratigraphic Interpretation
- Channel Interpretation
- Textural attributes
- Fracture indicators
- Direct Hydrocarbon Indicators (DHI)
- Pre-stack attributes – AVO attributes
- Attributes in salt and carbonates

## **Who should attend:**

This course is aimed at geophysicists and geologists who want to understand the theory and application of seismic attributes in improving interpretation and in risk reduction for exploration.

## **Lecturer:**

Dr Andrew Ross has over 30 years of experience in seismology and geophysics in both industry and academia. He has used seismic data to determine subsurface rock properties at all scales in the Earth, from reservoir to whole mantle scales. Andrew has a Ph.D. in Geological Sciences from Cornell University and an M.Sc. in Exploration Geophysics from Imperial College. He had a postdoctoral research position at the University of Copenhagen from 1999 to 2003 looking at properties of the core-mantle boundary. He has worked with seismic inversion since 2005 for Ødegard and then Schlumberger. Since 2015, he has been an independent consultant running training in seismic interpretation, inversion attributes and quantitative interpretation.

## Quantitative Reservoir Geophysics

In the past few years, more difficult exploration targets, more complicated geology and the push to maximise production from existing developments, have required the inclusion of additional geophysical data in the creation of geological reservoir models. Improvements in the reliability of seismic processing and expanded computing power have made quantitative seismic interpretation accessible on any desktop. This course will give an overview of Quantitative Reservoir Geophysics theory and practice. We will look at generating quantitative measurements to reduce risk in exploration, to track fluid saturation changes in a time lapse setting, for compliance monitoring for carbon sequestration and geothermal prospecting applications among other topics.

**Online: 5 Sessions x 4 hours   In-person: 3 days**

### Topics covered:

- Quantitative Interpretation definition: reservoir vs exploration geophysics
- Rock physics for quantitative interpretation, fluid substitution and forward modelling.
- Seismic Resolution, tuning and wedge modelling
- Well-seismic ties
- Seismic attribute calculation and interpretation
- Spectral Decomposition and RGB Blending
- Seismic sequence stratigraphy for reservoir characterization
- Geostatistical Multi-attributes.
- AVO Theory and Direct Hydrocarbon Indicator (DHI) analysis
- AVO Attributes and Elastic Impedance
- Deterministic Seismic inversion
- Time Lapse 4D seismic for reservoir monitoring, time-lapse feasibility modelling, compaction monitoring
- Stochastic inversion
- Future directions

### Who should attend:

The course is aimed at Geophysicists, Geologists and Geological Modelers who want to understand the theory and methodology behind the derivation of geophysical inputs to quantitative geological models of the subsurface. The course will cover all aspects of quantitative interpretation and may also be of interest to managers or supervisors who want to evaluate third party products or partner proposals.

### Lecturer:

Dr Andrew Ross has over 30 years of experience in seismology and geophysics in both industry and academia. He has used seismic data to determine subsurface rock properties at all scales in the Earth, from reservoir to whole mantle scales. Andrew has a Ph.D. in Geological Sciences from Cornell University and an M.Sc. in Exploration Geophysics from Imperial College. He had a postdoctoral research position at the University of Copenhagen from 1999 to 2003 looking at properties of the core-mantle boundary. He has worked with seismic inversion since 2005 for Ødegard and then Schlumberger. Since 2015, he has been an independent consultant running training in seismic interpretation, inversion attributes and quantitative interpretation.





# Courses on Petroleum Resource Development, Operations, and Decommissioning



## Plan for Development and Operations (PDO) – 3 days

Permission to develop a hydrocarbon field is usually subject to the Government's approval of a plan submitted by the operating or contracting companies. The process of preparing and approving the plan provides opportunities for dialogue between oil firms and government on how the field will be developed and produced. This course will discuss key policy considerations and activities in this regard, and the importance of early interaction with the companies.

### Objectives and topics

- Main activities and processes required for petroleum production
- Requirements for proper planning to achieve a successful development and operations
- Discuss the function and importance of the PDO in the management of petroleum resources
- Main structure, content, and formal implications of the PDO
- Impact assessment
- Processing and evaluation of PDO
- Unitization and area development
- Important contractual commitments
- Infrastructure, transport of petroleum, gas treatment capacity
- Decision criteria and documentation requirements
- Development solutions, technology, production strategy
- Cost
- Organization and execution
- Operations and management
- Drilling and well activity
- Disposal of facilities
- Financial analysis

### Who should attend?

The course is designed for personnel of authorities as well as private sector professionals who work with PDO or are interested in this topic and its context.

### Lecturers

To be announced - from the Petrad Faculty <http://www.petrad.no/about-petrad/petrad-faculty-0>

# Practical Management of Oil and Gas Development Projects – 5 Days

This course puts emphasis on the practical aspects of managing an oil and gas development project.

## Course objectives

The course focuses on the practical aspects of oil and gas project management with an emphasis on offshore fields. The course's practical approach prepares the participants to take part in actual project organizations.

## The learning objectives:

- The participants shall obtain knowledge necessary to direct participation in project organizations
- The participants shall understand the complexity of the project and be able to communicate with project personnel with different backgrounds
- The participants shall recognize the importance of getting project tasks solved with efficiency taking into account the safety for personnel, environment

## Course topics

- Challenges and goals of offshore project management
- Pre-development activities
- Environmental baseline analysis
- Feasibility study
- Early phase project planning / project management
- Initial risks and uncertainties, risk management
- Defining criteria for development concept
- Environmental matters in field development, including Environmental Impact Analysis
- Concept development and evaluation
- Selection of major concept and concept alternatives, reasoning, and arguments for use of proven and new technologies
- Looking for technical alternatives
- Mitigation of risks and uncertainties
- Pre-FEED activities
- Learning points, experiences, benchmarking, case presentation
- Project risks and management of uncertainties. Risk mitigation at the Phase – Select.
- Integrated project management (interface between infrastructure, project development strategy, operational philosophy, etc.)
- FEED Activities
- Geology and production assessments within project lifecycle
- Probable risks, ways of mitigating risks and uncertainties
- Field Development – technical development
- Concept optimization. Detailing the technical solution
- Case references
- Interface between subsea, surface and land-based infrastructure. Project management and identification of uncertainties
- Marine operations. Alternatives to marine operations, restrictions, price\value benefits. SIMOPS and management
- Identification of additional risks and uncertainties
- Their impact on detailed engineering and project realization
- Management of detailed engineering of the project
- Commissioning / Production start-up

## Who should attend?

The course's practical approach prepares the participants to take part in actual project organizations. The participants may come from different backgrounds, although it is designed for engineering projects. Participants will be engineers, planners, cost engineers and their managers. The geology and geophysical aspects, as well as drilling and production, are not highlighted in the course.

## Lectures

Ove Tobias Gudmestad is Professor of Marine Technology at the University of Stavanger. He holds a Ph.D. in wave force analysis. For 33 years, he was employed with Statoil with responsibilities in field development engineering and research. His research focuses on marine and arctic technology, on which he has written several papers and books, also addressing risks related to earthquakes and other risks affecting installations in marine and arctic environments. In addition to his main affiliation with the University of Stavanger, he is an adjunct professor at the University of Tromsø and visiting professor at the Gubkin Russian State University of Oil and Gas in Moscow. He holds honorary doctoral degrees from two Russian universities. Ove Tobias Gudmestad has been a key contributor to Petrad programmes since the early 1990's.

Nils Gunnar Gundersen is an independent consultant in petroleum offshore operations, management of large offshore projects and risk management. He holds a Marine Engineering degree from the University of Newcastle. His 50 years of marine and petroleum industry experience includes operations management of offshore drilling rigs, construction, and major conversion projects. He has been Offshore Installation Manager (i.e. Platform Manager) on several North Sea installations. His former employers include Shell (12 years) and Amoco (8 years). He has taught statutory requirements to the offshore industry for 15 years. He has been a frequent lecturer at Petrad courses in Norway and internationally. He is a member of the Business Continuity Institute.

## Exploration and Field Development - 4 weeks

This workshop introduces the fundamental aspects, methodology and skills needed to plan the life cycle of gas and oil fields from exploration and discovery, through the assessment phase, the project and development phases, the field operations period, and the abandonment phase. These modules can also be delivered as separate modules.

Week 1 - Exploration

Week 2 - Field Development

Week 3 - Field Economics, and later, Field Development Phases

Week 4 - Risk Management and Partnerships

### Learning objective

The participants will understand the full life cycle of the upstream oil and gas industry – including petroleum and exploration economics, concessions and partnerships, petroleum engineering aspects of planning, developing and operating oil and gas fields.

### Topics covered

The students will understand the process of planning and developing offshore oil and gas fields and the petroleum engineering aspects governing the operation of offshore fields. They will know the principle of material balance and reservoir management, inflow from the reservoir to the wells, temperature management in production systems, flow in wells and production systems, flow equilibrium, production planning and production control, and the basics of field processing of oil and gas. They should understand the risks, uncertainties, and economic factors involved in field development and operations. They will understand the decision variables, the optimization objectives and the constraints involved in optimization of field production.

The students will develop skills in selection of field development concept and in calculation of exploration and development economics.

The students will fully understand the principles of field development within a wide area of relevant subjects and be in position to participate in asset teams with a good understanding of the role of their own specialization.

### Learning methods and activities

Lectures, discussions, interactive exercises, group work with feedback presentations and case studies. The course is taught in English.

