



Université Saint-Joseph
Faculté d'Ingénierie
École supérieure d'ingénieurs de Beyrouth (ESIB)

« **Master Oil and Gas : Exploration, Production and Management** »

« **Master Pétrole et Gaz : Exploration, Production et Management** »

الماستر في استكشاف و انتاج و ادارة البترول والغاز

Upstream and Downstream : Engineering and Management

(M P O G)

With the participation of « Institut
Français du Pétrole (IFP School) »



In partnership with **TOTAL**



and with the support of



Attock Oil International DMCC



For more informations :

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GENERAL INFORMATIONS

Based on the preliminary investigations on offshore oil and gas in Lebanon, as well as the expertise of international experts and exploratory mission reports,
Based on the Lebanese new law on oil and gas,
Based on the impact of this industry on the Lebanese economy,
Based on the absence of similar or equivalent program in Oil and Gas in Lebanon
Based on the consequences of such program on creating new jobs and boosting of several local productive sectors,
Based on the urgent need for engineers and specialists in Oil and Gas in Lebanon.

The « École supérieure d'ingénieurs de Beyrouth (ESIB) » took the initiative to contact their partners, in particular the « Institut Français du Pétrole (IFP School) » and TOTAL, as well as European and Arab institutions to implement a pioneering program in Lebanon on "Oil and Gas" in its two components: Technical and Economical, or Upstream and Downstream.

SCIENTIFIC AND EDUCATIONAL PURPOSE

The dual objective of this program is to train:

1 - Experts in Exploration and Production of Oil and Gas (Upstream) :

This program trains experts in petroleum engineering. They are responsible of preparing programs to dig at sea (offshore) or on land (onshore) for the exploration and production of oil and gas. They must define and orders the needed equipment, consider the most appropriate techniques, monitor the implementation ant test the wells, estimate oil and gas reserves, determine the number of production wells, their nature and location as well as the drilling schedule.

Treatment and transportation of Oil and Gas. Design and determination of various facilities, including on surface to separate oil, gas and water, and those who treat and transport oil and gas to a refinery or tanker.

Intrinsically associated with the Production, they have to ensure the production of hydrocarbons from the basement to the surface safely. The have to optimize the performance and safety of the production units and the whole platform.

Moreover, they have to deal with technological challenges given the innovation that supports the development of the oil industry, and find reserves that are increasingly in the depths of the sea and land.

Finally, security and environmental issues are of their concern. They have to minimize the risks, work with the aim of preserving the environment, restoration of the natural environment at the end of the drilling work to reduce the impact of gas emissions.

2- Experts in Petroleum Economics and Management (Downstream):

This program trains also experts to study the market structure and price mechanism: Changes in market structure, strategy of exporting countries and its impact on prices, global demand and the rise of emerging countries (Brazil, Russia, China, India, etc.), speculation and its impact on the price of oil in short term, the outlook for the coming years, economic recovery and rising of oil prices, the risk, competitive environment and arrival of new entrants and new aggressive strategies, behaviors of petroleum countries, competitors and different business practices, security of supply, regional and international legal aspects, the economic growth, transportation costs, etc.

GENERAL ORGANIZATION OF THE MASTER

The "Master Oil and Gas" comprises 120 credits, spread over four semesters of 30 credits each.

This program includes:

- theoretical and practical courses
- projects and internships leading to the preparation of a training report.

Since the Master, is intended primarily for engineers (Bac +5), or 5th year students of engineering ESIB (Bac +4) or graduates of Master of science (Bac +5), candidates eligible to enroll, based on their academic record, could be exempted from a part of the courses.

ORGANIZATION OF PROJETS AND INTERNSHIPS

Projects and internships (training) and other applied work will be held either in Lebanon or abroad, in an oil company or an oil or gas fields. Their purpose is to apply knowledge and skills to study the implementation and feasibility of an oil or gas field (for the projects), and to apply knowledge and skills in the real onshore or offshore field or in a petroleum company (for training).

The scientific responsibility of projects and training is provided by the Master faculty (Teachers).

This work aims to help students to develop and improve the required skills:

- in the Technical field of Oil & Gas reservoirs (Upstream)
- in the Oil and Gas Economy and Markets (Downstream).

They are the subject of a written report and a public presentation. The rating reflects three elements:

- student global behavior during the training,
- content and quality of written report
- oral presentation and defense.

