

PROGRAMME INFORMATION



MASTER'S DEGREE IN COMPUTATIONAL NEUTRONICS

CÓDIGO 280901

UNED

ETS de
Ingenieros
Industriales

**MASTER'S DEGREE IN COMPUTATIONAL
NEUTRONICS**

CÓDIGO 280901

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University Master's Degree in Computational Neutronics

INFORMATION IDENTIFYING THE QUALIFICATION

Name and status of awarding institution

Universidad Nacional de Educación a Distancia.

Public university.

Name of qualification and title conferred in original language

Máster Universitario en Neutrónica Computacional/Master's Degree in Computational Neutronics por la Universidad Nacional de Educación a Distancia.

Status

National validity.

Main field(s) of study for the qualification

The study is included in the field of Industrial engineering, mechanical engineering, automatic engineering, industrial organisation engineering, and navigation engineering..

Language(s) of instruction/examination

The degree is taught in English.

INFORMATION ON THE LEVEL OF THE QUALIFICATION

Level of qualification

Level 3 (Master) in the Spanish Framework of Higher Education (MECES) is equivalent to level 7 of European Qualifications Framework (EQF).

Official length of programme

The official length of programme is 60 ECTS and 1 year full time

Access requirements

Given the nature of the University Master's Degree in Computational Neutronics, applicants must hold one of the following qualifications: a Bachelor's Degree in Industrial Engineering, Energy Engineering, or Nuclear Engineering, as well as the former five- or six-year Industrial Engineering degree from study plans prior to the European Higher Education Area; or a Bachelor's Degree or former Licenciatura in Physics.

In addition to the direct-access degrees listed above, applicants holding university degrees in Science or Engineering may also be admitted, provided that they demonstrate sufficient prior training consistent with the objectives of the Master's Degree. The Master's Coordination Committee will verify compliance with this competency profile on the basis of the applicant's academic transcript, course syllabi or teaching guides, the Bachelor's Thesis or equivalent work, documented academic or professional experience, and any other relevant documentation. Since the Master's Degree will be taught entirely in English, students must provide evidence of English-language proficiency equivalent to level B2 of the Common European Framework of Reference for Languages.

INFORMATION ON THE CONTENTS

Mode of study

Full time distance learning.

Programme requirements

The programme of studies is composed of 42 compulsory and 18 Master's Dissertation ECTS.

Subjects

- Basics of radiation transport
- Data analysis for computational neutronics
- Monte Carlo method for radiation transport
- Temporal evolution of the isotopic inventory
- Modeling for radiation transport simulations /
- Advanced nuclear analysis
- Neutronics for nuclear fusion facilities
- Final Master Thesis

Grading scheme

In the Spanish university system, modules/courses are graded on a scale of 0 to 10 points with the following qualitative equivalence:

0-4.9: "suspenso"; 5-6.9: "aprobado"; 7-8.9: "notable"; 9-10: "sobresaliente". A special mention, "Matrícula de Honor" may be granted to up to 5% of the students in a group provided they have got a "sobresaliente". To pass a module/course it is necessary to get at least 5 points.

In cases of recognition of ECTS, professional experience, cultural or sports activities, or student representation no grading will be recorded but, where appropriate, the word "Apto".

INFORMATION ON THE FUNCTION OF THE QUALIFICATION

[Access to further study](#)

This qualification gives access to Doctoral studies, provided that the student has completed a minimum of 300 ECTS in the overall teachings of Bachelor and Master.

[Stated objectives associated with the qualification and professional status \(if applicable\)](#)

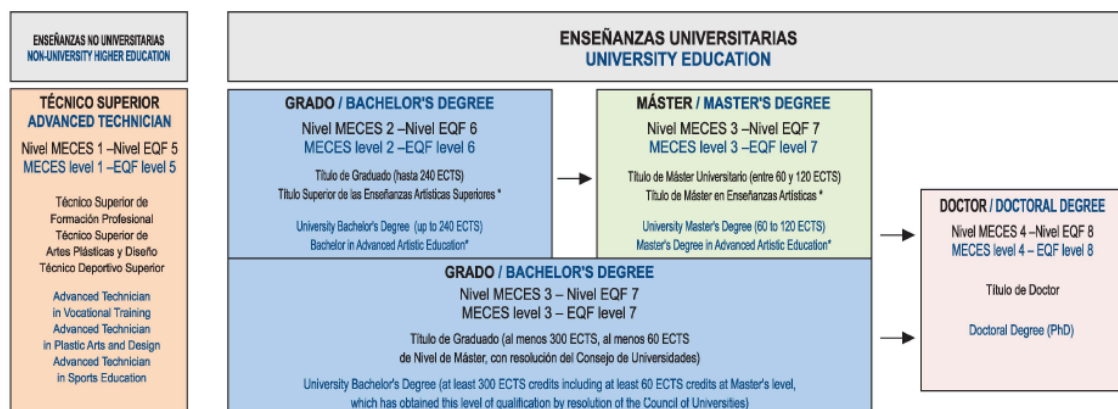
The University Master's Degree in Computational Neutronics aims to train specialists capable of understanding, applying, and integrating advanced methodologies in radiation transport, isotopic activation, computational modeling, and nuclear analysis. The degree provides training in Monte Carlo simulation, nuclear data processing, scientific programming, and results assessment. Its purpose is to enable students to solve complex technical problems in nuclear, radioactive, fusion, and accelerator facilities. It also develops the ability to communicate results, assumptions, limitations, and conclusions clearly and rigorously in English.

Students will acquire knowledge of radiation transport, activation, transmutation, and nuclear and radioactive facilities. They will develop skills in using technical databases, programming, data analysis, neutronic modeling, and simulation tools. They will also be able to assess results, integrate calculation methodologies, and propose solutions to real computational neutronics problems.

ADDITIONAL INFORMATION

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INFORMATION ON THE NATIONAL HIGHER EDUCATION SYSTEM



* Las enseñanzas Artísticas Superiores son Enseñanzas no Universitarias dentro del Sistema Educativo español de Enseñanza Superior

* Advanced Artistic Education is non-university education within the Spanish Higher Education System