

<b>Foundations of Energy</b>	
<b>School</b>	Engineering and Physical Sciences
<b>Module Leader</b>	Dr. Wolf-Gerrit Früh
	Dr J.K. Kaldellis
<b>Module Number</b>	B49FJ
<b>Credits</b>	12
<b>Assignments</b>	YES
<b>Exams</b>	YES
<b>Student Effort ours</b>	120
<b>Pre-reading/Other Program-related Activities</b>	12 hours
<b>Formal Lectures/Workshop</b>	30 hours
<b>Discussions/Group Activities/Case Studies/Demonstrations</b>	6 hours
<b>Laboratory work</b>	NO
<b>Independent Study &amp; Coursework</b>	72 hours
<p><b>Objectives</b></p> <p>This is one of the core modules of the MSc in Energy course. The module aims to introduce the students to the concepts of energy, the chain of Energy generation, distribution, and consumption, together with placing energy into the wider context of the environment, economics, and public and private life. As the initial module of the course, it will also allow students to revive their study skills, and it will introduce the students to the facilities available through Heriot-Watt and TEI of Piraeus.</p>	
<p><b>Subjects</b></p> <ul style="list-style-type: none"> <li>• Energy Statistics and economics</li> <li>• Energy Policies</li> <li>• Energy conversion and conservation technologies</li> <li>• Energy Conservation</li> <li>• Energy Efficiency</li> </ul>	
<p><b>Content</b></p> <p>This module aims to give a very broad overview into the range of issues relevant to energy as a commodity. Given the vast range of topics and disciplines this covers, it will not be possible to cover many important aspects however the aim is to equip the reader with enough background information the engage fully with the more detailed modules which follow in the</p>	

course, and to provide enough information and pointers to be able to join the current debate on energy with some confidence. The expected learning objectives are:

- You will gain a broad appreciation of the global and national patterns of energy use.
- You will acquire an overview over current energy resources and the technological extraction, conversion, and transmission.
- Issues of appropriate energy use, energy saving and energy efficiency will be addressed.

The main current activities to formulate and implement global and national policies will be addressed. The impacts of energy use on society and the environment will be introduced. With the insight gained, you will be able to assess critically, and contribute constructively to, the ongoing debates and strategies for a sustainable energy production. While no prior knowledge is absolutely necessary, it is helpful to have (or revise) the basic knowledge of thermodynamics gained in an engineering degree. More specifically, familiarity with the first and second law of thermodynamics and an understanding of standard thermodynamic cycles will be useful.