MANAGEMENT AND SCIENTIFIC AND EDUCATIONAL COOPERATION

This program is based on the principle of scientific cooperation between several academic and professional institutions (ESIB, IFP School, TOTAL, Attock Oil International DMCC, etc.). Courses are provided at ESIB School of engineering, Mar Roukos.

The bodies of the Master Oil and Gas are:

- The Chairman;
- The Coordinator;
- The Monitoring Committee ESIB and IFP School (CS).
- As well as TOTAL ; other collaborations or partnerships are also considered.

The Chairman

The Director of ESIB School provides the management and the responsibility for the proper conduct of the Master. He is in charge of:

- The implementation of administrative, academic and financial issues of the program.
- Setting the lists of enrolled students and graduates;
- Signing the diplomas.
- Assigning the jury for projects and internships.
- Proposing relationships with international university partners and the industrial and professional sector;
- Defining policies and scientific guidance of the "Oil and Gas" sector and propose priorities of the Master program.

The coordinator

The coordinator of the Master (teacher from ESIB) is appointed by the Director of ESIB for one academic year, renewable. He is responsible of:

- The coordination of the academic program;
- Developing and ensuring the application of the rules for the Master and conducting the program;
- Ensuring the needed contacts for the trainees, evaluation of training programs, and allocation of supervisors and trainees;

The Monitoring Committee : ESIB and IFP School (CS).

The Monitoring Committee (CS) consists of the Directors of the two institutions (ESIB and IFP School) or their representatives; CS may involve members of the public or private sector in the Master to assist him.

The CS will meet at least once a year, in Lebanon or in France.

The CS is especially in charge of:

- Approving the missions of IFP School professors and the budget granted by the ESIB for these missions, and the modes of payment;
- Giving an advisory opinion on the composition of the teaching staff and courses repartition;

RECRUITEMENT

Are allowed to present their files:

- Graduate engineers in Electrical Engineering, Mechanical, Civil, Chemical, Oil, or other equivalent or compatible with previous disciplines.
- Holders of a Master degree in Mathematics, Physics, Chemistry, Mechanical, Electrical and Power or other disciplines equivalent or compatible with previous ones,
- Students in the fifth year of ESIB.

The selection of candidates is made by a jury of admission and depends of the maximum number of available places. The admission committee will determine for each student validated courses based on his previous curriculum and define the courses to attend in the Master program, including sometime additional prerequisite courses.

THE DEGREE

The Master degree MPOG will be issued by **ESIB** under the seal of the **Université Saint-Joseph de Beyrouth**.

It validates a program, which ESIB, with the academic involvement of IFP School (France), provide, through collaboration, their educational and scientific means.

It receives financial and educational assistance of several local and international organizations, including the Embassy of France in Lebanon, TOTAL and Attock Oil International DMCC.

The Degree "**Master Oil and Gas: Exploration, Production and Management**" is awarded to candidates who passed all courses exams as well as projects and training, as defined by the rules of the Degree.

RULES OF THE DEGREE

1. Teaching languages.

Due to the regional and international outlook and the requirements of the oil market, the program will be given mainly in English but also in French and Arabic.

2. Test of knowledge

The "**Master Oil and Gas: Exploration, Production and Management**" is awarded to candidates who have passed the courses exams on their theoretical and practical issues and show a sufficient level in the defense of projects and training report.

3. Attendance

Attendance in all educational activities is required in accordance with rules of ESIB.

4. Validation conditions

To each course, project or internship is assigned a note over 20.

A general average is calculated from the notes of courses and project, weighted by the number of credits.

The courses are validated if:

- a. The general average is greater than or equal to 12/20, and
- b. Notes of all the courses are higher than 08/20.

Projects and internships are validated if each note is greater than or equal to 12/20.

A 2nd session of exams is applied to all non-validated credits according to the rules of ESIB

Priority in the choice of internships is based on the average before the 2nd session.

5. Master Degree.

When candidate validate all his credits, his studies are sanctioned by delivering the Master Degree:

« Master Oil and Gas: Exploration, Production and Management »

الماستر في استكشاف وإنتاج وإدارة البترول والغاز

The following grades are given:

- 12/20 to 13.99 / 20 : Good Enough
- 14/20 to 15.99 / 20 : Good
- From 16/20 : Very Good

CONDITIONS OF ENTRY

Admissions are based on file study and evaluation. The file must include:

- A photo with the name of the candidate on the reverse.
- Individual extract of family status
- Curriculum Vitae of the candidate
- Certified copies of previous degrees including Bacculaureate
- Certified copies of records obtained in previous University studies.
- Copies of certificates of previous professional work experience of the candidate.
- Letter certifying the mastering of the English language.

