APPLIES TO ACADEMIC YEAR 2015/2016

GRA 8189 Energy, Innovation and the Environment

Programme
Executive Master of Management in Energy (EMME)

Responsible for the course
Atle Midttun

Department
Department of Innovation and Economic Organisation

Term
According to study plan

ECTS Credits
6

Language of instruction
English

Introduction
This module is part of the Executive Master of Management in Energy in cooperation with BI Norwegian Business School and IFP School.

Learning outcome
The objectives of this course are to give an introductory understanding of innovation and its applications in energy industry. A particular focus is on innovation to meet the environmental challenge and climate change. Against the backdrop of the deregulated energy market, the course gives an overview of models of entrepreneurship and innovation. It presents, learning curve theory and deployment/diffusion dynamics with a focus on the interface between public policy and industrial strategy. The theoretical concepts are illustrated by cases from energy industry.

Acquired knowledge and skills:
Participants will acquire knowledge of innovation and its application in energy industry, with an emphasis on the following:

- Models of innovation in de-regulated energy markets
- Learning curves and deployment /diffusion dynamics
- Corporate innovation; models and techniques and their interface with public policy
- Climate change basics

Reflection:
The participants will acquire a broad understanding of innovation as part of business strategy, and of the options for forging synergies between private business and public interest.

Prerequisites
Bachelor degree or equivalent and work experience. Granted admission to the Executive Master of Management in Energy Management programme.

Compulsory reading
Books:
Chesborough, Henry. 2006. Open Innovation, Researching a New Paradigm. Oxford University Press. Oxford. Ch 1
Christensen, Clayton M. 1997. The innovator's dilemma: when new technologies cause great firms to fail. Boston, Massachusetts, USA: Harvard Business School Press. Introduction and Ch 1-2
Cooper, Robert G. 2008. “The Stage-Gates Idea-to-Launch Process—Update, What’s New, and NexGen Systems”. J Prod Innov Manag. pp. 213-232
Handley, Nick; Shoegren, Jason & White, Ben. 2001. Introduction to Environmental Economics. OUP. Chpt 1 and 2
Hunt, Sally. 2002. Making competition work in electricity. Wiley. chpt 1-4
IEA. latest version. World Energy Outlook 2014. latest version. http://www.worldenergyoutlook.org/
IPCC. 2013. Fifth Assessment report. Introduction & excerpts. http://www.ipcc.ch/
Midttun, Atle and Nils-Otto Ørjasæter in Maarten Arentsen, Wouter van Rossum and Albert Steenge (eds. 2010. “The Firm as a Nexus Of Product Cycles: Organising Intrapreneurship in The Innovative Firm”, in Maarten

Arentsen, Wouter van Rossum and Albert Steenge (eds): Governance of Innovation. Edward Elgar. Cheltenham
Randers, Jørgen. 2012. 2052 A Global Forecaset for the Next Forty Years. Chelsea Green Publishers. summary, p99+30pp; p 40 + 9pp; p 14 +8pp
Weizsäcker, Ernst von. 2009. Factor Five. Earthscan, Sterling USA. pp. 1-19, 267-268, 279-299

Articles:
Cooper, Ross G.. 2008. The Stage-Gates to Idea-to-Launch Process - Update, What's New and NextGen Systems. journal of Product Innovation management

Journals:
Borins, S. 2001. "Public management innovation - Toward a global perspective". American Review of Public Administration. No 31 (1). pp. 5-21
Conner, Kathleen R. & C. K. Prahalad. 1996. “A Resource-based Theory of the Firm-Knowledge Versus Opportunism”. Organization Science. Vol 7, No 5 (Sep-Oct)
Hartley, Jean. 2005. "Innovation in governance and public services: Past and present". Public Money & Management. No 25 (1). pp. 27-34
Hax, A.C.& Majluf. 1984. The Corporate strategic Planning Process. Interfaces, vol 14. Jan-feb 1984
Kondratieff N. D. and W. F. Stolper. 1935. “The Long Waves in Economic Life”. The Review of Economics and Statistics. Vol 17, No 6 (Nov). pp. 105-115
Kuznets, Simon. 1940. “Schumpeter's Business Cycles”. The American Economic Review. Vol 30, No 2, Part 1 (June). pp. 257-271
Midttun, Atle. 2012. “The greening of European electricity industry: A battle of modernities”. Energy Policy. Vol 48 (Sep). pp. 22-35 (14 p)
Perez, Carlota. 2010. “Technological revolutions and techno-economic paradigms”. Cambridge Journal of Economics. Vol 34, Issue 1 (Jan). pp. 185-202
Schleicher-Tappeser, Ruggero. 2012. How renewables will change electricity markets in the next five years. Energy Policy. Vol 48 (Sep). pp. 64-75
Wene, Clas-Otto. 2008. “Energy Technology Learning Through Deployment In Competitive Markets". The Engineering Economist. 53, pp. 340-364

Recommended reading

Articles:
OECD. 2011. Green Growth Studies: Energy. EA-OECD publications, Paris. Executive summary/ Introduction compulsory, the rest is recommended browsing. www.oecd.org/greengrowth.
OECD. 2012. World Energy Outlook. Ch 3, 4, 7 http://ostseis.anl.gov/guide/oilshale/
OECD/IEA. 2011. Deploying Renewables, Markets and Politics. IEA-OECD publications, Paris. Executive summary/ Introduction compulsory, the rest is recommended readings

Course outline

Computer-based tools
It's Learning

Learning process and workload
1 ECTS credit corresponds to a workload of 26-30 hours.

Sessions include lectures, seminars and group work.
Attendance to all sessions in the course is compulsory. If you have to miss part(s) of the course you must ask in advance for leave of absence. More than 20% absence in a course will require retaking the entire course. It's the student's own responsibility to obtain any information provided in class that is not included on the course homepage/ It's learning or other course materials

Examination
The course evaluation will be based on:
- Group assignment with presentation, graded pass/fail
- Individual paper, accounts for 100 % of the final grade

Specific information regarding student evaluation beyond the information given in the course description will be provided in class. This information may be relevant for requirements for term papers or other hand-ins, and/or where class participation can be one of several elements of the overall evaluation

Examination code(s)
GRA 81891 - Group assignment; graded pass/fail

GRA 81892 - Individual paper; accounts for 100% to pass the program GRA 8189, 6 ECTS credits

The course is a part of the Executive Master of Management in Energy (EMME) and all evaluations must be passed to obtain a certificate for the degree.

Examination support materials
Exam aids at examinations are explained under exam information in our web-based Student handbook. Please note use of calculator and dictionary. http://www.bi.edu/studenthandbook/examaids

Re-sit examination
Re-takes are only possible at the next time a course will be held. When course evaluation consists of class participation or continuous assessment, the whole course must be re-evaluated when a student wants to retake a exam. Retake examinations entail an extra examination fee.

Additional information