



PETRAD

# 8-weeks programme

24<sup>th</sup> September – 16<sup>th</sup> November 2018  
Stavanger, Norway

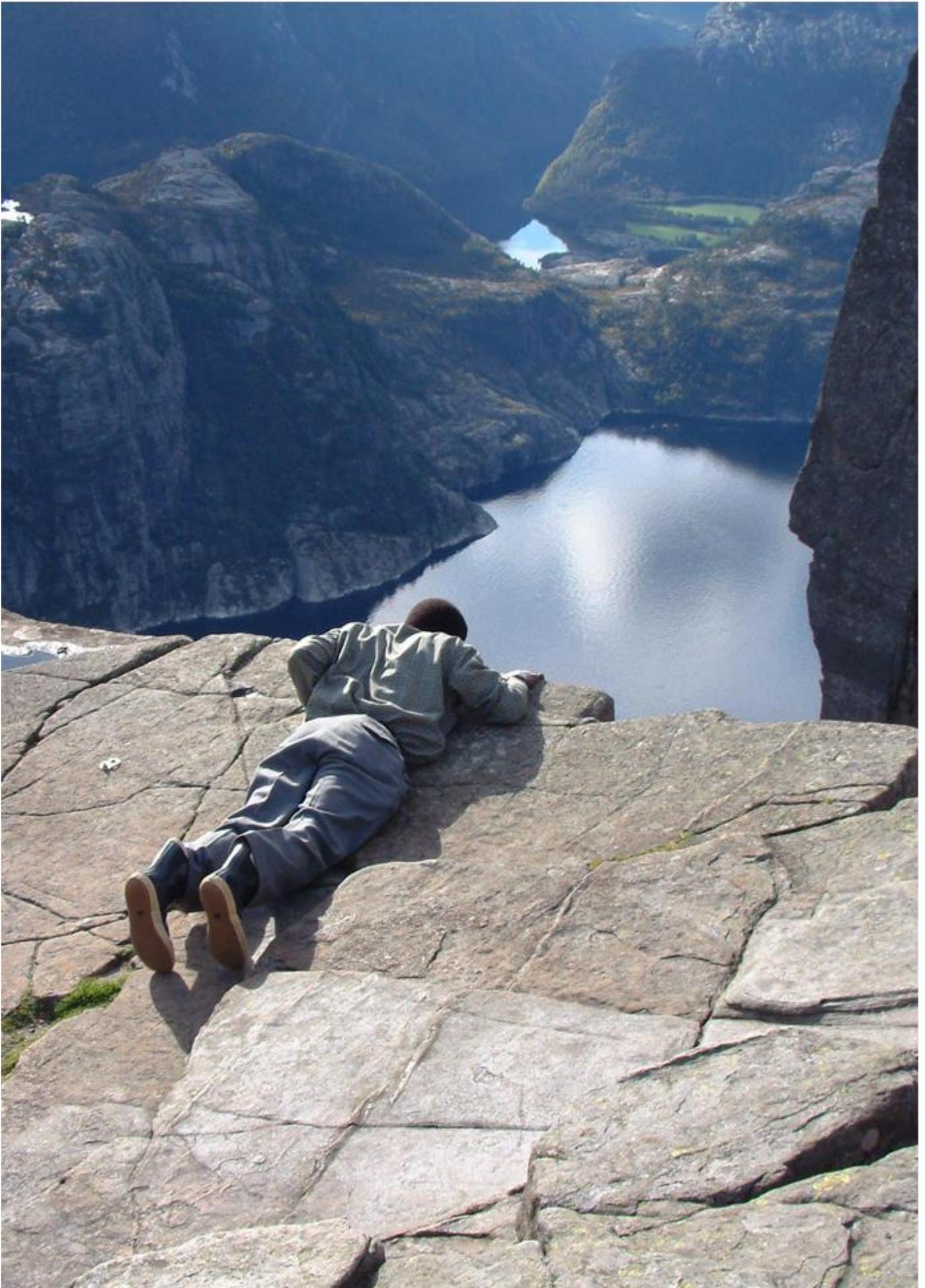
**Petroleum Development  
and operation**

Programme information and  
Application procedure

**NOW WITH 30 STUDY POINTS**

**2018**





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# Petroleum Development and Operations

The 8 weeks programme in Petroleum Development and Operations addresses the challenges of producing petroleum safely and economically while protecting the environment. This requires sound technical solutions adapted to the conditions in which the resources are found.

It is generally the responsibility of the licensed oil firms, usually led by an operator, to propose and implement a sound development plan for an oil or gas field. Petroleum developments and operations are likely to have substantial impacts on society, for better or for worse. The programme reviews the interactions between company managed operations and the interests of society, such as the process of proposing and approving a field development plan.

