Evaluation and Monitoring of the Oil and Gas Asset Investment Feasibility

4rd module, Spring 2015

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Course information

Instructor's Office Hours: by appointment
Class Time: Tuesday & Thursday at 17:15-18:45 **,** 19:00-20:30

Course description

Course Justification

Big international and national oil and gas exploration and production projects are the most capital- and risk-intensive ones. Therefore the industry should have a valid mechanism for the assessment of the true equity value of hydrocarbons to be explored and produced within the timeframe of such projects.

Course Objectives

The primary objective of this program is to provide the student with the historical and institutional background and the basic tools necessary for an understanding of the risk analysis and mitigation during the implementation of big international oil and gas exploration and development projects. The course is designed to introduce the class to the overview of the concept of risk, the techniques used to identify, analyze and manage risk and the basics of the assessment of oil and gas reserve equity, project financing, and insurance. The course includes the development of a variety of information, analytical and problem-solving skills.

Students who graduate with a minor or concentration in applied oil and gas economics will enhance their prospects of securing relevant and rewarding employment in the energy sector.

Course Applications

- business risks: categories and interdependencies
- risk identification: suggested techniques
- total cost of risk (TCOR): practical decision
- risk management strategies
- major oil and gas project financial instruments
- major world stock exchanges (New York, London): implications for the oil and gas companies
- fair market value of the oil and gas
- decision-making tree in exploration risk analysis
- investment decision-making for exploration, development, and production projects

Course requirements, grading, and attendance policies

Prerequisites: Micro 1-2, Math 1-2, Statistics, Macroeconomics
Teaching and Work Forms: 2 lectures/1 workshop per week. During workshops students will be mostly discussing case studies and/or presenting their own research papers.
Grading policy: Participants are expected to prepare the readings for the workshops, and to actively and constructively participate in class discussions. Final grade for the course will be based on the final exam (55% of the grade), analysis of case studies/research papers (30%) and workshop participation and discussion (15%).
Attendance policy: Attendance is not mandatory and no-attendance will not lead to the automatic disqualification for the final exam. However, attendance but will be marked both at the lectures and workshops and those with attendance below 50% will not be allowed to re-take the final exam. Also, please note that those absent from class/case discussions will get no grade for those.

Course contents

Preliminary course outline:

1. Oil and Gas Project Financing
    a. Third-Party Financing (Supply Agreement, Intercreditor Agreement, Tripartite Deed)
    b. Production Sharing Agreements (PSA)
    c. Initial Public Offerings (IPO)
2. Risk Assessment and Mitigation
    a. Oil and gas Project Underwriting
    b. Insurance Risk Portfolio
3. Oil and Gas Reserve/Resource Audits and Evaluations
    a. Major Principles of Oil and Gas Reserve and Resource Classification
        i. Classification of Society of Petroleum Engineers (USA) – SPE-PRMS
        ii. Classification of Security and Exchange Commission (USA) – SEC
        iii. Classification of the Russian Federation
    b. Evaluation of Original Oil-In-Place (OOIP)
    c. Evaluation of Recoverable Reserves/Resources
    d. Reserve Economic Analysis

4. Evaluation of Fair Market Value (FMV) of Oil and Gas Assets
    a. FMV Risk Management
    b. Discounting Rates and Factors
5. Exploration Risk Analysis
    a. Uncertainty and Risk
    b. Quantitative Risk Analysis (QRA)
6. Investment Attractiveness of Oil and Gas assets
    a. Management of Oil and Gas Reserves/Resources
7. Rating of Oil and Gas Companies

Description of course methodology

The course will mix conventional lecturing with more interactive techniques, such as class discussions, discussions of cases, student presentations, research papers, etc.

Course materials

Textbook: There will be no base textbook. The course will be predominantly based on papers, provided before and during the course. However, selected materials from:

Oil and Gas Reserve Reports produced by Miller and Lents, Ltd.
SPE Petroleum Reserve Management System (PRMS)
1. SEC Reserve and Resource Classification

will be used during the course.