### Main Lecturers

John Coker has a Higher Degree in Mechanical Engineering from Medway University in England. He has more than 30 years of experience in the oil industry, most of these as project manager /director. He has experience in the public and private petroleum sectors. He is experienced in all aspects of offshore and onshore field development, both in Norway and abroad, including participation in many licence committee meetings and presentations. He worked for Statoil for 25 years and was seconded to BP Azerbaijan and Georgia for approximately 8 years. He has managed large development projects to update existing drilling rigs. For Statoil he led an earlier evaluation group which was investigating field development solutions from license applications through to submission of field development plans - for both Norwegian and foreign fields. He has comprehensive experience in project management and field development training with the Georgian State Oil and Gas company, Azerbaijan State Gas Company, Petrad International training course in Norway and abroad, and internal training at Statoil. He led a team that investigated the existing energy infrastructure in Azerbaijan and Georgia and made recommendations to the respective governments' energy departments regarding updating the systems.

Ove Tobias Gudmestad is Professor of Marine Technology at the University of Stavanger. He holds a Ph.D. in wave force analysis. For 33 years, he was employed with Statoil with responsibilities in field development

engineering and research. His research focuses on marine and arctic technology, on which he has written several papers and books, also addressing risks related to earthquakes and other risks affecting installations in marine and arctic environments. In addition to his main affiliation with the University of Stavanger, he is an adjunct professor at the University of Tromsø and visiting professor at the Gubkin Russian State University of Oil and Gas in Moscow. He holds honorary doctoral degrees from two Russian universities. Ove Tobias Gudmestad has been a key contributor to Petrad programmes since the early 1990's.

Sjur M. Aasheim is a geologist with a cand.real. degree from the University of Bergen, 1977. He was employed with Statoil for 30 years, where his positions have included Exploration and Production Manager UK, Vice President for Exploration in Norway and Vice President for Field Development for parts of Norway's offshore sector. He has been assigned to positions in the U.S., Greenland, Libya and Angola. Towards the end of his career with Statoil, and thereafter as an independent consultant, he has been engaged in developing and providing learning experiences for the petroleum sector. To this end, he worked with Simprentis, the firm which developed the OilSim educational simulation, and currently with Schlumberger NExT following its acquisition of Simprentis.

Additional lecturers will cover specific areas of expertise.

## Petroleum Project Management: Principles and Practices - 4 days

Project management knowledge and skills are required to successfully manage all types of projects. The practical application of standard project management methodologies will be enhanced with a workshop-style approach. The course will provide the student with the ability to apply project management best practices in initiating, planning, executing, and closing a project. Participants will learn effective techniques for monitoring and controlling a project, as well as how to capture project lessons learned.

### Topics covered

- Project management and the project life cycle
- Identifying and establishing a project governance
- Project planning
- Stakeholder analysis and communication planning
- Scope definition
- Developing a Work Breakdown Structure (WBS)
- Defining task dependencies, resources, and estimating the level of effort for the project schedule
- Determining critical path and float
- Project planning and project execution
- Planning for quality
- Procurement planning
- Project risk analysis
- Project change control
- Project monitor/control and project closing
- EVA analysis
- Project quality reviews
- Closing processes and conducting lessons learned
- Organizational change management

### Lecturers

Mr. Helge Hatlestad has more than 40 years of experience in the Oil and Gas industry, including 3 years with Aker, 37 years with Statoil, and to date, as a Senior Advisor at Acona. He held key roles within Project Control / Project Services and Field Development the first ten years, mainly on NCS. Over the next ten years he served in senior management positions as VP of Field Development, Project Director, Asset Manager and Production Director in Norway. From 1996 he held Senior Vice President positions both internationally and domestically. He has considerable managerial experience with all parts of the E & P business with an in-depth competence on decision-making processes and governing systems requirements.

Mr. Jan Vedøe has a Bachelor degree in Mechanical Engineering from Stavanger, Norway. He has more than 40 years of experience from various oil companies and contractors. He has held key roles in Project Control / Project Services, mainly within Field Development in general, both in Norway and internationally. He has considerable experience with decision-making processes and requirements. He has held managerial positions throughout most of his working life.



## Project Estimation and Cost Management - 4 days

This course is designed for those who will be expected to understand and participate in O&G projects. The emphasis of this course is on the practical application of best practices for project management. Emphasis is placed on helping students learn how to develop Project Cost and Schedule Management plans that address the development of realistic cost and schedule estimates, and how monitoring, controlling, re-planning and reporting will be accomplished throughout the project life cycle.

### Topics covered:

- Main challenges to O&G Projects and the importance of using project management best practices
- Front End Loading (FEL) and the Project Execution Plan (PEP)
- Project Execution Plan elements
- Estimation techniques
- Schedule execution management
- Contractor selection and management
- Risk management
- Quality management
- Project monitor/control and project closing
- Key concepts impacting cost control
- Earned value
- Milestones, performance reporting, and re-planning
- Project closure

### Lecturers:

Mr. Ernst Abrahamsen obtained a Master's Degree in Economics in Project Management from the University of Agder in 1983. He worked for Statoil for more than 30 years and gained experience in the different disciplines, in project and line management and at the corporate level. His professional skills are in the field of project control – products/services in the field planning, evaluation, and execution of a development project. He has experience from working with different types of facilities in relevant geographical areas and has a good understanding and knowledge of the most relevant parties and stakeholders within business development, supply industry and business understanding. He has been chief engineer for project control and corporate controller.

Mr. Jan Vedøe has a Bachelor's degree in Mechanical Engineering from Stavanger, Norway. He has more than 40 years of experience from various oil companies and contractors. He has held key roles in Project Control / Project Services, mainly within Field Development in general, both in Norway and internationally. He has considerable experience with decision-making processes and requirements. He has held managerial positions throughout most of his working life.

## Development and Operation of Offshore Gas Fields – 9 days

This course gives an overview of the offshore industry and an introduction to methods and technologies relating to the development of offshore gas fields. This will be illustrated by examples from relevant areas where gas fields have been developed or where gas fields are in production.

### Course objectives

After following the course, the student shall:

- Understand the business drivers in the offshore gas industry, and the importance of a value chain perspective and the importance of multidisciplinary work
- Understand how a combination of technical solutions, economics and operational effectiveness influences the development
- Understand the importance of safe and efficient operations and the importance of operating the field in an environmental friendly manner
- Be aware of the variety of technical solutions that can be used and the limitations and feasibility issues of specific solutions
- Be aware that the international gas market is changing and that long-term sales contracts are necessary for a development to be given the go-ahead

### Course Topics

- Early project phases, technology for exploration, project design basis
- Cost estimation in project phases, economic assessment
- Technology building blocks, subsea technology
- Development scenarios for offshore fields
- Operations: base, logistics, costs of operations
- Environmental aspects
- Vessel stability, wave analysis, hydrodynamics, linear waves
- Offshore marine operations. Design principles, design of pipelines and risers
- Safety and security, maintenance aspects

The book by Gudmestad, Zolotukhin & Jarlsby “Petroleum Resources with emphasis on Offshore Fields”, WIT Press, 2010 and Gudmestad: “Marine Technology and Operations”, WIT press, 2015 will be used as a basis for the course. In addition, lectures will be supported by series of slides with supportive information as well as exercises and homework assignments.

### Who should attend?

The course is intended for participants from countries where offshore gas field development projects are being planned or for personnel in companies planning offshore gas field developments. The content will be adjusted to the background of the participants (technical or administrative) and could be particularly useful for personnel representing authorities or bodies that will be involved in the process of approving development plans.

### Lecturer

Ove Tobias Gudmestad is Professor of Marine Technology at the University of Stavanger. He holds a Ph.D. in wave force analysis. For 33 years, he was employed with Statoil with responsibilities in field development engineering and research. His research focuses on marine and arctic technology, on which he has written several papers and books, also addressing risks related to earthquakes and other risks affecting installations in marine and arctic environments. In addition to his main affiliation with the University of Stavanger, he is an adjunct professor at the University of Tromsø and visiting professor at the Gubkin Russian State University of Oil and Gas in Moscow. He holds honorary doctoral degrees from two Russian universities. Ove Tobias Gudmestad has been a key contributor to Petrad programmes since the early 1990's.

## Arctic and Cold Climate Offshore Development Technology – 5 days

A course for those who want to get an insight into technology for oil and gas development projects in the Arctic, or in cold climates, this course will be a very useful introduction for their future work.

### Course Objectives:

The course emphasizes conceptual thinking with the aim of identifying sound solutions rather than on detailed design for the Arctic or cold climates. Those interested in detailed design will be referred to appropriate rules and standards.

The key learning objectives are to:

- Give the participants an introduction to different aspects of the technology for oil and gas developments in the offshore Arctic/ cold climate regions.
- Discuss all aspects of safe design and operations under Arctic/ cold climate conditions.

### Course topics

The specific conditions and challenges of the Arctic region/ cold climate areas will be reviewed.

The course will give a basic introduction to, and understanding of, the Arctic/ cold climate regions physical environment with an emphasis on the differences between design conditions and operational conditions. The cause of, and conditions during Polar low pressures will be discussed.

The specifics of development solutions for relevant offshore oil and gas fields will be reviewed in detail.

Development solutions for offshore oil and gas fields in the Arctic region/ cold climate areas to be discussed in detail; this includes separate lectures on well stream, fixed offshore structures, anchored floaters, transport solutions, offshore pipelines, winterization, emergency escape, marine operations, risk analysis of arctic operations, and specific effects that influence design and operations in the Arctic.