The programme will be useful to those who need to understand the contexts and work processes of producing oil and gas, and the proper roles of Government authorities and of commercial firms in this regard. For public authorities it is particularly relevant for those having responsibilities for resource management, safety, environmental management and revenue oversight. For company professionals it is relevant for anyone who need to understand the development and operations of petroleum resources in terms of key work processes as well as their wider implications.

## Programme objective

The main objective of the programme in Petroleum Development and Operations is to strengthen the participants' capabilities for contributing to the successful and environmentally sound development and operation of petroleum reserves, in a context which involves commercial enterprises, national authorities and civil society. The programme aims to enable participants as follow :

1. Understand the petroleum value chain in terms of the main activities required to find, produce and sell petroleum.
2. Understand the key responsibilities of national authorities and commercial firms for petroleum activities in a modern regulatory framework.
3. Understand the essential technical requirements for producing petroleum.
4. Understand the process of developing petroleum reserves from discovery to production and field operations.
5. Understand the essential requirements for protecting people's health and safety, and protecting the environment from the potential negative impacts of petroleum operations.
6. Understand the common methodology for assessing the economic attractiveness of petroleum activities, including the implications of fiscal terms and uncertainties.
7. Understand common contract formats for working efficiently with contractors and subcontractors.
8. Recognise the main impacts of petroleum activities on society and the requirements for transforming petroleum resources into lasting benefits for society.
9. Contribute effectively to solving complex tasks in a multi-disciplinary team context.

# Programme Outline

The programme comprises five topical parts:

- Part 1 Policy and main framework
- Part 2 Exploration and licensing
- Part 3 Development
- Part 4 Production and abandonment
- Part 5 Capabilities and human resources

They are described on the following pages, followed by parts 6 and 7, which concern assignment tasks during the programme.

The programme combines lectures, discussions, practices, excursions and an extensive group work assignment. There will be visits to national institutions and company sites, as well as social events and excursions of a more adventurous kind. Participants will be guided by experienced industry professionals with backgrounds from petroleum authorities, petroleum companies, consultancy and academia. The programme has a busy schedule, with lectures and other learning events during 08:30 – 16:30 on weekdays as well as events during some evenings and week-ends. Participants should not plan to do any significant amount of work from the regular job while on this course.

Comprehensive documentation will be available during and after the course on an electronic site. Each student will borrow a computer from PETRAD with access to the internet at the training venue and at the hotel.

The PETRAD twin programme Petroleum Policy and Resource Management complements this programme with a larger emphasis on the policy-oriented tasks of exploration and licensing. Some lectures are common to both programmes. The student facilities and environment will be the same for both programmes.

## Who should attend?

The programme is intended for candidates who hold, or are in line to be promoted to, managerial or senior professional positions within government institutions and national oil companies with responsibilities related to petroleum sector management. It is also relevant for professionals from non-state enterprises with responsibilities in relation to the interface between state and companies. Candidates should have academic education at Master or Bachelor level and at least four years of significant work experience.

When selecting participants among applicants, PETRAD aims for a suitable balance of the most relevant professional discipline backgrounds, a wide spread of nationalities and a reasonable balance of female and male participants.

# Programme

## PART 1:

### Policy and main framework

This part will be taught concurrently with the other parts. It covers the following themes, most of which comprise several lectures:

- Global energy perspectives
- Petroleum sector policy
- Petroleum legislation
- Petroleum sector organisation
- Licensing regime and fiscal regime
- Financial management and integrity
- Safety management
- Environmental management

Global energy perspectives include international energy sector developments, and dilemma of energy and climate. A national policy for petroleum can be seen as part of a broader energy policy, which also addresses the challenge of supplying the nation with its energy needs. Petroleum sector policy will be introduced by reviewing the various elements within petroleum policy and resource management.

The petroleum legislation and regulatory framework for petroleum operations shall be the clear expression of the petroleum policy. The programme will introduce common scope and content of the legal framework and discuss examples of key regulatory provisions both nationally and internationally.

Investment projects are generally evaluated by methods featuring cash flow discounting and present value. This programme will introduce the key terms of this methodology and application will be in form of spreadsheets. Project economic analysis will be reviewed in the context of deciding on investments in petroleum projects.

Petroleum production involves numerous operations that may cause damage and loss of life unless safety regulations are adhered to. Good safety management is a guarantee for minimum damage and disruptions. Environmental management means the application of management principles and techniques for safeguarding the environment. In many countries the responsibility rests primarily on the operating company, but certain elements, such as setting objectives and defining acceptance criteria is an authority responsibility.