(1) - The candidate is required to submit the original documents the day of registration.

Entries will be controlled by the coordinator of MPOG, and presented to the Director of ESIB who establishes a list of admitted candidates to the program. Applicants may be subject to an interview before final admission.

PROGRAM FEES

For the academic year 2013-2014, the cost of credit is equivalent to \$ 175.

The amount of the tuition is paid in many payments. No refund will be made in case of dropout. TOTAL or USJ Scholarships could be given to the most motivated candidates with very good files presented.

DISTRIBUTION OF COURSES

As a guideline, the following distribution is proposed for the semesters MR2, MR3 and MR4. It should be noted that semester MR1 (4-5 months) represents technical or economical courses taken and validated previously:

Distribution of courses	Proposed period
6 months Exploration and Production (Upstream)	October 201X to July 201(X+1)
4 months Economics and Management (Downstream)	
3-4 months of training and report	September to December 201(X+1)
	12-15 months

The duration of the program is 12 to 15 months

DISTRIBUTION OF COURSES

By theme, courses are grouped according to the tables below.

1- Petroleum Exploration and Production (Upstream) (60 ECTS)

Code	Course	Vol	TPC	ECTS
020MAOGM1	Mathematics for engineers (M. Salim SALEM et Mlle Joanna ABDO – ESIB)	40	20	6
020BPOGM1	Basics of probability and statistics (M. Rafic FADDOUL – ESIB)	18	12	3
020THOGM1	Thermodynamics (M. Marwan BROUCHE et M. Sami YOUSSEF – ESIB)	24	16	4
020GEOGM1	Geology (M. Fadi GEARA et M. Muhsin RAHHAL – ESIB)	18	12	3
020AMOGM1	Advanced mechanics (M. Fouad KADDAH et M. Fadi GEARA – ESIB)	40	20	6
020FMOGM1	Fluid mechanics (M. Wajdi NAJEM et M. Sélim CATAFAGO – ESIB)	40	20	6
020LPOGM2	Linear programming for planning and optimization (M. Rafic FADDOUL - ESIB)	18	12	3
020ASOGM2	Applied Statistics and Probability (Mme Carole SHARABATY - FSE)	18	12	3
020PGOGM2	Petroleum geology and Geophysics – Exploration and seismic methods (M. Muhsin RAHHAL - ESIB)	32	18	5
020FROGM2	Fundamentals of reservoir engineering (IFP)	24	6	3
020DWOGM3	Drilling/Well Completion/Well performance (IFP)	24	6	3
020WLOGM3	Well logging/Well testing – Interpretation (IFP)	24	6	3
020PMOGM3	Production mechanisms – Field development, methodology (IFP)	24	6	3
020RSOGM3	Reservoir simulation – Field development project (IFP)	48	12	6
020UHOGM3	Unconventional hydrocarbons (IFP)	24	6	3
	T O T A L (600 hours)	416	184	60

2- Petroleum Economics and Management (Downstream) (30 ECTS)

Code	Course	Vol	TPC	ECTS
020MIOGM1	Microeconomics (M. Joseph GEMAYEL et Mme Racquel ANTOUN NAKHLE - FSE)	12	8	2
020DSOGM2	Decision sciences (M. Rafic FADDOUL - ESIB)	18	12	3
020BAOGM2	Business accounting (M. Jamil ARIDA - FGM)	18	12	3
020IEOGM2	Industrial economy (M. Rayan HAYKAL - FSE)	12	8	2
020CAOGM2	Credit analysis and credit risk management (M. Nizar ATRISSI - FGM)	18	12	3
020CEOGM2	Commodities and energy markets (M. Georges EL HABRE ESIB-Polytechnique)	18	12	3
020FMOGM2	Financial markets – Options – Swap – Hedgings – Strategies – Derivatives (Mme Alice TABET - FSE)	18	12	3
020LFOGM3	Legal and fiscal aspects (Upstream and Downstream) (Mme Lara BOUSTANY - FDSP- Arabe)	18	12	3

020SMOGM3	Strategic management (M. Camille ASSAF – FGM)	12	8	2
020UMOGM3	Upstream management (IFP)	24	6	3
020TSOGM3	Trade, shipping & Project finance; banking type and instruments (M. Salem MOUNZER – ESIB)	18	12	3
T O T A L (300 hours)		180	120	30

