

Programme of "GENERAL ENERGY: SYSTEMS AND APPLICATIONS":

- Code: I4M
- compulsory
- 2° year (I4M), 1° semester

Number of ECTS credits: 12 (workload is 300 hours; 1 credit = 25 hours)

Teacher: **Domenica Paoletti**

1	Course objectives	<p>The objective of this course is to provide the basics of General Energy with subsequent applications to real-world projects relating to energy problems.</p> <p>At the end of this course the student should be able to deal with problems of upgrading the energy efficiency, the design of energy systems, energy performance simulation, analysis of economic feasibility, energy policy.</p>
2	Course content and Learning outcomes (Dublin descriptors)	<p>Energy and power, Energy usage and statistics; A historical perspective of energy in the world; Efficiency; Natural gas, petroleum, solid fuel; Solar energy fundamentals; Solar collectors, other solar thermal systems; Photovoltaic systems; Concentrated solar power; Biomass fundamentals; Biomass based fuels and products; Geothermal energy; Geothermal examples; Ground source heat pumps; Nuclear energy, fission and fusion power; Ocean energy, OTEC, wave energy; Energy and buildings, energy efficiency certificate, thermography; Fundamentals of lighting engineering; Cogenerations; Chemical and physical pollution; Global warming</p> <p>For the complete success of this course, the student should know the basics of physics and heat transfer and the main simulation software</p>
3	Prerequisites and learning activities	The student should have attended the courses of Technical Physics
4	Teaching methods and language	<p>Lectures, exercises, home work, report.</p> <p>Language: Italian</p> <p>Ref. Text books</p> <ul style="list-style-type: none"> • ENERGETICA GENERALE, Comini, Croce, Savino V ed. • Dispense del docente. • Rapporti nazionali e internazionali su energia e ambiente. • ENEA, GSE, Siti web.
5	Assessment methods and criteria	Written and oral exam, project, report.