## PART 2:

### Exploration and licensing

In this part we will cover Environmental Impact Assessments (EIA), Exploration economy and business decisions, Licensing, promotion and negotiation strategy, Drilling, and Data management.

EIA is a common requirement to ensure that decision-makers consider possible environmental impacts before deciding whether to proceed with a new project. The EIA is the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of the project (such as discharge to the environment, area conflicts, effects on fisheries, effects of blowouts, etc.). The government is required to define scope and content of the EIA.

Petroleum exploration is the challenge of piecing together geological information about a possible petroleum accumulation, but petroleum exploration is also a business where technical development solutions must be identified should petroleum be present, and as such a decision to carry out exploration work is subject to economic considerations and rationalisation. The approaches to business decisions in a risk environment will be described. Drilling activities are

carried out throughout the entire lifespan of a development from the exploration drilling during the search for petroleum resources, in the field development phases and in the operation phase where the wells must be maintained. The programme will discuss decisions that are necessary to carry out drilling operations and present information that is necessary to understand technologies for safe and efficient drilling of wells.

## PART 3: Development

Part 3 will cover The Plan for Development and Operation (PDO), Selection of technology, Project management approaches, Natural gas: Processing, transportation and markets. 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. The programme will discuss key policy considerations and activities in this regard, and the importance of early interaction with the companies. There are rapid developments in production technologies, particularly in the offshore. Sub-sea completions, horizontal drilling, e-operated fields and production in ultra-deep water are notable examples. Unitisation practice as the joint, coordinated operation of a petroleum reservoir by all the owners of rights in the separate blocks overlying the reservoir will be presented with examples from different countries.

Careful choice of technology is important to optimizing the value of the petroleum resource. Petroleum developments are often huge projects with investments of a billion dollar or more. Efficient project management will save time and money. Natural gas has historically often been regarded as a troublesome by product of oil production, but has become a valuable resource and a preferred energy product in its own merit. The gas extracted from reservoirs must be processed for transportation and marketing. Global gas markets operate differently from oil markets due to the particular physical challenges of gas logistics. This section will also review the applications and markets for natural gas liquids, which are often produced in association with natural gas.

## PART 4: Production and abandonment

In this part we will take you through Reservoir management and recovery methods, Operations, Maintenance strategies and quality auditing, Decommissioning, removal and clean up. Efficient reservoir management is systematic use of technology and information to optimize production and recovery from the reservoir. This is a critical exercise that requires government monitoring and independent evaluation. Reservoir recovery factors have increased considerable over the last decades. This is thanks to improved reservoir management and enhanced and improved recovery technology. Enhanced recovery technologies and their application will be discussed. Modern approaches to field operations in the petroleum industry emphasize accelerated production, increased oil recovery, reduced operating costs and enhanced safety and environmental standards. Production installations may be in use for 30 years or more. Good maintenance strategies are required to prevent accidents, pollution or production disruptions. Quality audits are used to determine compliance with specified requirements. These requirements should be part of operations regulations and refer to applicable industry standards. With increasing awareness of the environment, removal of installations and clean up at the end of production must be provided for. The programme will look at international regulations, responsibilities and finance of abandonment and clean up.

## PART 5:

# Capabilities and Human Resources

This part covers the following themes:

- Industrial relations
- Capacity building for the petroleum sector
- Management skills
- Team development

The functions of government in petroleum policy formulation and regulations require highly specialized skills and sophisticated management tools. The programme reviews manpower requirements at different activity levels and the authorities' possibilities to develop and manage human resources.

Developing managerial skills is fundamental to have success as a leader or manager. During the team project assignment work participants will be exposed to situations requiring various management skills. Although the 8-weeks programmes are not management skills development programme, they offer at least a flavour of some skills needed to be a good manager.

## PART 6: Challenges

The Challenges process lets participants work in groups and under guidance on a selected topic of particular relevance to their own situation at home. The process extends over several group sessions during the programme.

## PART 7: The “case” assignment

The group work assignment, which we refer to as the “case”, exemplifies Integrated Petroleum Management options within a prospective area, permits the integration of knowledge from the different lecture topics and modules. It is mandatory to participate actively in the “case” assignment work during the whole programme. Absence from this may result in not receiving a diploma at the end, or may be reflected in the concluding letter of recommendation.

## Resource Persons

See Petrad Faculty (<http://www.petrad.no/about-petrad/petrad-faculty-0>).

