Máster en Materiales Nanoestructurados para Aplicaciones Nanotecnológicas
66118 - Final master project

Course 2015 - 2016

Curso: 1, Semestre: 0, Créditos: 14.0

Basic information

Teachers

No available data.

Recommendations to attend this course

The "*End of Master's Project*" module is obligatory and counts for 14 ECTS credits or 350 student work hours. Both the written report for the project and its defence before three examiners to be done in English, therefore students must have an upper-intermediate level in the language.

Students face an end of Master's project whose topic may be selected from among a varied offer on topics of relevance to the current scientific and technological scene. The work is very significantly specialised, so the topic must be in line with the qualification and prior knowledge of the student. The choice of project for each student requires approval from the coordinator of the Master's, thus ensuring that the student's prior training allows the possibility of covering the topic successfully.

The defence of the end of Master's project can only take place once the student has passed all modules in the Master's.

Exaples of projects offered for the 2014-15 course can be found at www.unizar.es/nanomat. Also a dditional information about this master (grants, events, etc.) can be found on the web site: www.unizar.es/nanomat

Course Schedule and Deadlines

Students may begin their end of Master's project (whether this means the bibliographical search and review or the laboratory work) as soon as the tutor feels the student is ready to do so.

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Learning outcomes that define this course

The student, in order to pass the course, will have to show her/his competence in the

following skills:

1:
Are able to develop an experimental project with significant levels of independence and originality.

2:
Know how to apply the theoretical knowledge to the interpretation and review of the experimental results

3:
Have skill at oral and written communication, circulating the results and interaction with colleagues and professionals from other disciplines.

Introduction

Brief presentation of the course

The students develop an end of Master's project with all the necessary ingredients to create a quality written report that includes: a review of the state of the art, approach to the problem under study, design and execution of the experimental section, interpretation of the results obtained, conclusions and application of the results.

Competences

General aims of the course

The expected results of the course respond to the following general aims

The end of Master's project allows students to gain a very high level of specialisation in the topic area chosen and, generally speaking, acquire fundamental abilities for when they join the job market or do their doctoral theses or research contracts. This refers to their ability to self-teach; to face different and unknown problems, intelligently applying a method and protocols that allow for them to be solved; interaction with other researchers to increase their ability to work in a team; develop leadership skills; take decisions, increase their ability to communicate their ideas and results via the creation of projects, reports, articles, posters, etc.

Context/Importance of the course for the master degree

This module is the culmination of the practical application of the other modules in the course to a real problem where the student - always under supervision of a tutor - faces daily work in a laboratory, living up close the experiences, difficulties, challenges of the work and where to apply a method or series of protocols allowing for the proposed objectives to be achieved. To achieve the above, the student will make use of the theoretical knowledge, attitudes, aptitudes and skills acquired over the six core modules of the course and the two optional modules.

After completing the course, the student will be competent in the following skills:

1:
Assess the true difficulties that come with the practical pursuit of an idea or concept

2:
Face unexpected problems with the right methods

3:
Apply theoretical knowledge to the interpretation and review of experimental results

4:
Abilities for independent study and self-teaching required to undertake the research or professional activity in the near future

5:
Skill at oral and written communication, circulating the results and interaction with colleagues and

professionals from other disciplines

6:
General abilities for good professional practice

Relevance of the skills acquired in the course

Through this highly specialised module, the students will be able to apply their knowledge of the topic to be developed into a project, gaining abilities that will be of service in their immediate professional future.

Evaluation

Assessment tasks

The student will prove that he/she has achieved the expected learning results by means of the following assessment tasks:

1:
The student will present a written report with a maximum of 30 pages (Times New Roman 12, spacing 1.5), with the possibility of including limitless appendices with figures, tables, etc. that brings together the project undertaken and this will be defended publicly before three lecturers from the Master's. The defence will include not only the presentation of the starting hypothesis, development of the project and the conclusions, but also an intense debate with the tribunal on the validity and reach of the results obtained - in which all relevant scientific aspects of the project undertaken will be discussed. The viva will last a maximum of 20 minutes, followed by the debate lasting a maximum of 20 minutes. A score of between 1 and 10 will be given for the scientific quality of the writte-up (50%), oral presentation (30%), and defence (20%), which will take into account the tutors report about the student's work.

Activities and resources

Course methodology

The learning process that has been designed for this course is based on the following activities:

The project will be directed by doctors with a large experience in the tutoring of doctoral theses and research projects. The students will have access to the next gen laboratories at the Aragonese Institute of Nanoscience and their equipment, as well as other tools and infrastructures available at UZ and the Aragonese Science of Materials Institute - for which responsibility lies with the end of Master's project tutors or the research group which the student joins. There will also be free access to the UZ library which has powerful databases, specialised books and subscriptions to numerous scientific magazines.

Outline of the Programme

The programme offered to the students to help them achieve the learning results includes the following activities :

1:
Highly personalised tutoring. Favouring an increase in the student's autonomous work: encourage students to give their own ideas and to participate in all stages of the project (planning, undertaking experiments, interpretation of results and circulation). Frequent open discussions with the tutor and other colleagues in the

research group which the student has joined.

Course planning

Calendar of actual sessions and presentation of works

The presentation of the end of Master's project requires the eight modules in the Master's to have been successfully passed. The project presentation calendar is set by the Faculty of Sciences and will be published in its web site.

Bibliographic references of the recommended readings