

## **Sustainable Energy Transition: Management, Policy and Technology.**

### **Lecturers:**

Dr. Thomas Hoppe, Dr. Joy Clancy, Dr. Maarten Arentsen, Mr. Joop Neinders, M.Sc., Dr. Giles Stacey, Dr. Yoram Krozer and others.

### **Course description:**

#### **- Course objectives**

The objectives of the course are (i) to explain the need for transitional change towards a sustainable energy system at the global, national and local levels; (ii) to introduce the concepts of energy transition, energy management, energy policy at the national, local, and enterprise levels; (iii) to evaluate energy efficiency and renewable energy management and policy approaches and energy technologies suitable for contributing to sustainable energy transition at the national, local and enterprise level; and (iv) to introduce managerial techniques suitable for use at the enterprise level for improving energy efficiency and adoption of renewable energy technologies.

#### **- Subject**

This course covers approaches to foster sustainable energy transition from managerial and policy perspectives with the main focus on implementing sustainable energy technologies and procedures for SME's, SMI's and governmental bodies.

#### **- Content / topics**

The course is divided into four themes: (i) the need for improved energy efficiency and adoption of renewable energy technologies at the global (particularly linked to climate change), national, local and enterprise levels; (ii) policies at the government and enterprise levels for improved energy efficiency and adoption of renewable energy technologies; and (iii) current approaches at the firm level for energy management.

#### **- Course learning objectives**

- To introduce a variety of technologies, managerial and policy approaches, procedures and tools relevant for fostering sustainable energy transition.

### **Course materials:**

First, individual lecturers provide their own material including academic journal articles. Second, two textbooks will be used:

Textbook #1: Clive Beggs, (2009), Energy: Management, Supply and Conservation ISBN 978-0-7506-8670-9

Textbook #2: Verbong, G., and Loorbach, D. (Eds.) (2011). Governing the Energy Transition: Reality, Illusion or Necessity? Routledge. ISBN-10: 0415888425; ISBN-13: 978-0415888424.

### **Instructional working methods:**

The approach used here is a mixture of lectures (UT and guest lecturers), individual and group assignments, discussions and site visits.

### **Assessment:**

One form of assessment is used for this course: a written exam which uses multiple choice questions and short definitional questions. The students have to obtain a minimum of rounded up "6" in both parts to pass the course.

### **Relationships with other courses:**

The course is linked to Environmental and Energy Policy and Strategies in Context as well as Environmental Management and Corporate Social Responsibility. It lays the foundation for those students who will follow the Energy Stream and hence is relevant for the Case Study Period Energy Transition and the Research Project. Furthermore, the course has links with the financial part of the course Management: Operations, organisation and financial Analysis.

### **Relation of course with final attainment targets :**

#### **• Primary relationship**

- Graduates have basic knowledge of and insight in a variety of clean(er) technologies relevant for energy management, and tools that can be used for assessing the options for improving the energy impacts of products and production processes. They are able to make basic calculations for some of these tools and to make judgements about what technological solutions and managerial and policy approaches are appropriate for specific, practical situations.

#### **• Secondary relationship**

- Graduates have knowledge of and insight in the relevant key concepts and theories of policy studies, transition studies and law and can describe and categorise relevant policy strategies, describe the legal basis of these policy strategies used in energy transition and are able to assess their usefulness and feasibility in various contexts.
- Graduates have knowledge of and insight in the relevant key concepts, theories and tools, strategies and management systems for corporate energy management, and government policy. Graduates are able to analyse an existing situation and design solutions for (a specific issue in) energy management.
- Graduates understand the concept of sustainable development, (sustainable) energy transition and the relationships between resource utilization, production processes, societal processes and environmental pressure and are able to apply combinations of concepts and theories in energy management to the situation in the home country or other specific real life situations.
- Graduates are able to integrate knowledge from various disciplines and to understand interrelationships in sustainable development processes, and are capable of formulating an action programme, policy, project or recommendations for environmental or energy management issues in their context based on this integrated knowledge.
- Graduates are able to make a relevant contribution as an individual or as a member of a multi-disciplinary team to analysing and solving complex energy problems in an organisation or region. They are able to function in an international team, with English as the language of communication.
- Graduates are able to reflect on matters and issues in the domain, are able to form an opinion and to contribute to both scientific and practitioners' discussions and e.g. to critically reflect on the role of technology in the process towards sustainable development.
- Graduates have knowledge of the principles of relevant professional skills, like communication, management and consulting skills, and have some basic experiences in applying these.

#### **• Tertiary relationship**

- Graduates are able to give a structured written and oral presentation in English. They also adhere to existing academic traditions, such as providing proper credits and references.

