PROGRAMME INFORMATION

UNIVERSITY MASTER'S DEGREE IN PHYSISC OF COMPLEX SYSTEMS

CÓDIGO 215601

UNED Facultad de Ciencias

UNIVERSITY MASTER'S DEGREE
IN PHYSISC OF COMPLEX SYSTEMS

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University Master´s Degree in Physics of Complex Systems

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 Física de Sistemas Complejos por la Universidad Nacional de Educación a Distancia.

Status

National validity.

Approved by Accord of the Council of Ministers on January 22nd, 2010.

Main field(s) of study for the qualification

The study is included in the field of Sciences.

Language(s) of instruction/examination

The degree is taught in Spanish.

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 Qualification Framework (EQF).

Official length of programme

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

Access requirements

Bachelor's Degree in Physics, Chemistry, Mathematics or related areas; or Superior Engineering.

INFORMATION ON THE CONTENTS

Mode of study

Blended learning full time.

Programme requirements

The programme of studies is composed of 18 compulsory ECTS, 30 elective ECTS and 12 Master's Dissertation ECTS.

Subjects

- Introduction to Nonlinear Science
- Electronics
- Advanced Numerical Methods
- Physics of Continuous Media: General Formalism and Applications
- Instabilities and Turbulence
- Structure and Properties of Complex Fluids
- Statistical Mechanics of Complex Fluids
- Transport Phenomena: Simulation Techniques in Fluids
- Fluctuations In Dynamical Systems
- Advanced Statistical Mechanics
- Neural Networks and Complex Networks
- Modelization and Simulation of Complex Systems
- Microscopic Processes in Condensed Matter
- Density Functional Theory: Electronic Systems
- Final Project of The Master in Physics of Complex Systems
- Compressible Fluid Dynamics
- Sociophysics and Social Networks

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 appropiate, 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.

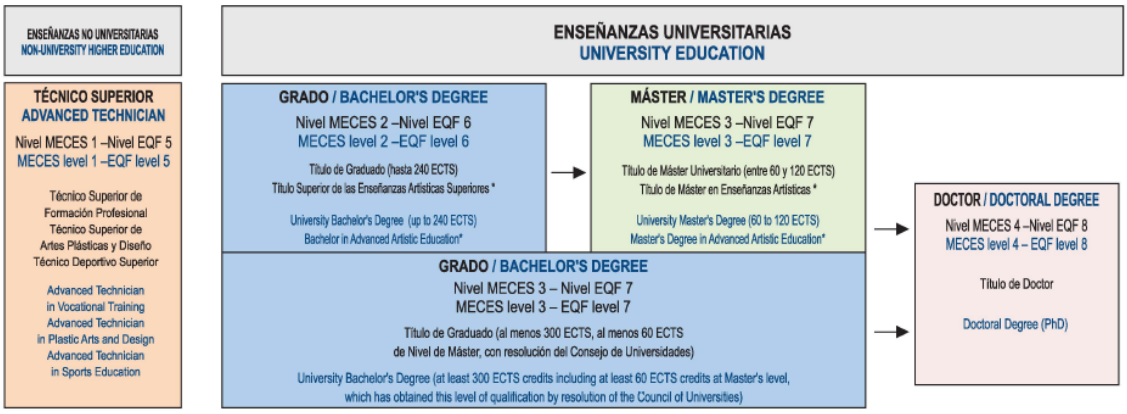
Stated objectives associated with the qualification and professional status (if applicable)

This Master provides a solid post graduate foundation in the field of Physics of Complex Systems focusing on two topics: systems with a complex temporal and spatio-temporal dynamics, and systems with emergent properties. The qualification will allow proposing and solving mathematical models of complex physical systems using (stochastic and partial) differential equations. The skills acquired also enable to relate the macroscopic properties of a system with the interactions and geometry of its microscopic elements. Finally, the Master's degree develops the capacity to analyze and solve new problems in physical or interdisciplinary systems.
The main learning outcomes and abilities acquired by the students will provide them with specific skills in order to be able to apply different types of description (microscopic, mesoscopic and macroscopic) in the study of various physical phenomena. It will also provide the students with the knowledge of the methodologies and techniques, both analytical and computational, necessary for their activity either in public research or in private institutions.

ADDITIONAL INFORMATION

https://www.uned.es/universidad/inicio.html

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*