# General Information

## Location

The programme will take place at the PETRAD training venue located in the same office building as Norwegian Petroleum Directorate (NPD) and Petroleum Safety Authority, Norway (PSA) in Stavanger, which is situated on the South West Coast of Norway.

## Time

The programme commences September each year, see [www.petrad.no](http://www.petrad.no) for specific dates.

# Evening programme & excursions

There will be special evening programmes with presentations on topics that constitute the framework of the programme. During the programme there will also be excursions to sites and institutions that can help visualise the importance of efficient petroleum policy and management practices.

# Admission

Admission to the programme will be based on the following criteria:

## Professional Qualifications

Minimum professional qualifications are university degrees equal to Master or Bachelor levels and four to five years of relevant working experience.

## Language proficiency

Good working knowledge of the English language is necessary and most important. Applicants must document a good working knowledge of English by either:

- Submitting documentation of their knowledge of English
- Accept to be interviewed, as advised by PETRAD
- Undergo one of the following tests
- TOEFL – Test of English as a Foreign Language. Minimum score required: 500
- IELTS – English Language Testing Service (General section & general academic module) Minimum score required: 5.5

## Experience in using PCs

The applicant must be able to use a PC and the following applications: a word processor, a spreadsheet and a presentation tool (e.g. MS Word, Excel, PowerPoint)

## Participation of Women

It is considered important to open for a broader recruitment of women to petroleum management. Qualified women are encouraged to apply.

## Group Composition

The group composition is essential for the successful conduct of the programme. This means that participants will be admitted with different educational backgrounds and experience in order to facilitate optimal management teams for project team assignment work.

## Attendance

Participants must attend all programme lectures, project team assignment work and one weekend excursions. Be aware that the project team assignment work also requires work during evenings and weekends. There will in addition be evening lectures, company visits and a large social activity programme. The participants should be relieved of all other

duties for the duration of the programme. Because of the workload and intensity of the programme it is not recommended to bring family and/or friends. Our experience is that one will benefit more from the programme coming alone.

### **Personal Computers (PCs)**

A Laptop is provided to each participant for the duration of the programme and print facilities will be available both at the Training Venue and at the hotel for use by the programme participants. The laptops are equipped with Standard Microsoft Office software: Word, Excel and Power Point, and will all have access to Internet via wireless network both at the training venue and at the hotel. The programme schedule, information and programme documentation will be found on a virtual collaboration site on the Internet called SharePoint.

### **Employer's Support**

Applications should be supported by the top management of the participant's organisation. It should be clearly understood that the objective of the programme is to facilitate the participants ability to develop managerial skills in practice, and that the value of the programme can only be realised by exposing the participant to responsibilities that are relevant in this respect upon return.

### **Accommodation**

Programme participants will be accommodated in a centrally located hotel in Stavanger. It is important that all participants live in the same hotel because numerous activities and much of the project team assignment work will take place there. PETRAD has secured accommodation at reasonable rates.

### **Insurance**

All participants should get the travel/medical insurance, paid by the participants, their employers or donors, as required for the Schengen Visa applications.

### **Schengen Visa requirements**

Since year 2004 a travel / medical insurance is required to obtain a Schengen-visa, confer website for the Norwegian Directorate of Immigration, (UDI) <http://www.udi.no/templates/Tema.aspx?id=7405>

### **Physical Fitness**

Participants are encouraged, but not required, to engage in physical activities during leisure hours. Stavanger and its surroundings offer ample opportunity for outdoor walks around lakes, in the mountains, on the North Sea beaches or in the near town woodlands. Swimming pools, tennis and squash courts, golf programmes, windsurfing facilities, aerobic facilities etc. are available in and around the city.

### **Climate and Clothing**

Normal air temperatures vary from 13°C in September to 5°C in November. Extreme temperatures in the two months are 15°C on the high side to minus 5°C on the low side. Normal rainfall is 150 mm pr. month distributed over 22-25 days. It is advisable to bring appropriate clothing, including leisurewear and sport shoes.

# Financial requirements

## 1. Tuition Fee

The tuition fee is Norwegian Kroners (NOK) 150 000 (approximately EURO 15 000\*). The fee covers the entire 8-week period and includes all scheduled tuition, coaching sessions, course material and tools, local transport, excursions and social events in accordance with the schedule. Lunch and coffee/tea breaks will be provided at campus during the week and when on scheduled excursions. The fee does NOT include travel, accommodation and dinners/meals outside programmed events.

## 2. Accommodation cost

Please note that all programme participants stay at the same hotel to facilitate evening sessions and local transport. Petrad have negotiated favorable rates for long term residency at a selected hotel. The hotel rate includes breakfast, and the total cost of accommodation at this hotel for the 8-week period is approx. NOK 42 000 (EURO 4 200\*) or NOK 750 (EUR 75) per night.