The requirements for safe design practices to safeguard personnel and the arctic/ cold climate region's clean environment will be handled in separate lectures.

The economics, project execution and schedule of an arctic project will be reviewed.

Design aspects will include discussions related to loading from ice, loading from waves and currents (for comparison), behaviour of vessels in waves, qualitative risk analysis and economic evaluations.

Finally, case studies will include different scenarios for the ice cover of the Arctic region/ the relevant cold climate regions and the effects this could have on technology needed.

Further discussions of analytical aspects could be raised in a possible follow-up course: Arctic Technology II.

### Course material

1) O.T. Gudmestad, A.B. Zolotukhin, A.I. Ermakov, R.A. Jakobsen:

I.T. Michtchenko, V.A. Vovk, S. Løset and K.N. Shkhinek: "Basis of Offshore Petroleum Engineering and Development of Marine Facilities with an emphasis on the Arctic Offshore", printed by Oil and Gas Printing House, Gubkin University, Moscow, ISBN 5-7246-0100-1, July 1999, 344 pp. **(on CD)**

**2 International Standard, ISO 19906, Arctic Offshore Structures (on CD)**

3) O.T. Gudmestad, A.I. Alhimenko, S. Løset, K.N. Shkhinek, A. Tørum and A. Jensen: "Engineering aspects related to Arctic offshore developments", ISBN 5-8114-0723-8 LAN Publishing House, St Petersburg, May 2007

**4) (Suggested reading): Reference to standards and textbooks, such as:**

DNV-RP-C205 Environmental Conditions and Environmental Loads

**5) Note.** The course content will be covered through the lectures, the required reading and exercises. Suggested reading material will be additional.

### Who should attend?

The participants should be involved in projects related to cold climate oil and gas developments. This involves personnel from oil and gas companies as well as personnel from engineering and manufacturing companies involved in preparing facilities for cold climate regions.

**Lecturer**

Ove Tobias Gudmestad is Professor of Marine Technology at the University of Stavanger. He holds a Ph.D. in wave force analysis. For 33 years, he was employed with Statoil with responsibilities in field development engineering and research. His research focuses on marine and arctic technology, on which he has written several papers and books, also addressing risks related to earthquakes and other risks affecting installations in marine and arctic environments. In addition to his main affiliation with the University of Stavanger, he is an adjunct professor at the University of Tromsø and visiting professor at the Gubkin Russian State University of Oil and Gas in Moscow. He holds honorary doctoral degrees from two Russian universities. Ove Tobias Gudmestad has been a key contributor to Petrad programmes since the early 1990's.

## Offshore Decommissioning - 3 days

Decommissioning is a fast-growing issue facing the global offshore oil and gas industry, with major potential and major risks. Decommissioning is a source of major liability for countries, operators, contractors and the public, which must be understood if it is to be managed cost-effectively.

This workshop is developed to provide insight and guidance into how countries, governments, regulators and oil and gas companies have approached and tackle the laws, regulations and guidelines for decommissioning, in terms of technical, environmental, safety and economic considerations. In many cases worldwide the offshore decommissioning laws, regulations and guidelines are general international guidelines from the United Nations which have been difficult to apply and enforce on a case-by-case basis to decommissioning projects. Ideally the existing legal framework for offshore decommissioning should be flexible and adaptable to enable the delivery of a defensible and balanced decommissioning solution for each decommissioning project. This workshop will consider these key themes.

Finally, the workshop will provide a broad review of all aspects of decommissioning, including: decommissioning methodologies, technology, public perception, planning, cost, safety, tax, environmental decommissioning and pipeline management systems.

### Learning Objectives

- History and review of worldwide offshore decommissioning projects
- Decommissioning law and regulation and other key drivers
- Understand the many aspects of decommissioning liability
- The decommissioning engineering process and marine operations
- Decommissioning technologies from all over the world
- Review various well P&A challenges
- Environmental and safety considerations in decommissioning
- Manage the transition from production to decommissioning
- Background to decommissioning cost estimating
- The challenges with taxation and accounting for decommissioning

### Who should attend?

Regulator perspective - This workshop is for national and state regulators and all the disciplines used in regulation of offshore decommissioning and well plugging and abandonment: engineering managers, decommissioning engineers, environmental managers, HSE managers, regulators, tax professionals and accountants, governance managers, insurance brokers, lawyers, professionals involved with economic evaluations, forecasting, and economic decisions in the upstream oil and gas business.

### What to expect

This unique 3-day workshop is a review & discussion forum on decommissioning - one of the major issues facing the global oil & gas industry. It introduces the complex cross-disciplinary nature of offshore decommissioning, its technical, cost, tax, logistical & regulatory challenges through a mixture of presentations, discussion, videos & workshop exercises.

Participants will get a broad review of all aspects of decommissioning, including: decommissioning methodologies, technology, public perception, planning, cost, safety, tax, environmental decommissioning and pipeline management systems.



## Lecturers

Dr. Brian Twomey has a BSc in Mechanical Engineering from Birmingham, a dual MSc in Applied Mechanics and Composite Materials, and a PhD in Applied Mechanics from University of Manchester Institute of Science and Technology (UMIST). As the Managing Director of Reverse Engineering Services Ltd, Manchester, UK, Dr. Twomey is responsible for decommissioning and abandonment operations planning, decommissioning engineering, peer review work, and cost analysis. His varied and vast experience includes more than 30 years of work on oil and gas decommissioning and pipeline issues and he has carried out decommissioning studies/work on over 800 offshore facilities, numerous subsea systems, sub-surface and onshore installations worldwide. Dr. Twomey has assisted in writing decommissioning guidelines for over 12 countries and worked with the United Nations ESCAP on decommissioning in South East Asia. He has made over 150 presentations on various decommissioning topics worldwide.

Olav Fjellså is VP Communication Aker BP. He holds a Master's Degree in Economics and Statistics from the University of Oslo, 1980. After four years with the Norwegian Research Council he joined the Norwegian Petroleum Directorate, where he became section head for petroleum economics. He has performed interdisciplinary and economic analyses covering all major stages of the petroleum resource life cycle. He has more than 25 years of experience in decommissioning including; drafting the Norwegian decommissioning legislation, development of IMO's Decommissioning Guidelines, policy, and legal advisor to several countries, and was engaged by the United Nations to develop worldwide taxation guidelines for decommissioning. He has been responsible for business development, industrial relations, and external communication. Olav Fjellså is Chairman of the Board of Petrad.

## Introduction to Natural Resource Risk Management – 4 days

Petrad's Introduction to Natural Resource Risk Management course provides an introduction to concepts, tools and methods to identify, assess, control and communicate risk in the natural resource sector. The value of the course goes beyond risk in any one specific area. It provides an integrated perspective for participants to be able to view risks in combination and to be able to compare them. Risk management can catalyze the ability of government managers to make informed decisions in converting natural resources into public value.

The course uses a combination of lectures and practical exercises to prepare participants to address current key risks and to prepare for risks on the horizon. Participants explore geologic, financial, operational, reputational, environmental, social, health and safety, security, and political risk. The practical exercises provide a hands-on introduction to preparation and response to a series of real world events.

### Topics and course objective

The objective of the course is to provide government managers with knowledge and tools address critical risks immediately and to establish systems for continuous improvement.

Course topics include:

- The risk management framework
- Risk identification, assessment and control
- Effective communication and coordination of risk
- Critical risks in petroleum governance
- Inspiring risk management thinking within teams

### Who should attend

This course is intended to benefit government managers and staff at all levels. No prior knowledge of risk management is required. This course will provide the greatest value to managers who are faced with increasing stakeholder pressure and insufficient financial and personnel resources during transitions (entering new phases or reform).

### Lecturer

Laura Robinson is a risk management specialist with a specific focus on petroleum governance risk. She has experience assisting government clients manage natural resource risk as the President of Swale House Partners Inc and implementing risk management in government as a former senior civil servant. She holds a Masters in Public Administration from Columbia University in International Energy Management and Policy, is a Certified Public Accountant (US), a Certified Fraud Examiner, and a Certified Internal Controls Auditor and holds an international certificate in enterprise risk management from the Institute of Risk Management (UK).

## Courses in Development for This Discipline

Following are courses which we are aiming to be able to provide soon. Contact us if your organisation has an interest in any of them. Beyond this, we can develop courses and training programmes on a wide range of topics related to petroleum and energy, as indicated by the list of past projects which you can find on our website.

### Engineering Management – 5 days

- Civil Engineering (structures and foundations)
- Lean Management & Lean Engineering
- Engineering Management (activities, deliverables, work sequence, interfaces)
- Identify and mitigate main risks (schedule, vendors, interfaces, quality)
- Manage critical points, implementation, and monitoring of KPI's
- Process flow plans (drawing, updating, review)
- Safety Engineering (safety studies, risk assessments, safety in design, safety principles)

### Advanced Project Management – 5 days

- Project management fundamentals (definitions, business value, roles and responsibilities, skills)
- Project management lifecycle
- Organizational (influences, cultures, styles, communication, structure, processes, environmental, stakeholders, governance, project team, success, phases)
- Project management processes
- Project integration management
- Scope management
- Time management
- Cost management
- Quality management
- Human resource management
- Communications management
- Risk management
- Stakeholder management
- Closing processes and conducting lessons learned
- Organizational change management

### Procurement – 3 days

- Plan procurement management (input, tools, techniques, output)
- Contract types and parameters for engineering projects
- Contract terms and control
- Develop and organize bids
- Selection of best bidder
- Management of claims, liability, and other legal issues
- Close procurements

### LNG Plant Development

- Content and duration to be announced

## Stuck Pipe, Design and Operational Practices for Avoidance – 4 Days

This course addresses the root causes of the poor planning and poor operational procedures that lead to stuck pipe situations at the rigsite. The approach to stuck pipe prevention advocated in this course is a 'Holistic' one where the subject is addressed across disciplines at the planning, execution and evaluation stages of each project. The importance of maintaining focus on the key drivers of stuck pipe during each phase of well construction is highlighted as it the use of techniques and equipment previously only used by the geo-science teams.

