

ENERGY AND ENVIRONMENT

1.1. Identification

University:	Kungl Tekniska Högskolan (KTH), Stockholm, Sweden											
School:	School of Chemical, Science and Technology											
Course:	Energy and Environment											
ECTS:	6											
Semester:	<i>Winter</i>					<i>Summer</i>				X		
Category	<i>Fundamental course</i>						<i>Specialisation course</i>					X
Module	<i>MFI</i>		<i>MFII</i>		<i>MFIII</i>		<i>MSI</i>	X	<i>MSII</i>		<i>MSIII</i>	
Teachers:	Paulina Bohdanowicz											
Language:	<i>English</i>	X	<i>Italian</i>			<i>Swedish</i>	X	<i>Spanish</i>				

1.2. Learning-outcomes

- knowledge of the global energy situation and the interactions between the human activities in the energy field and the environment.
- knowledge in available management systems and tools as well as technical mitigation methods relevant to the energy field and applicable within the existing legal framework.

1.3. Competencies

▪ General

- to have critical understanding of technical and scientific tools
- to work and manage teams
- communication skills (both written and oral)
- to work in an international context

▪ Specific

- To analyse various technologies used today for power generation and final energy utilization, from the point of view of their impact on the environment and their sustainability in a long-term perspective. A study visit to a relevant power generating facility is arranged.

1.4. Contents

Impacts of large scale energy generation on the environment: acid rain, ozone layer depletion and global climate changes. Global energy situation and possible/probable

future energy scenarios. Mechanisms of pollutant transport in the atmosphere. Environmental management systems and tools: environmental impact assessment, life cycle analysis, material flow analysis. Technical mitigation methods : possible alternative fuels, clean combustion technologies, flue gas cleaning. Energy conservation and efficiency. Legal and economic tools for energy policy.

1.5. Teaching Methodology

- Lecture sessions
- Practical sessions: “cooperative work” for solving problems

1.6. Evaluation

- written exams
- oral evaluation of the problems solved by “cooperative work”
- project assignment

1.7. Bibliography

- Energy decision and the environment: a guide to the use of multicriteria methods. Benjamin F. Hobbs, Peter Meier. Kluwer Academic, 2000
- Energy and the environment. John M.Fowler, McGraw-Hill 1975