

## DESCRIPTION OF THE EDUCATIONAL ACTIVITY

Academic year: **2010-2011**

Course title: ***Air conditioning systems***

Course number:

Type of educational activity: ***optional***

Subject Group: ***ING/IND 10***

Year of study: ***3<sup>rd</sup> year "Laurea I Livello"***

Semester: ***2<sup>nd</sup>***

Total number of credits: **6**

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

Number of hours allocated to: lectures, tutorials, laboratory, individual study: **36, 24, 0, 80**

Name of lecturer: ***Ciro Aprea***

Objectives of the course: ***Provide a thorough understanding of the mode of operation of the components of air conditioners and refrigerators and knowledge of the dynamics of operation.***

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

Course contents: ***Recalls of Thermodynamics and Heat Transfer. Technical cooling: refrigerant fluids, compressors for refrigerant plants, heat exchangers, expansion valve and capillary tube, cooling power control. Magnetic Refrigeration: introduction to the newest refrigeration technology. Air conditioning systems: classification, principles, design issues (air treatment unit, air ducts, air diffusers).***

Recommended reading:

***G. Alfano, M. Filippi, E. Sacchi, "Impianti di climatizzazione per l'edilizia" Masson editore***

***Autori vari, "Manuale degli impianti di climatizzazione", Tecniche Nuove***

***W.F. Stoecker, "Refrigeration and Air Conditioning", McGraw-Hill***

***Lecture notes***

Teaching methods: ***lectures***

Assessment methods: ***design and economic analysis of an air conditioning 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)***