### Objectives

- To understand how to plan wells using the most up to date techniques and input from the geology and Geo-Mechanics teams to prevent avoidable problems in the well. How the 'old' practices and procedures embedded in the industry are not always correct and often lead to stuck pipe situations.
- How the 'Human Factor' plays a significant part in a lot of stuck pipe situations, why people do not follow the correct practices and procedures. Communication, operational reporting and planning, why we often do not see the obvious risks because of the way we focus our reporting.

### Topics:

- Understanding your project risk profile, offset data review.
- Mechanisms of stuck pipe. Differential sticking, Geometric sticking and Solids sticking
- Rock Mechanics and stresses in the well, far field and induced stresses
- Hole Cleaning, detailed theory and practice, how hole cleaning regime changes with angle.
- Geo-mechanics and using FEWD(LWD) to understand the well stability.
- The Directional profile and its role in increasing stuck pipe risk.
- Torque and drag as a fundamental component of stuck pipe.
- Planning a well to avoid stuck pipe.
- Rig site well monitoring and how to correctly monitor a well.
- Tripping and connection practices for stuck pipe avoidance.
- Drill string design issues.

### Target Audience:

- Anyone involved with well construction, office based and rig based staff at all levels.

### Training Methods

- Practical demonstrations of all the key principles using models and simulations in the classroom.
- Mixed, instructor led delivery of theoretical content with blend of PowerPoint overview, whiteboard explanations of detail and class interactive exercises.

### Instructor: Kevin Gray

Kevin can offer the experience of over 5000 days of operational experience gained at rig sites and operations support positions from an oilfield career of over 31 years: He has been a professional trainer and designer of training programs for some of the world's largest training organisations for the last 10 years.

## Introduction to HPHT wells – 4 Days

This course will deliver an understanding of the latest drilling techniques and well design issues for HPHT wells. Practices will be shown from a HPHT standpoint as well as addressing drilling efficiency and well integrity issues that affect all wells. The evolution of HPHT drilling techniques is explained against a background of showing what can go wrong if correct planning or rig site operational practices are not fully implemented.

### Objectives

To develop an understanding of the challenges and limitations that will be encountered whilst drilling HPHT wells and how to define the correct level of planning resource to allocate to ensure success

### Topics

- HPHT challenges, what are the key areas of focus for the drilling and planning team
- Well integrity principles and the barrier envelope, industry standards
- Variation to standards and practices in well design and operations for HPHT, FIT, LOT&XLOT
- Effects of temperature and pressure on steel, derating requirements, Well design, casing design and tubular selection API Nominal issues, thermal derating of steels
- HPHT Challenges gaps in Technology, Economics and regulatory environments
- Origin of over pressures and high temperature gradients.
- Corrosion, Erosion and casing wear and their effect on tubular ratings.
- Well integrity standards, managing sustained annular pressure, mitigation techniques.
- Drilling Fluid, Stability of drilling fluids at high temperatures, issues with measuring basic mud properties in a HPHT environment.
- Current state of the art for downhole equipment with respect to pressure and temperature
- Managed Pressure Drilling, Managed gradient drilling
- ECD finger printing and use of downhole pressure measurements to validate mud properties
- Human factors in high risk operations

### Target Audience

- Drilling engineers, well site supervisors, tool pushers, rig managers and regulators

### Training Methods

- Practical demonstrations of all the key principles using models and simulations in the classroom
- Mixed instructor led delivery of theoretical content with blend of PowerPoint overview, whiteboard explanations of details and class interactive exercises

### Facilitator: Kevin Gray

Kevin can offer the experience of over 5000 days of operational experience gained at rig sites and operations support positions from an oilfield career of over 31 years: He has been a professional trainer and designer of training programs for some of the world's largest training organisations for the last 10 years.

## Basic Drilling Technology – 4 Days

This course introduces the practices and the equipment used in drilling, looking to build a solid foundation level knowledge. The material will take the student through the step by step process of drilling a well and introduce at each stage the people and technology required to undertake the individual stages of well construction. As no prior knowledge is assumed for this course, each concept is introduced in simple terms and then build upon to allow a comprehensive overview of the subject to be developed.

### Objectives

- To be able to communicate easily with people involved with drilling and to understand the acronyms and jargon that drillers use in everyday operations. A high-level overview of the whole drilling process.
- To understand the equipment used during the drilling process and its sequence of use.
- How wells are kept safe, and how we protect people and the environment whilst drilling

### Topics:

- The drilling team, who does what? in the planning, mobilisation and drilling of a well.
- The technology of the rotary drilling rig, its power requirements, its individual sub systems, how systems have been automated and the instrumentation that modern drilling systems require
- The specialist tools that are needed to steer the well, survey its position and inform us of the rocks that have been drilled. The course will look at Measurement while drilling (MWD) Formation Evaluation whilst drilling, Steering tools drill string components.
- The process of designing a well and deciding how it will be made safe during the drilling process and then kept safe once drilling is completed and production begins. The process of casing and cementing the well, why and how we do this.
- The drilling fluid, also known as mud, what this specialised highly engineered liquid does in the well and how we choose the properties it needs to be effective.
- How and why things go wrong when drilling, the well collapsing, the drilling equipment getting stuck the drilling equipment breaking, the rig not being capable to drill the well.
- How we can direct the well and steer its path under the ground so that we can reach distant areas of the reservoir and produce the lowest cost oil and gas.

### Target Audience

- People new to the drilling industry or you want an understanding of the Industry before you join. A geo-scientist or reservoir engineer looking to get better value from your interactions with the drilling team. Someone who has a financial or logistics role associated with the drilling industry. Someone working for a supplier to the drilling industry or are involved in sales to the drilling industry. Regulators seeking a greater understanding of the drilling process.

### Training methods

- Practical demonstrations of all the key principles using models and simulations in the classroom.
- Mixed, instructor led delivery of theoretical content with blend of PowerPoint overview, whiteboard explanations of detail and class interactive exercises.

### Facilitator: Kevin Gray

Kevin can offer the experience of over 5000 days of operational experience gained at rig sites and operations support positions from an oilfield career of over 31 years: He has been a professional trainer and designer of training programs for some of the worlds largest training organisations for the last 10 years.



## Extended Reach Drilling, Safe Effective High Angle Drilling – 4 Days

This course will deliver a detailed understanding of the latest extended reach drilling techniques and the latest industry standards used in high angle well construction.

This is very much an operationally focused course which looks to deliver a knowledge level that can immediately be put to use not just in ERD projects but in improving performance on smaller wells and substantially cutting drilling costs from development projects.

### Objectives

The course will show how to relate your project to the industry drilling envelope and how to define the correct level of planning resource to allocate to ensure success. What changes you will see in the well as you increase the inclination, and how these changes need to be reflected in the planning and operational practice.

How to push the drilling envelope further and increase the drilling radius of any rig to deliver more fluids back to the asset.

### Topics

- How increasing hole angle creates significant problems and NPT because of Hole Cleaning, we look at how to identify, address and mitigate these problems.
- The origins of Torque and Drag in the well bore and how they impact our ability to increase our drilling radius from any rig. Why drag impacts horizontal lateral lengths. Model types, use and limitations.
- Operational practices for connections, tripping and managing BHP within fracture limits.
- How to monitor the well condition and how to interpret the data we collect to get the correct understanding of changes happening in the well.
- Geomechanics principles and how they can be applied to high angle wells.
- The evolution of directional drilling technology, the key drivers for this and why so many wells are now drilled with high cost rotary steering tools.
- Surveying the well, the key technologies used to survey the well and how mistakes in well positioning are made. Making sure that the uncertainties and errors in the ERD project are minimised. Survey reprocessing techniques to improve accuracy of placement.
- Shock and Vibration of the downhole equipment, its origins, its impact and how to reduce or remove this unwanted problem, reduce NPT and improve performance.

### Target Audience

- A Senior drilling engineer, well site supervisor, tool pusher, rig manager and field support personnel.
- Anyone involved with improving drilling performance and cutting drilling costs.
- A regulator seeking to understand how to define potential maximum practical recovery from a field prior to permitting topsides abandonment.

### Training Methods

- Practical demonstrations of all the key principles using models and simulations in the classroom.
- Mixed instructor led delivery of theoretical content with blend of PowerPoint overview, whiteboard explanations of detail and class interactive exercises.

### Facilitator: Kevin Gray

Kevin can offer the experience of over 5000 days of operational experience gained at rig sites and operations support positions from an oilfield career of over 31 years: He has been a professional trainer and designer of training programs for some of the world's largest training organisations for the last 10 years.





## Courses on Petroleum Economics, Auditing, Markets, and Revenue Management



## Introduction to Petroleum Economics - 4 days.

The course objective is for participants to obtain an overview and basic understanding of the economic dimensions, analysis, and decision support in the petroleum sector.

