

## DESCRIPTION OF THE EDUCATIONAL ACTIVITY

Academic year: **2010-2011**

Course title: **Energetic**

Course number:

Type of educational activity: **basic subject**

Subject Group: **ING/IND 11**

Year of study: **1<sup>st</sup> year "Laurea II Livello"**

Semester: **1<sup>st</sup>**

Total number of credits: **9**

Global workload (n. of hours) : **210**

Number of hours allocated to: lectures, tutorials, laboratory, individual study: **68, 22, 0, 120**

Name of lecturer: **Ciro Aprea**

Objectives of the course: **Provide a thorough understanding of issues supply and energy conservation.**

Prerequisites: **Physics, Applied Thermodynamics and Heat transfer**

Course contents: **The Italian energy system in the international context. Fossil fuels. Environmental impact. Nuclear energy. Solar energy. Thermal solar plants. Economic analysis and design of a thermal solar plant. Photovoltaic systems. Design and economic analysis of a photovoltaic plant. Wind energy. Hydropower. Biomasses. Geothermal plants. Cogeneration. Trigeneration. Electric energy market. Energy trading. Energy saving. Energetic analysis of the refrigeration systems. Magnetic Refrigeration: introduction to the newest refrigeration technology.**

Recommended reading:

**Comini G., Cortella G., Croce G., " Energetica Generale", (4a Edizione), pp. 445, Servizi Grafici Editoriali, Padova, 2005, ISBN 88-86281-99-4**

**Dentice D'Accadia M., Sasso M., Sibilio S., Vanoli R., "Applicazioni di Energetica", Ed. Liguori, Napoli**

**Fasano Gaetano, "Certificazione energetica secondo le linee guida nazionale e il DPR 59/09". Ed. Hoepli**

**Lecture notes**

Teaching methods: **lectures**

Assessment methods: **design and economic analysis of an energy conversion system and an oral examination**

Language of instruction: **Italian (during office hours: available in English)**

Additional information: **further information can be requested via e-mail: [aprea@unisa.it](mailto:aprea@unisa.it)**

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