

DESCRIPTION OF THE EDUCATIONAL ACTIVITY

Academic year: **2010-2011**

Course title: **Heating and cooling energy management**

Course number:

Type of educational activity: **basic subject**

Subject Group: **ING/IND 10**

Year of study: **1st year "Laurea II Livello"**

Semester: **1st**

Total number of credits: **6**

Global workload (n. of hours) : **140**

Number of hours allocated to: lectures, tutorials, laboratory, individual study: **44, 16, 0, 80**

Name of lecturer: **Ciro Aprea**

Objectives of the course: **Provide both a thorough understanding of heating and cooling plants and the skills to tackle the issue of energy management aimed at energy saving**

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

Course contents: **Fossil fuels. Nuclear energy. Solar energy. Thermal solar plants. Economic analysis and design of a thermal solar plant. Photovoltaic systems. Geothermal plants. Cogeneration: principles and management. Trigeneration. Energy trading. Energy saving. Technical cooling fundamentals: principles and design. Refrigeration systems: energetic analysis and management.**

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

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**