### Topics covered

- Impact of petroleum on the national economy: How oil may, or may not, create affluence in a society.
- Companies in the petroleum sector.
- Petroleum company financial statements: Understanding what oil companies tell about their profits and value.
- Economic analysis for investment decisions: Net Present Value and other concepts for analysing investment projects.
- Development and production economics: How to determine if a development project is economically sound.
- Exploration economics: How \$50 million exploration wells can be justified even if likely to be dry.
- Petroleum fiscal instruments: How the value of oil and gas is shared between firms and the Government.
- Decision support under uncertainty.
- Financial controls in petroleum operations: Keeping track of money and value.

### Lecturer

Erik Jarlsby is an advisor and lecturer on energy and economics through his own firm Erik Jarlsby AS. He holds a Ph.D. on strategies in hydrocarbon markets from the University of Twente in the Netherlands, and a business degree from St. Gallen in Switzerland. He has been employed with oil firms Mobil and Statoil, and petrochemical firm Borealis Polymers with responsibilities within the full range of upstream and downstream petroleum commercial issues, including trade in natural gas liquids. In 1997 he became an independent consultant and lecturer based in Stavanger, working on issues involving energy, strategy and economics. Erik consults and lectures within the fields of petroleum economics, petroleum fiscal systems, natural gas and LPG applications and marketing, downstream and integrated energy systems, petroleum sector management and competitive strategy. He designs and facilitates educational practices for courses on petroleum resource management.

## Petroleum Fiscal Systems - 4 days

The course introduces the common instruments of law and contract by which the value of petroleum resources is shared between firms and states. The course draws on examples from many countries, and provides insights into the economic and administrative implications of fiscal systems.

### Topics covered

- The legal basis for petroleum exploitation.
- The main fiscal instruments: Royalties, production sharing, bonuses, and taxes.
- State participation as a fiscal instrument.
- Business obligations with pseudo-fiscal effects: Supply obligation, training, local content, and others.
- Indirect taxes etc. affecting petroleum operations: Excise taxes, tariffs, VAT and others
- Fiscal valuation, control, and administration
- Cross-border fiscal issues for the petroleum sector
- Fiscal design considerations
- Fiscal issues in natural gas
- Licensing process and fiscal transparency

### Lecturer

Erik Jarlsby is an advisor and lecturer on energy and economics through his own firm Erik Jarlsby AS. He holds a Ph.D. on strategies in hydrocarbon markets from the University of Twente in the Netherlands, and a business degree from St. Gallen in Switzerland. He has been employed with oil firms Mobil and Statoil, and petrochemical firm Borealis Polymers with responsibilities within the full range of upstream and downstream petroleum commercial issues, including trade in natural gas liquids. In 1997 he became an independent consultant and lecturer based in Stavanger, working on issues involving energy, strategy and economics. Erik consults and lectures within the fields of petroleum economics, petroleum fiscal systems, natural gas and LPG applications and marketing, downstream and integrated energy systems, petroleum sector management and competitive strategy. He designs and facilitates educational practices for courses on petroleum resource management.

## Verification of charges to PSC and Joint Venture activities – 3 days

Production Sharing Agreements (PSA) and Joint Operating agreements (JOA) are two of the main ways of organizing the O&G activities. Both the JVs and the PSAs are highly affected and exposed to the costs and allocation being charged to the activity by the operator. Allocations and charges to the activity are regulated by the agreements in the PSA and the JOA. Audits undertaken by the non-operators and the regulators are essential to ensure and verify that the cost charges are correctly charged to the activity.

The course is designed to give an understanding and knowledge about the cost being charged and allocated the operated activity and paid by the partnerships in the JVs or deducted in the PSAs. Ultimately the participants shall be able to verify, challenge and reject cost being charged to the O&G activity of concern.

The course will give the participants challenges and insights to real-life cases where the understanding of the course material is being tested as well understanding of the day to day activities in the operations.

### Target audience

Personnel working with the activity, including budgeting, reporting, tax or income collection: Asset managers, finance staff, accountants, CFOs, Economic Directors, tax specialists and others involved in the activity.

### Topics covered

The course gives the attendants the following knowledge and understanding:

#### The Audit Process

- Audit planning
- Identification of risks
- Audit Methodology
- Audit tests and controls

#### Activity and Charges in O&G activities

- Accounting and ERP in oil companies
- Overview of allocations and direct charges
- Mechanisms of allocations
- Differences in JV and PSA charges
- Major cost issues in O&G

#### The Audit Activity and Dispute Resolution

- Audit Cycle
- Making use of ERP systems
- Analyzing records and transaction
- Interactions between auditor and auditee
- Management of audit exceptions
- Dispute resolution

### Lecturer

Mr. Henrik Due Tønnessen is responsible in TMF Energy as Audit Manager specializing in O&G accounting with special focus on charges and allocations to the licenses on behalf of the JV partners and the regulators. He has more than ten years' experience from working with international oil companies assisting with allocation set-up, cost treatment and understanding of the relevant agreements.

Henrik has a Master's degree in Tax Consultancy from the University of Navarra, a Master in Audit and Accounting from the NHH Norwegian School of Economics and a Master in Business Administration from the Audencia Ecole de Management (France).

## Fiscal Metering - 5 days

Metering is required primarily for the following purposes:

- Well monitoring for reservoir monitoring
- Allocation metering, for calculation of ownership and tariff purposes
- Sales metering, for the assessment of sales volumes

Reliable and accurate metering is thus of great importance for all stakeholders in the petroleum sector. It reduces the likelihood of disputes between buyer and seller and facilitates control of losses. Accurate measurement demands the use of standard equipment and procedures. This training relates to all forms of liquid or gaseous hydrocarbons.

### Learning objectives. Participants will understand:

- Standards and systems for metering
- Legal matters related to fiscal metering
- Effective metering and allocation system throughout their oil and gas production, distribution, and export processes.
- Uncertainty requirements for the different metering purposes will be presented.
- The importance of accurate metering and roles and responsibilities will be discussed.

### Topics

- Definition and standards
- Legal framework
- System design considerations
  - Basic design considerations
  - Primary element selection criteria
  - Process variables
  - Fluid acceptable criteria
  - Performance, meter turndown and linearity
  - Pressure loss and cavitation
  - Traceability and uncertainty of calibration
  - Weight and space
  - Secondary instrumentation and equipment
  - Data acquisition, verification, transformation, aggregation, communication, and management
  - Physical system quality management (assurance and control), including repeatability, uncertainty and normal causes of error and error rates
- Meter system design
  - Flow metering principles
  - Calibration and proving
  - Selection of meter size and number
  - Piping configuration
  - Control and calibration
  - Safety
- Equipment for primary measurement of fluids
- Equipment for secondary measurement
- Equipment for qualitative Measurement
- Flow computation and display
- Operation and maintenance

### Lecturer:

Mr. Rolf Skatvedt has an engineering degree in Process Control Systems from Horten Technical University in 1980. During his career Mr. Skatvedt has been involved in planning, designing and project execution of process



control systems, particularly within the field of fiscal metering. His consulting work, both as metering specialist and manager of various companies in the field of fiscal metering, has been for most of the operating oil companies on the Norwegian continental shelf including Norwegian Petroleum Directorate (NPD). Various oil companies have engaged Mr. Skatvedt as their Technical Authority representative for fiscal and CO<sub>2</sub> tax-based metering and CO<sub>2</sub> quota regime handling. Mr. Skatvedt has been frequently called to participate in allocation audits and advising in technical dispute on fiscal metering issues. He has given metering specialist assistance to NPD when they performed metering audit in Mozambique and South Africa on behalf of INP. Mr. Skatvedt has been heavily involved in fiscal metering training and capacity building in Norway, but also in Sudan, Iraq, Iran, and Nigeria on behalf of NPD.

## Mid- and Downstream: Processing, Markets and Uses for Oil and Gas - 3 days

This three-day course is about what happens with oil and gas after they have been produced. It reviews processing and transport requirements for oil and gas, the international markets in which they are traded, the ways in which they are used, and opportunities for domestic applications. The course also addresses interfaces between oil, gas, and other energies, notably renewables, in a nation's energy supply.

The course aims to provide an understanding of the downstream oil and gas sectors which is relevant also for those who are mainly concerned with the upstream. Depending on the geographic and economic circumstances of a petroleum producing country, there can be important linkages between the upstream and downstream value chains. Especially for natural gas, the challenge of securing offtake and sales can be a significant constraint on development. Several countries have sought to develop domestic uses of oil and gas which they produce, which can provide development opportunities but also significant economic risk for the country.

This course can be a suitable preparation for those interested in our course on gas and LNG sales contracts.

### Topics covered

- Oil refining basics
- The global market for crude oil
- Trading instruments for oil (and other bulk commodities)
- The petroleum fuels retail sector
- Natural gas: origin, definitions, and characteristics
- Processing and transportation of natural gas
- Markets and uses for natural gas
- Natural gas regulations: Monopolistic and competitive frameworks
- Natural gas liquids: origin, applications, and markets
- Small scale distribution of LNG
- Options for avoiding gas flaring
- Petrochemicals and other industries based on oil and gas
- Developing industry based on oil and gas: Drivers and risks
- Oil and gas as part of national energy supply: Interactions with renewables and other energies.

### Who should attend

This course is designed for personnel who are involved in the petroleum industry with a broad perspective on understanding and enhancing value creation in the petroleum energy and its interaction with other parts of the wider energy sector. It is applicable to regulators, oil company professionals, personnel from finance and related industries, as well as professionals from NGOs and the media.