3- Training and report (30 ECTS)

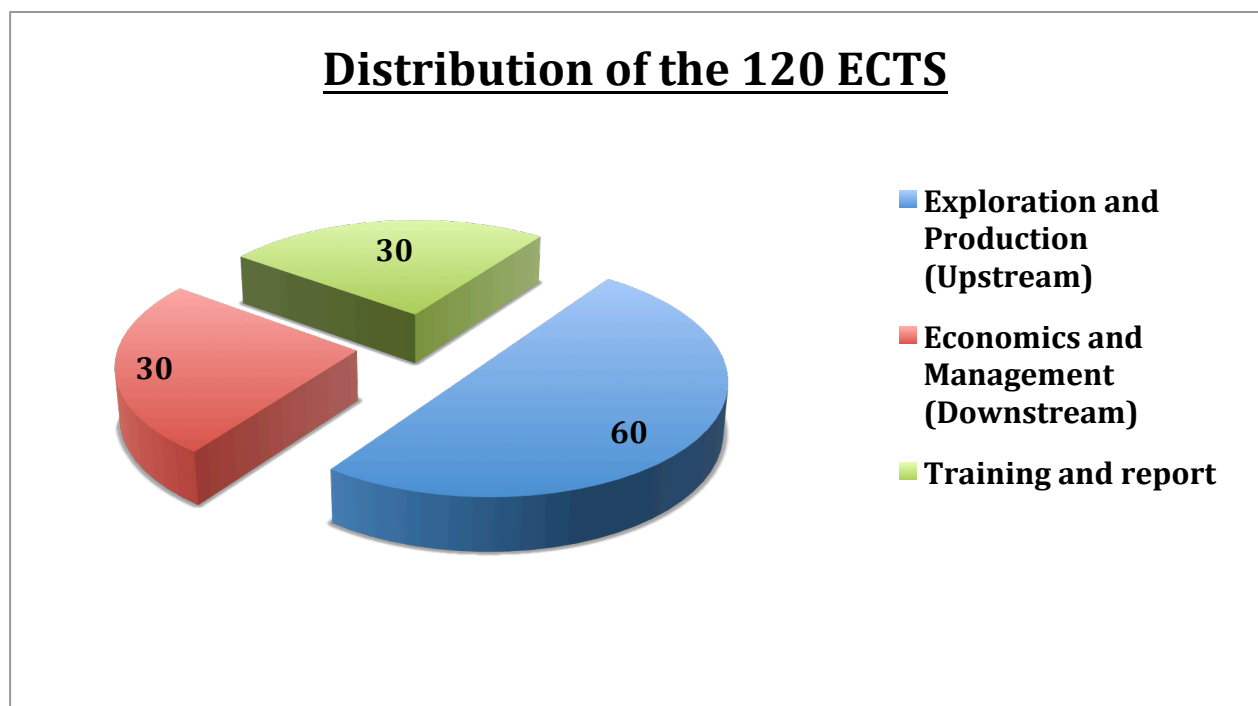
Code	Course	Vol	TPC	ECTS
020TROGM4	Training and report (3-4 months - M. Nasser HOTEIT et M. Fadi GEARA - ESIB)	0	600	30
T O T A L (600 hours)		0	600	30

In brief

A total of 1,500 hours and 120 ECTS for all disciplines (courses, TD, TP, TPC, Project, Training), distributed as follows:

- 1 - Technical skills: Exploration and Production (Upstream) : 60 ECTS
- 2 - Financial skills : Economics, Management, Commodities, Markets (Downstream) : 30 ECTS
- 3 - Training and report : 30 ECTS

TOTAL 120 ECTS



Detailed content of the Master

PETROLEUM EXPLORATION AND PRODUCTION (UPSTREAM)