## 3. Subsistence cost

Participants should count on bringing with them sufficient funds for daily evening meals plus for weekends and for other miscellaneous expense requirements during their stay. The requirements may vary from person to person, and subsistence allowance / per diem amounts vary between different employers. However, as a minimum, participants can expect to spend an average of 300-350 NOK per day for regular evening and weekend meals.

## 4. Cancellation fee

If participants cancel their participation after September 9th 2018, they must pay a cancellation fee of EURO 1000. If the cancellation is due to sudden illness, a doctor's certificate is required.

PETRAD must, however, be notified of any cancellation at the earliest possible moment to enable PETRAD to offer the vacant seat other applicants on the waiting list.

\*) The amount to be paid in EURO will be according to the current rate at the time of payment.

# Financing of the Programme

## 5. Self-financing

This is a self-funded programme. PETRAD does not provide scholarships for the 8-weeks programme. Applicants should seek for scholarships from their own organizations, national and international oil companies, embassies, donors, etc.

# Application procedure

To apply for the PETRAD 8-week programmes please visit us at: [www.petrad.no](http://www.petrad.no) and complete your application form.

The application deadline is application deadline on 15th June 2018.

All correspondence will be through e-mail: [8weeks@petrad.no](mailto:8weeks@petrad.no) or [kct@petrad.no](mailto:kct@petrad.no)

# University MSc, 30 Master of Science study points available

New starting in 2015 is the possibility (just an option if you would like) to achieve 30 Master of Science study points. These study points can be used in the Master of Technology at the University of Stavanger – Master of Technology and Operations Management. The price of these study points is 12500NOK approx. Euros 1250. The University of Stavanger is in charge of the subject responsibility and the administrative processes associated with the point achieving. Prerequisites: BSc degree in technology related disciplines, including geoscience. Four to five years of relevant working experience, primarily in the petroleum industry.

Requirements to obtaining course diploma from the University of Stavanger;

- Have participated in the 8-weeks programme arranged by Petrad, Stavanger with at least 90% attendance in class.
- Have participated in group work and contributed to presentation of group work reports.
- Have passed all individual tests throughout the 8-week study period in Stavanger
- Have a passing grade in the project.

Forms of assessment:

Assessment	Weight	Duration	Tools	Grade
Project Report	40%	4 months after course in Stavanger is finalized	All	A-F
Group work participation and group report	50%	Throughout the 8-week programme	All, Open book	Passed/no-passed
3 tests throughout the 8-week period	10%	Throughout the 8-week programme	Closed book	Passed/no-passed

# International programme for petroleum management and administration (PETRAD)

PETRAD is a non-profit Norwegian Government Foundation established in 1989 to facilitate sharing of knowledge and experience on Petroleum Management, Administration and Technology between managers and experts within Governments and National Oil Companies. PETRAD arranges tailored programmes and seminars covering a wide range of topics on the management of petroleum resources. The activities are conducted in Norway and abroad lasting from 1 day to 10 weeks. The programmes and seminars have a practical focus. PETRAD also conducts Training Needs Assessments and assistance with Institutional Development. PETRAD draw on resource persons and lecturers from the total Norwegian and International petroleum industry. They hold considerable experience from senior managerial and technical positions with Government, Operating-, Engineering and Service Companies, Consultancies, R&D Institutions and Universities. PETRAD has arranged a total of more than 600 programmes and seminars with more than 20.000 participants from 104 countries.

# Petrad products & services

## **8-WEEKS PROGRAMMES (Stavanger, Norway – annually)**

**Petroleum Policy and Resource Management**

**Petroleum Development and Operations**

## **2-WEEKS COURSE (Stavanger, Norway – annually)**

**National Management of Petroleum Resources**

## **Training Modules – (World wide – On request)**

- Policy and Management of Petroleum Sector Development
- Good Governance
- Resource management
- Revenue management
- Environment management
- Legislation
- Licensing
- Contracts for the Petroleum Sector
- Local Content
- Anti-corruption
- Petroleum Sector Understanding for the Civil Society
- Fiscal Metering
- Data Management
- Downstream Petroleum Management
- HSE - Health, Safety and Environment Management
- Gas Utilization and the Downstream Market
- Petroleum Economics
- Gender Equality in the Petroleum sector

## **Tailor Made Programmes**

(World Wide – On request)

All topics within petroleum management, administration and technology

## **TNA – Training Needs Assessment**

(World Wide – On request)

## **Capacity and Organizational Development**

(World Wide – On request)

For further information please contact:

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