### Lecturer

Erik Jarlsby is an advisor and lecturer on energy and economics through his own firm Erik Jarlsby AS. He holds a Ph.D. on strategies in hydrocarbon markets from the University of Twente in the Netherlands, and a business degree from St. Gallen in Switzerland. He has been employed with oil firms Mobil and Statoil, and petrochemical firm Borealis Polymers with responsibilities within the full range of upstream and downstream petroleum commercial issues, including trade in natural gas liquids. In 1997 he became an independent consultant and lecturer based in Stavanger, working on issues involving energy, strategy, and economics. Erik consults and lectures within the fields of petroleum economics, petroleum fiscal systems, natural gas and LPG applications and marketing, downstream and integrated energy systems, petroleum sector management and competitive strategy. He designs and facilitates educational practices for courses on petroleum resource management.

## **Courses in Development for This Discipline**

Following are courses which we are aiming to be able to provide soon. Contact us if your organisation has an interest in any of them. Beyond this, we can develop courses and training programmes on a wide range of topics related to petroleum and energy, as indicated by the list of past projects which you can find on our website.

### **Revenue Management – 5 days**

- Objectives of revenue management
- Sustainable development and lasting value for the nation
- Relevant policies and legislation
- Sources of revenue
- Collection of government take
- Administration of revenues, roles, responsibilities, and structures
- Revenue and intergovernmental fiscal transfers
- Fiscal monitoring
- Revenue utilization and impact
- Establishment of petroleum fund
- Revenue stabilization
- Non-oil tax revenues
- Transparency and accountability
- Norwegian and other nations' experiences



## Courses on Health, Safety, and Environmental Governance

## HSE And Contingency Planning - 3 days

Poorly managed petroleum exploration and production can cause serious injuries, damage, loss of life, and pollution of the environment. It is essential that all operations are carried out in a safe manner to minimize the risk of negative consequences. The responsibility for health, safety, and environmental management rests primarily with the operating companies. Efficient emergency preparedness contingency planning is paramount for all petroleum operations, and both the operator and the authorities have responsibilities.

### Topics covered

- HSE policies and key elements
- Management systems and audits
- Authorities' roles / industry interface
- Strategic Environmental Assessments / EIAs
- Oil spill contingency planning and dimensioning
- Accidents and Incidents
- Emergency preparedness
- Crisis management
- Building an HSE culture
- Table top exercises

### Lecturers

Lars Tveter is a Chemical Engineer (MSc) from the Technical University of Trondheim (NTNU) and holds an MBA in International Management. He has held senior managerial and technical positions in the oil companies North Energy and Total and in several companies supplying engineering and drilling services to the oil industry. He has broad international work experience from assignments, and as a resident in the UK, France, Argentina, Egypt, Libya, and other African countries.

Arne Maurits Martinsen holds a Bachelor's Degree in Petroleum Technology from the University of Stavanger. Before joining Statoil in 1978, he worked at a petroleum research institute in Trondheim for three years. After retiring from Statoil in June 2015, Arne Maurits has worked as a senior advisor, mainly with emergency response systems and training. During his 37-year career at Statoil Arne Maurits gained broad experience from the complete petroleum development value chain. This includes heading up the production laboratories, being responsible for logging, testing and seismic activities during the exploration phase, and working as OIM on the Statfjord and the Gullfaks fields. Arne Maurits has headed the Safe Behaviour Program (an HSE Culture Program) in Norway and in Algeria. During his last years at Statoil Arne Maurits worked internationally in countries such as Brazil, Venezuela, Angola, Tanzania, Canada, and USA. His primary responsibility during this period was compliance monitoring, emergency response training, HSE Culture Programs and GAP analysis of Statoil Governing Documentation towards Brazilian rules and regulations.

## Environmental Governance within the Petroleum Sector - 3 days

The appearance of new and existing environmental challenges in developed and developing countries raise questions about the ability of the governments and the industry to guarantee sustainable oil and gas project developments. Environmental governance has to be improved and prioritized, awareness need to be developed and new management concepts need to be established in order to address these problems in a sustainable manner.

### Course objective and topics

The objective of the course is to enhance the participants' understanding of the main concepts of environmental governance, of the roles of various actors and of how to deal with the most important issues such as pollution, waste, and climate change aspects.

### The topics include:

- Environmental governance concepts
- Strategic Environmental Assessment (SEA)
- Roles of various actors within environmental governance
- Typical environmental and socio-economic impacts related to the petroleum industry
- Laws/regulations and institutional framework
- Environmental management principles
- Climate change in relation to the petroleum sector
- Co-existence between the petroleum industry and other industries/activities
- Stakeholder involvement
- Instruments and tools related to environmental governance
- Industry Environmental Management Systems
- Environmental Impact Assessment (EIA)
- Environmental Risk Analysis
- Environmental licensing
- Contact and cooperation between the petroleum industry and the authorities
- Reporting, audits and enforcement

### Delivery model

The course will be delivered as lectures illustrated by relevant examples on environmental governance and specific instruments and tools. Active group work and open dialogue and discussions are used to strengthen understanding and involve the participants in actual examples and challenges. The group work will include role-playing exercises with the aim to actively engage participants in identifying their roles in environmental governance.

### Who should attend?

The course is designed for officials at the national, regional, and local levels, personnel from the petroleum industry and representatives from other enterprises/private sector, civil society organizations and media, who work with, or are interested in, environmental governance.

### Lecturer

Bjørn Kristoffersen is an advisor on environmental management related to the petroleum sector through his firm Eco-Management Support. He holds a Master's Degree (MSc) in Civil Engineering from the Norwegian University of Technology and Science with specialization in environmental technology and management, socio-economics and spatial planning. Throughout his career, he has held several leading positions, first spending 10 years within public sector management/planning and later, 25 years for the Norwegian energy company, Statoil,



with operations in 36 countries. After a broad international career for Statoil, such as Vice President with responsible for environmental and socio-economic aspects related to project developments in the northern regions worldwide, he established his own independent consultancy firm in 2008. In this position, he has advised governmental and corporate clients on environmental management in many countries. He has, for example, been an international consultant for the Governments of Ghana and Uganda on petroleum related Strategic Environmental Assessments, and he has developed Environmental Impact Assessment guidelines for oil and gas developments in Myanmar and Tanzania. He has delivered numerous training programs on environmental management for governments, companies, organizations, and universities worldwide.

## Strategic Environmental Assessment (SEA) – 3 days

Oil and gas exploration and production impact the environment and people within the influence areas in question. Knowledge about potential environmental and socio-economic risks and opportunities before opening up areas for petroleum activities or during early stages of oil and gas development and production, is crucial for the government in order to make informed decisions. Strategic Environmental Assessment represents a systematic approach to deal with these challenges and has become a successful tool for governments around the world.

### Course objective and topics

The objective of the course is to build thorough understanding about the purpose of SEA and the systematic steps and documentation requirements of the SEA process including how to manage the stakeholder engagement which is a prerequisite for a successful result. The course also covers how to deliver practical advice to decision-makers during the SEA process and how to ensure effective implementation of the concluding recommendations.

### The topics include:

- Mandate and objectives of the SEA
- Screening process including Scope of Work, organization of the SEA, stakeholder engagement planning, support/tools and Terms of Reference
- Scoping process including scenario development/analysis, development of issues matrix, decisions on Key Issues register and Scoping Report
- Development of integration and response matrix and analysis of key issues
- Monitoring indicators, testing and monitoring plans
- Implementation plans and SEA reporting
- Advisory notes and concluding recommendations

### Delivery model

The course will be delivered as lectures illustrated by recent examples on SEAs from Uganda, onshore/offshore Ghana and Norway. Active group work and open dialogue and discussions are used to strengthen understanding and involve the participants in relevant examples and challenges in the countries in question.

### Who should attend?

The course is designed for officials at national, regional and local levels, and people from the private sector and civil society organizations who are involved in SEA processes. Personnel from the petroleum industry would also benefit from the course in their role as vital stakeholders and in order to build understanding about the framework conditions for being involved in the petroleum sector in the country. Media would also benefit from participating due to the open planning process and extensive focus on stakeholder engagement.

### Lecturer

Bjørn Kristoffersen is an advisor on environmental management related to the petroleum sector through his firm Eco-Management Support. He holds a Master's Degree (MSc) in Civil Engineering from the Norwegian University of Technology and Science with specialization in environmental technology and management, socio-economics and spatial planning. Throughout his career, he has held several leading positions, first spending 10 years within public sector management/planning and later, 25 years for the Norwegian energy company, Statoil, with operations in 36 countries. After a broad international career for Statoil, such as Vice President with responsible for environmental and socio-economic aspects related to project developments in the northern regions worldwide, he established his own independent consultancy firm in 2008. In this position, he has advised governmental and corporate clients on environmental management in many countries. He has, for example, been an international consultant for the Governments of Ghana and Uganda on petroleum related Strategic Environmental Assessments, and he has developed Environmental Impact Assessment guidelines for oil and gas developments in Myanmar and Tanzania. He has delivered numerous training programs on environmental management for governments, companies, organizations, and universities worldwide.

## Environmental Impact Assessment (EIA) – 5 days

Oil and gas exploration and production impact the environment and people within areas of influence in question. Thorough understanding of the potential environmental and socio-economic impacts is a prerequisite for successful planning, design, construction and operation of oil and gas activities. EIA is the most important instrument ensuring a solid basis for governmental decision-making on oil and gas developments. And not least, a good quality EIA ensures effective and sustainable integration of environmental aspects into petroleum developments on all levels.