Code	Course	Vol	ECTS
	Petroleum Exploration and Production (Upstream) (60 ECTS)		
020MAOGM1	Mathematics for engineers: (M. Salim SALEM et Mlle Joanna ABDO) Special functions: gamma, beta, integral cosine, integral sine, error function, Bessel function - orthogonal polynomials - Integral Transforms (Laplace and Fourier) - Complex Functions: continuity, derivatives - Lebesgue integral: Introduction to the Theory of Measurement, the Lebesgue integral (difference with Riemann integral) - Theory of distribution: Definition, general properties, derivatives, Dirac distribution, convolution, Laplace and Fourier integral transforms, applications - the Hilbert transform (transformation Z). arbitrary interval - functions with several variables. PDEs. Applications On Matlab	60	6
020LPOGM2	Linear programming for planning and optimization (M. Rafic FADDOUL) Introduction to linear programming; definition of the problem, graphic resolution. General formulation of a linear program, basis, canonical form. Resolution by the tableau method / by the simplex method. Duality, relationship between primal and dual. Formulation of a minimization problem, finding an initial basis. Economic interpretation of results: marginal costs, marginal rates of substitution, etc. Specific cases: degeneracy, equality constraints, bounded variables. Resolution algorithms: revised simplex method, interior point methods.	30	3
020BPOGM1	Basics of probability and statistics: (M. Rafic FADDOUL) Modeling - equiprobability - Combinatorial Analysis - Bertrand Paradox - Conditional Probability - Independence - Random variables - distribution function - Hope - Moments - Variance - standard discrete Laws - Function generator - Act probability of a random couple - marginal Laws - Random Variables actual density - characteristic function - Change of variables - Law real-usual Inequalities - Convergences - central limit theorem - Vector Gaussian-Simulation-sampling - Estimation - Tests of Hypotheses.	30	3
020THOGM1	Thermodynamics: (M. Marwan BROUCHE et M. Sami YOUSSEF) Thermodynamics: Fundamentals of thermodynamic - microscopic approach of the ideal gas – real gas - condensed phase - Elements of fluid statics - first principle of thermodynamics, energy balances of gas systems - Second principle of Thermodynamics, Phase transitions of pure body - thermal machines. Heat transfer - conduction and thermal convection - thermal radiation.	40	4

020GEOGM1	<p>Géologie : (M. Muhsin RAHHAL et M. Fadi GEARA) Chapter 1: The Globe Chapter 2: Minerals and Rocks Chapter 3: External Geodynamics, internal Geodynamics Chapter 4: Historical Geology Chapter 5: Structural Geology Chapter 6: Mapping and geological interpretation Chapter 7: Applied Geophysics Chapter 8: Oil Prospecting</p>	30	3
020PGOGM2	<p>Petroleum geology and Geophysics – Exploration and seismic methods (M. Muhsin RAHHAL): Principles of petroleum geology Exploration and Geophysical Methods: Passive (gravity, magnetic, electromagnetics), active (seismic reflection), Theory / Principles: Locate or detect the presence of subsurface structures or bodies and determine their size, shape, depth, and physical properties (density, velocity, porosity...) + fluid content Sedimentary Basins Extensional sedimentary Basins Introduction to Basins analysis Seismic Signature of Extensional sedimentary Basins</p>	50	5
020AMOGM1	<p>Advanced mechanics : (M. Fouad KADDAH et M. Fadi GEARA) Chapter 1: Overview of the mechanics of deformable bodies Chapter 2: Kinematics of deformable bodies Chapter 3: Dynamics of deformable bodies Chapter 4: Thermodynamics of deformable bodies and behavior laws Chapter 5: Methods for calculating in linear elastic and isotropic Chapter 6: Variational principles in solid mechanics Chapter 7: Finite Element Method</p>	60	6
020ASOGM2	<p>Applied Statistics and Probability (:Mme Carole SHARABATY): 1-Probability basics 2-Random variables 3-Discrete probability distribution (Binomial distribution) 4-Continuous probability distribution (Standard Normal distribution) 5-Descriptive statistics/Inferential statistics 6-Confidence Intervals: discrete and continuous variables 7-Hypothesis Testing: discrete and continuous variables 8-Introduction to Single/Multiple Regression 9-Introduction to Neural Networks</p>	30	3
020FMOGM1	<p>Fluid mechanics: (M. Wajdi NAJEM et M. Sélim CATAFAGO) Velocity field in a fluid - local mass conservation equation consequences – the perfect fluid dynamics - applications of Bernoulli's theorem – Continuum environment - Fluid characteristics - Kinematics - balance equations - Study of viscous fluids - dimensional analysis and similarity - flows - laminar flows and turbulent flows in pipes</p>	60	6
020FROGM2	<p>Fundamentals of reservoir engineering (IFP): Petrophysics PVT Fluid Flow in porous media</p>	30	3

