

Master of Science in Nuclear Engineering

AIMS

The Master of Science programme in Nuclear Engineering is based on the long tradition in teaching Nuclear Engineering at the University of Pisa, started in 1960. The study matters cover all the important areas necessary for acquiring high-level competences in the field, including Reactor Physics, Nuclear Reactor Thermal-Hydraulics, Structural Mechanics, Radiation Measurement and Health Effects, Nuclear Reactor Power Plant Technology, Nuclear Materials, Nuclear Reactor Control and Operation, Nuclear Reactor Safety and Reliability.

Containing the basic matters required for a sound education in Nuclear Engineering, the MSc programme already granted to many of its past-students the possibility to obtain the certification of European Master of Science in Nuclear Engineering (EMSNE). This is the certification released by the European Nuclear Education Network (ENEN) to Nuclear Engineers with a good background, who also fulfilled minimum requirements of mobility for courses or thesis work at European organisations belonging to the Association (www.enen-assoc.org).

COURSE DESCRIPTION AND CAREER PROSPECT

A ME-student has to choose one of the three specializations in Economics and Finance, Nanosystems and Materials and Structures. The ME-course aims at delivering experts with both an advanced knowledge of mathematical physics and direct experience with concrete applications. This makes them particularly suited to and well prepared for a future career in their specific field of specialization.

The ME-course is characterized by the "forma mentis" on which it is based: the student does not only learn to appreciate the principles and basic methods of Mathematics, Physics, Economics, Computer Science etc; he also develops the typical sensibility of an engineer, which is of crucial importance when he needs to apply general methods to overcome the specific difficulties of a concrete problem, the accuracy of the desired solution - without neglecting technological aspects - and sustainable investment of time and money.

COURSE CONTACTS

Program Director

Prof. Walter Ambrosini

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WEB SITE: <http://younuclear.ing.unipi.it/>

ENTRY REQUIREMENTS

In order to get a free evaluation of the suitability of your curriculum for enrolment, send ASAP a pre-application to younuclear@ing.unipi.it including:

- your CV with full data;
- a letter of motivation and letter(s) of recommendations;
- copies of the certifications of your degree(s);
- lists of passed courses with marks and credits or course hours;
- a syllabus with full descriptions of course content.

AFTER THE EVALUATION YOU WILL RECEIVE DIRECTIONS
FOR FORMAL ENROLMENT

STUDY PLAN

FIRST YEAR	ECTS
1st Semester	
Nuclear Plants I	6
Reactor physics and numerical models for nuclear reactors, 1st module: Reactor physics	6
Structural mechanics and nuclear constructions, 1st part	6
Nuclear materials	6
Thermal-hydraulics and core engineering, 1st part: Core engineering	6
	30
2nd Semester	
Reactor physics and numerical models for nuclear reactors, 2nd part: Numerical models	6
Structural mechanics and nuclear constructions, 2nd part	6
Thermal-hydraulics and Core Engineering, 2nd part: Thermal-hydraulics	6
Nuclear Measurements	6

Elective Course	6
	30
SECOND YEAR	ECTS
3rd Semester	
Nuclear Plants II	6
Control and operation of nuclear plants, 1st part: Control of complex plants	6
Nuclear safety, 1st part: Nuclear power plant safety	6
4th Semester	
Control and operation of nuclear plants, 2nd part: Dynamics and control of electro-nuclear plants	6
Nuclear Safety 2nd part: Nuclear reactor accident analysis	6
Elective Course	6
Thesis work	24
	60
Group 1 Elective	ECTS
Medical applications of nuclear technologies	6
Physical Principles for Nuclear Plants	6
Group 2 Free choice	ECTS
Radiation Protection	6
Fusion reactor engineering	6
Design of complex plants	6
Computing abilities	6