### Course objective and topics

The objective of the course is to introduce state of the art concepts and methodologies for onshore and offshore EIAs within the petroleum sector, and to train the participants on taking active part in dealing with EIAs in a wide context.

### The topics include:

- EIA as a planning tool related to the petroleum sector
- EIA in the context of Strategic Environmental Assessment (SEA)
- Key challenges related to the quality of EIA
- The EIA process
- Typical aspects and impacts related to onshore and offshore petroleum projects
- The Screening process
- The Scoping process
- Availability and quality of baseline data
- Stakeholder engagement
- Risk assessment related to unforeseen events as part of the EIA
- Impact Assessment
- Methodologies for impact prediction. Magnitude and significance.
- Mitigation and residual impacts
- EIA reporting, implementation and monitoring
- Integration between EIA results, and design and operations of the oil and gas facilities

### Delivery model

The course will be delivered as lectures illustrated by recent and relevant examples on EIAs for onshore and offshore exploration and development activities and for onshore and offshore oil and gas pipelines in several locations. Active group work and open dialogue and discussions are used to strengthen understanding and involve the participants in relevant examples and challenges in the countries and potential projects in question.

### Who should attend?

The course is designed for personnel from the petroleum industry and for officials at national, regional and local levels directly involved in conducting and reviewing EIAs for the petroleum industry.

### Lecturer

Bjørn Kristoffersen is an advisor on environmental management related to the petroleum sector through his firm Eco-Management Support. He holds a Master's Degree (MSc) in Civil Engineering from the Norwegian University of Technology and Science with specialization in environmental technology and management, socio-economics and spatial planning. Throughout his career, he has held several leading positions, first spending 10 years within public sector management/planning and later, 25 years for the Norwegian energy company, Statoil, with operations in 36 countries. After a broad international career for Statoil, such as Vice President with responsible for environmental and socio-economic aspects related to project developments in the northern regions worldwide, he established his own independent consultancy firm in 2008. In this position, he has advised governmental and corporate clients on environmental management in many countries. He has, for example,

been an international consultant for the Governments of Ghana and Uganda on petroleum related Strategic Environmental Assessments, and he has developed Environmental Impact Assessment guidelines for oil and gas developments in Myanmar and Tanzania. He has delivered numerous training programs on environmental management for governments, companies, organizations, and universities worldwide.

Dr. Heike Pflästerer is a specialist on environmental management related to the petroleum sector through her firm ECONCEPT Dr. Heike Pflästerer. She holds a PhD in Geology from the University of Bremen, Germany and has 25 years of experience in environmental and social management for project developments within the oil and gas industry. This experience includes onshore and offshore upstream and midstream projects and integrated environmental, social, cultural heritage, health and safety aspects in the planning and execution phases of large oil and gas infrastructure development projects worldwide. She has been employed by Statoil and held leading positions on several EIAs worldwide. She has recently been engaged as environmental and social performance manager for the Trans Adriatic Pipeline AG to design and build a gas pipeline crossing Greece, Albania, and the Adriatic Sea to transport gas to Italy for the European market. Responsibilities included the development of Environmental and Social Impact Assessments (ESIAs), the development and implementation of a robust environmental and social management system (ESMS) to meet lender requirements, and managing in-country environmental and social performance supervision teams. She has in-depth knowledge of industry best practices and lender requirements for the environmental and social management of large scale development projects. She has taken part in training programs on environmental management for governments, companies, organizations, and universities worldwide.

## Environmental Management in Northern/Arctic Regions - 3 days

Planning and development of oil and gas operations in northern/arctic regions require ultimate attention when it comes to environmental management. These areas are environmentally vulnerable and indigenous peoples are exposed to any changes threatening their original lifestyle. Knowledge about the baseline conditions is incomplete and even more important than anywhere else requiring environmental management to be extremely focused and adapted to local conditions.

### Course objective and topics

The objective of the course is to build a thorough understanding of the environmental and socio-economic risks and opportunities of oil and gas developments in areas with cold climates. All important elements of sustainable environmental and socio-economic management are covered. The participants will therefore get a good basis for participating in, or assessing, oil and gas developments in such areas.

### The topics include:

- Environmental challenges in northern/arctic regions
- Description, availability and constraints of baseline data
- Environmental management in general
- Stakeholder involvement with focus on indigenous peoples
- Environmental Impact Assessment (EIA)
- Environmental Risk Analysis
- Contingency analysis and pollution (oil spill) response planning
- Operational challenges in cold climate

### Delivery model

The course will be delivered as lectures illustrated by environmental management examples from Alaska, Norway and Russia. Active group work and open dialogue and discussions are used to strengthen understanding and involve the participants in relevant examples and challenges in their countries and regions.

### Who should attend?

The course is designed for personnel from the petroleum industry and for officials at national, regional and local levels. Media and representatives from civil society organizations would also benefit from participating.

### Lecturer

Bjørn Kristoffersen is an advisor on environmental management related to the petroleum sector through his firm Eco-Management Support. He holds a Master's Degree (MSc) in Civil Engineering from the Norwegian University of Technology and Science with specialization in environmental technology and management, socio-economics and spatial planning. Throughout his career, he has held several leading positions, first spending 10 years within public sector management/planning and later, 25 years for the Norwegian energy company, Statoil, with operations in 36 countries. After a broad international career for Statoil, such as Vice President with responsible for environmental and socio-economic aspects related to project developments in the northern regions worldwide, he established his own independent consultancy firm in 2008. In this position, he has advised governmental and corporate clients on environmental management in many countries. He has, for example, been an international consultant for the Governments of Ghana and Uganda on petroleum related Strategic Environmental Assessments, and he has developed Environmental Impact Assessment guidelines for oil and gas developments in Myanmar and Tanzania. He has delivered numerous training programs on environmental management for governments, companies, organizations, and universities worldwide.

## HAZID, HAZOP, LOPA: Implementation of Process Safety Reviews - 3 days

During this training course, you will be introduced to the process of performing safety reviews in projects per procedures. Participants will be exposed to planning, organizing, facilitating, and participating in reviews.

### Objectives

- Attain knowledge of the most relevant reviews used in petroleum industry projects.
- Why and how these reviews are carried out.
- Hazard identification and analysis
- Risk analysis
- Safety integrity
- Be able to plan and organize reviews per procedures.
- Be able to participate in, and give presentations on, reviews.
- In combination with relevant experience, facilitate reviews.
- Risk assessment and implications to new facilities, or modifications to existing facilities.
- Identification of actions and recommendations to reduce risks at ALARP

### Target audience

The primary target audience for this course is engineers working with safety, environment, HSE, process, piping, structure, and instrument. HSE Managers, Task Managers, Project Managers, Engineering Managers, Installation Managers, Plan and Risk Engineers will also benefit from the course.

### Lecturers

To be announced - from the Petrad Faculty <http://www.petrad.no/about-petrad/petrad-faculty-0>



## Human Factors Integration

Human Factors (HF) is the systematic application of knowledge about people into design and evaluation of work systems. The HF goal is to optimise work system performance, i.e. reduce risk and increase production. Given that 70 – 80% of accidents and incidents involve humans, this course provides insights to risk reduction. This course demonstrates how to manage human factors integration in a life cycle perspective, from initial engineering activities, through to drilling and operations. An overview of human factors approaches, methods and techniques and when to apply them is provided.

Topics include:

- Understanding benefits of Human Factors
- Integration of Human Factors in Engineering and Operation
- Human capacities, limitations – implications for design and operation
- Work system / place design
- Human Machine Interaction
- Human Factors in Command and control systems design
- Human Factors in Drilling Activities
- Human Error Management
- Organizational Factors in Incidents
- Human Factors resources – standards, guidelines, tools, methods

### Learning Objectives/ outcomes

- Understands the Human Factors approach and why it is fundamental to optimizing work system performance
- Understands human variation and the implications for design and operation
- Gains insight into the term “Human error” and underlying causes
- Gains an overview of HF principles, concepts, models, methods, tools, resources and how /when to apply them in a life cycle perspective
- Understands the principles for designing and testing interfaces between humans and technology
- Understands organizational factors

### Who should attend?

The course is designed for personal working with oil and gas projects, operation, drilling as well as the authorities.

### Training activities:

Training will be performed through a combination of classroom lecturing, discussion/reflection in small groups, and group work in classroom.

### More information

<http://www.iea.cc/index.php> and <https://www.hfes.org>

### Facilitators

Hilde Heber is educated as a specialist in ergonomics/ Human Factors. She has 32 years of experience from Working Environment, Human Factors and Safety work in Norway. She has been employed as an ergonomist and working environment advisor by several international oil and gas operating companies for 20 years. She has also worked as a Chief engineer in the Petroleum Safety Authority for 11 years. She has studied HSE Management, HSE audit methods and incident investigation methods. She has participated in more than 100 audits and has been offshore on about 30 installations. She has worked through all phases from design process, engineering, drilling and operation in relation to most offshore workplaces. She has led several audits and projects, participated in Norsok and ISO standardization work. Hilde has initiated and participated in developing and updating the Norwegian Oil and Gas “Handbook in Ergonomics”.

After graduating in Human Factors in 1982, Adam Balfour moved to Norway, where he began working in the Oil and Gas Industry. He has worked with a number of human factors domains (e.g. Human Factors Integration, control room and systems design, human error, competence assessment, workplace design, organization and manning, validation and verification) for key stakeholders such as regulatory authorities, oil majors, engineering contractors and suppliers. He has worked through all phases of the design process and in relation to most offshore workplaces. He founded Human Factors Solutions in 1998 and leads the company today. Adam has taught Human factors for the oil and gas industry in various masterclasses worldwide, as well as traditional classroom lecturing at several universities.