	OOIP calculation		
020DWOGM3	Drilling/Well Completion/Well performance (IFP): Drilling principles and drilling architecture Completion equipment/design, operations Perforations/Sand control, formation damage and well stimulation Fluid flows in pipes and well performance	30	3
020WLOGM3	Well logging/Well testing – Interpretation (IFP): Overview/purpose and design of well testing Main data acquisition and interpretation procedures Overview/purpose of well logging Tools, data acquisition and interpretations	30	3
020PMOGM3	Production mechanisms – Field development, methodology (IFP): Multiphase flow Natural depletion and material balance Secondary recovery EOR Reserves concepts and Field development	30	3
020RSOGM3	Reservoir simulation – Field development project (IFP): Introduction and workflow Input data and production curve History matching and predictions Field development project	60	6
020UHOGM3	Unconventional hydrocarbons (IFP): Introduction to Unconventional Energy Resources Natural Fractures Low-permeability (Tight) Sands Coalbed Gas Shale Reservoirs (Gas and Oil) Heavy Oil Gas Hydrates	30	3
	TOTAL (600 hours)	600	60

PETROLEUM ECONOMY AND MANAGEMENT (Downstream)

Code	Course	Vol	ECTS
	Petroleum Economy and Management (Downstream) (30 ECTS)		
020MIOGM1	Microeconomics (M. Joseph GEMAYEL et Mme Racquel ANTOUN NAKHLE): Section 1: Preferences, Utilities and Demands Chapter 1: Consumers and their preferences Chapter 2: Utilities- Indifference Curves Chapter 3: Demand and Behavior in Markets Section 2: Production and Cost Chapter 4: Production and its Technology Chapter 5: Cost and Choice Chapter 6: Cost Curves Section 3: Markets and Market Structures Chapter 7: Perfectly Competitive Markets Chapter 8: Monopoly	20	2

	Chapter 9: Natural Monopoly and the Economics of Regulation Chapter 10: Oligopoly		
020BAOGM2	Business accounting (M. Jamil ARIDA): Balance sheet, Income Statement and Notes The generally accepted accounting principles (GAAP); case of oil and gas companies, I.F.R.S. and FASB Consolidated Accounts Financial Analysis: financial equilibrium and profitability, working capital, operating working capital, cash position Statement of Cash Flows Stock Exchange, Market Value, Price Earning Ratio Financing Plan Cash Flow Planning Introduction to cost accounting and management control.	30	3
020IEOGM2	Industrial economy (M. Rayan HAYKAL): Industrial Organization: Introduction, Market Structure and Market Power. Static Games and Cournot Competition Price Competition Limit Pricing and Entry Deterrence Collusion in Practice Advertising, Research and Development Oil Industry.	20	2
020SMOGM3	Strategic management (M. Camille ASSAF): 1 What is Strategy? 2 Analyzing the problem 3 Models of Strategy 4 Strategic Assessment 5 Developing Strategies 6 Implementing Changes in Structure 7 Strategy & Leadership	20	2
020UMOGM3	Upstream management (IFP): Upstream Economics: Key figures in upstream, the main challenges, players: IOC, NOC, Independents, Contractors Oil Reserves Investments and Costs. Accounting and Performance Measures: investments and costs, finding & development costs, booked reserves, etc. Legal and Fiscal aspects: concession - royalty system / production sharing contracts / service contracts with many exercises and spreadsheets. Capital Budgeting: Introduction: cash flow schedule / discount rate. Criteria: net present value (NPV) / internal rate of return (IRR) / pay out time. Fiscal impact: depreciation rate and profitability / after tax NPV, IRR. Taking inflation into account: current money/constant money. Investment and financing mix: overall and equity return and capital rationing. Shallow interest method. Strategies/ Portfolio Management: Upstream strategies, future trends: "frontiers", technology, gas specificity. Project evaluation and decision-making. Risk assessment. Case	30	3