## Offshore Safety Audits - 5 days

Safety management systems, on which follow-up is not properly done, may soon become an idle system. Auditing is one way of following-up on a system. Audit are a powerful management tool if correctly applied. A prerequisite for a successful audit is that all involved parties know the rules.

Audits should be a neutral and objective tool. Audits conducted by different auditors should arrive at similar conclusions when the same operation is audited under the same conditions. To fulfil these requirements, auditors must be thoroughly educated and trained. This training is a natural step in acquiring such skill and proficiency. The training will be a combination of lectures, case studies, discussions, and practical training. Since auditing is very much about collecting appropriate facts, we expect the target audience very soon after this training to conduct an audit to practice the new skills.

Towards the end of this training there will be discussions on lessons learned and important issues to be followed up.

### Topics covered

- Legislation  
Managing Safety and the Environment in the Upstream Petroleum Activities
- Safety features of equipment and processes
- Acknowledgement of Compliance (AoC)
- Audit practices
- Communication skills - interviewing techniques and auditor skills required
- Testing and maintenance philosophy of key safety critical equipment
- Instruments to measure safety culture
- Managing operations
- Monitoring technical issues - lifting operations, electrical safety, collision risk management
- Qualitative risk assessment
- Risk Management - methods and tools for quantitative risk analysis
- Major hazards on offshore installations
- Contingency philosophy
- Emergency preparedness
- Offshore and onshore emergency organization
- Investigation Procedure and investigation of accidents
- Crisis management / communications
- MTO method in practice
- Emergency response table top exercise

### Lecturers

To be announced - from the Petrad Faculty <http://www.petrad.no/about-petrad/petrad-faculty-0>





## Courses on Local Content and Social Impact

## Development of Local Content - 3 days

A common ambition for governments is to maximize national value creation along the petroleum value chain, in the form of employment, value-addition, and the transfer of technology and knowledge. This is often also referred to as local content or national content. This workshop on developing sustained national participation will highlight the common challenges and barriers facing national participation in the petroleum sector.

### Topics covered

The following topics will be given specific attention:

- Definition of national content and the basic elements.
- The nature of the supplier industries: Global capabilities and local adaptations.
- International experiences and challenges with national content.
- Oil company policies and practices on national content (examples).
- Legal mechanisms for building national content.
- Petroleum sector competence and conditions for success.
- The roles of the different parties in achieving goals for national participation.

### Delivery model

The focus of the workshop will be adapted to the geographical context in which it is given (i.e. country specific) or provided as a delivery where the national content is discussed on a generic level. It will provide opportunities for discussing challenges for national engagement in the participants' context, for which their active contributions to discussions will be useful. It will be designed to give the participants an understanding of the various aspects and opportunities concerning national participation in the petroleum sector. Key stakeholders will be identified and their roles discussed. Demands and interaction with the IOC's and the supply industry will be elaborated. Alternative strategies and policies to increase the national content will be discussed as well as various country experiences, including Norway.

### Who should attend

The workshop is designed to address the issue of national content mainly from a national and regulatory perspective, and is therefore intended primarily for government personnel, industry associations and other parties with an interest in the matter. The quality of the workshop will be enhanced if at least some participants will be able to contribute to discussions based on their experience and sector insights.

### Lecturers

To be announced - from the Petrad Faculty <http://www.petrad.no/about-petrad/petrad-faculty-0>



## Gender Equality in the Petroleum and Natural Resource Sectors - 3 days

The course aims to provide basic gender concepts and methodologies applicable to the petroleum and other natural resource sectors.

### Topics covered

- Gender concepts
- Gender, energy, and development
- Gender issues in the natural resource sectors
- Gender and the value chain
- Gender mainstreaming methodologies
- Gender Action Plan
- Gender audits
- Gender mainstreaming in daily work
- Gender in local content
- Experience sharing - gender equality in Norway

### Active and continued learning

In addition to lectures on the course topics, the course features practices and discussions engaging participants to apply the knowledge and reinforce the learning experience. Furthermore, interactive group works conducted after the lectures aim to challenge different views on gender equality and its implications in various countries and cultures.

### Who should attend

The course will be beneficial for personnel of national authorities, enterprises, learning institutions, civil society organisations and media who engage with the petroleum sector. Requiring no prior knowledge of the sector, the course provides a general overview and familiarization with gender in the petroleum industry.

### Lecturer

Dr. Kim Chi Tran-Gulbrandsen Petrad is a project director at Petrad. She has been working in gender-related fields since 1995 during her employment with UNESCO in Jakarta office, where she reviewed education opportunities for girls in Indonesia. In 1998-2004, as an associate professor in sustainable development at the Kwansei Gakuin University (Kobe, Japan), her teaching and research included gender equality in sustainable development and environmental management. In 2009-2014, Dr. Tran-Gulbrandsen was employed as a senior adviser at the International Section of the Norwegian Water Resources and Energy Directorate (NVE) working with the development and management of international projects in water resources management and hydropower development, including gender mainstreaming in the water and energy sectors. She was seconded to the Liberian Ministry of Lands, Mines and Energy in Monrovia, Liberia for two years as a senior resident adviser, responsible to design and implement the cooperation area on gender mainstreaming and women's empowerment in the energy sector.

She lectures gender mainstreaming in the petroleum sector in Petrad's training courses. Through her work with gender, she has provided her advisory service to authorities in gender mainstreaming in the energy and water sectors. She has also founded gender networks in the energy and petroleum sectors in Liberia and South Sudan.

A supplementary lecturer may be engaged.

## **Courses in Development for This Discipline**

Following are courses which we are aiming to be able to provide soon. Contact us if your organisation has an interest in any of them. Beyond this, we can develop courses and training programmes on a wide range of topics related to petroleum and energy, as indicated by the list of past projects which you can find on our website.

### **Developing Supplier Industry in the Oil and Gas Sector – 4 days**

- This will be a new module following our course on Development of Local Content - 3 days.
- Policies, legislation, and regulations
- Project, procurement, and contract strategies
- Products and services needed in the various phases of the petroleum sector – think long-term
- International quality, HSE and management standards
- International prequalification systems
- Skills and technological needs and development
- The procurement processes and winning international and national tenders
- Partnerships, and technology and knowledge transfer
- Clusters, hubs, mentoring programs, and local industry capacity
- Finance needs and mechanisms
- Case studies from other countries





## General Information on Our Courses



## Admission

For programmes based on individual enrolment, Petrad reserves the right to accept or reject any applicant. The criteria we use for admission are indicated below. For courses and other programmes delivered by agreement with a client organisation, the client usually selects the participants. Clients are encouraged to apply similar criteria for this as those below.

*Professional Qualifications:* Minimum professional qualifications are university degrees equal to Master or Bachelor levels and four to five years of relevant working experience. Exceptions can be made for our Introduction to Petroleum course.

*Language proficiency:* Good working knowledge and communication capability with respect to the English language is a prerequisite to fully benefit from the courses. Applicants must document a good command of English by either:

- Submitting documentation of their English skills
- Accepting to be interviewed, as advised by Petrad
- Undergoing one of the following tests: TOEFL (min. score 500), or IELTS (Min. score 5.5)

Agreement for delivery of a course to a client organisation may include agreement to offer translation or interpretation. This requires explicit agreement before the course is delivered.

*Experience in using computers:* For our longer courses (2 or more weeks) and some of the other courses, the participants must be able to efficiently utilise the PC including the typical office applications like a word processor, a spreadsheet, and a presentation tool.

*Participation of women:* It is important to open for broader participation by women with respect to petroleum management and understanding. Qualified women are encouraged to apply for our courses.

## Accommodations

For courses in Norway, the participants will be lodged in a centrally located hotel in Stavanger. It is important that all participants are lodged at same hotel as several activities and much of the project team assignment work will take place there. For courses abroad, lodging and logistics for attending the course is the responsibility of each participant, or the organisation sponsoring their attendance. In many such cases, Petrad has secured reasonable rates at a local hotel.

## Courses in Norway

For those participating at a course in Norway, please see our web page <http://www.petrad.no/course-venue-stavanger-norway> for useful information.

## Evening programme & excursions

For some of our courses there will be special evening programmes with presentations on topics that supplement the context of the course in question. For courses in Norway there will normally also be excursions to industrial sites and institutions that will leverage the importance of efficient petroleum policy- and management practices. Participants are advised to keep evening time available, and week-end time in the case of courses lasting more than one week, for such events as indicated in the specific programme for the course.

## Insurance and visas

Participants must obtain visas and travel insurance as required for the course venue.

## Cancellation Fee

For courses with individual enrolment, a cancellation fee will apply if participants cancel their participation close to the starting date. Please check for information on deadlines and fee under each programme. If the cancellation is due to sudden illness, a doctor's written statement to that effect will be required. Petrad must be notified of any cancellation as early as possible to enable Petrad to offer the vacancy to other applicants on the waiting list.

Agreements for Petrad to deliver a course to a client organisation also contain provisions for a cancellation fee.



Petrad  
Professor Olav Hanssens vei 10  
P.O. Box 598, NO-4003 Stavanger, Norway  
Tel: 47- 51 87 66 20, Fax: 47- 51 87 11 47  
E-mail: [petrad@petrad.no](mailto:petrad@petrad.no)