	<p>history. Summary of petroleum systems and risk qualifiers. Use of log normality in dealing with natural parameters. Field size distributions. Prospect and play analysis. Reserve estimation. Portfolio inventories. Tools of choice for ranking and selection. Performances versus predictions. Performance improvement</p>		
020DSOGM2	<p>Decision sciences (M. Rafic FADDOUL - ESIB): Risk management, Decision making under uncertainty, Statistics and forecasting, Operations research, Negotiation and auction analysis, and Behavioral decision theory</p>	30	3
020CEOGM2	<p>Commodities and energy markets (M. Georges EL HABRE): Basics Of Markets: Introduction to markets. OTC products, physical vs. cash settlement. The trading game, starting by OTC transactions, fair value, price, bid-offer, liquidity, settlement, credit risk, market risk, P&L, MTM, Principles of Hedging, etc. The trading game in the afternoon. Oil Markets: Introduction to physical oil markets.</p>	30	3
020TSOGM3	<p>Trade, shipping & Project finance; banking type and instruments (M. Salem MOUNZER and Attock team): Oil Trader: Applied and practical aspects of oil trading. Logistics And Transportation: Oil products transportation by pipelines / by rail / by trucks / by ships. Storage of oil products – Optimization. Shipping operations.</p>	30	3
020CAOGM2	<p>Credit analysis and credit risk management (M. Nizar ATRISSI): Defining and measuring credit risk parameters Credit analysis and credit rating Credit portfolio models and limitations Risk analysis and management Credit derivatives and structured finance</p>	30	3
020LFOGM3	<p>Legal and fiscal aspects (Upstream and Downstream) (Mme Lara BOUSTANY - Arabe): Lebanese petroleum law Law and fiscality</p>	30	3
020FMOGM2	<p>Financial markets – Options – Swap – Hedging – Derivatives (Mme Alice TABET): Overview of Financial Markets and Derivatives Futures contracts and Forward contracts in Oil and Gas Markets Speculation Hedging Strategies Forward Prices Options: Characteristics, Strategies, Pricing, Risk Management European Options American Options Asian Options and other Exotic Options Energy Swaps: Characteristics, Hedging Strategies, Valuation Commodity Caps/Floors, Collar Swing contracts in Gas Market</p>	30	3
	TOTAL (300 hours)	300	30

TRAINING AND REPORT**PROGRAMME du MR4**

Code	Course	Vol	ECTS
	Training and report (30 ECTS)		
020TROGM4	Training and report (3-4 months - M. Nasser HOTEIT et M. Fadi GEARA - ESIB): 3-4 months of training with a final report in an Oil and Gas Company or in an Oil or Gas field (Onshore or Offshore)	600	30
	T O T A L (600 hours)	600	30

**« Oil and Gas : Exploration, Production and Management »
(MPOG)**

Course	Professor	Degree
1- Petroleum Exploration and Production (Upstream) (60 ECTS)		
Mathematics for engineers	M. Salim SALEM Mlle Joanna ABDO	PhD PhD
Linear programming for planning and optimization	M. Rafic FADDOUL	PhD
Basics of probability and statistics	M. Rafic FADDOUL	PhD
Thermodynamics	M. Marwan BROUCHE M. Sami YOUSSEF	PhD PhD
Geology	M. Muhsin RAHHAL	PhD
Petroleum geology and Geophysics – Exploration and seismic methods	M. Muhsin RAHHAL	PhD
Advanced mechanics	M. Fouad KADDAH M. Fadi GEARA	PhD PhD
Applied Statistics and Probability	Mme Carole SHARABATY	PhD
Fluid mechanics	M. Wajdi NAJEM M. Sélim CATAFAGO	PhD PhD
Fundamentals of reservoir engineering	Professor	IFP School
Drilling/Well Completion/Well performance	Professor	IFP School
Well logging/Well testing – Interpretation	Professor	IFP School
Production mechanisms – Field development, methodology	Professor	IFP School
Reservoir simulation – Field development project	Professor	IFP School
Unconventional hydrocarbons	Professor	IFP School
2- Petroleum Economy and Management (Downstream) (30 ECTS)		
Microeconomics	M. Joseph GEMAYEL Mme Racquel ANTOUN NAKHLE	PhD PhD
Business accounting	M. Jamil ARIDA	PhD
Industrial economy	M. Rayan HAYKAL	PhD
Strategic management	M. Camille ASSAF	PhD
Upstream management	Professor	IFP School
Decision sciences	M. Rafic FADDOUL	PhD
Commodities and energy markets	M. Georges EL HABRE	Master Ecole Polytechnique – HEC Paris
Trade, shipping & Project finance; banking type and instruments	M. Salem MOUNZER	Electrical Engineer ESIB Petroleum Economics IFP – Master Economy

		Attock Oil Int. DMCC
Credit analysis and credit risk management	M. Nizar ATRISSI	PhD
Legal and fiscal aspects	Mme Lara BOUSTANY	PhD
Financial markets – Options – Swap – Hedging – Derivatives	Mme Alice TABET	Master-Eng

For more informations:

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