

## 66118 - Master's Dissertation

### Syllabus Information

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**Academic Year:** 2020/21

**Subject:** 66118 - Master's Dissertation

**Faculty / School:** 100 - Facultad de Ciencias

**Degree:** 539 - Master's in Nanostructured Materials for Nanotechnology Applications

**ECTS:** 14.0

**Year:** 1

**Semester:** Annual

**Subject Type:** ---

**Module:** ---

## 1.General information

### 1.1.Aims of the course

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.

The students develop the Final 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.

### 1.2.Context and importance of this course in the 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.

### 1.3.Recommendations to take this course

The *Final Master's Project* course 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 are in English. Therefore, students have to demonstrate an upper-intermediate level in the language.

Students select the Master's project topic from 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 the student requires approval from the supervisor of the Final Master Project; 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 courses in the Master's.

Examples of Final Master Projects offered in previous editions and additional information about grants can be found at <http://ina.unizar.es/academic/master/final-master-projects/>

## 2.Learning goals

### 2.1.Competences

- Assess the true difficulties that come with the practical pursuit of an idea or concept.
- Face unexpected problems with the right methods.
- Apply theoretical knowledge to the interpretation and review of experimental results.
- Abilities for independent study and self-teaching required to undertake the research or professional activity in the near future.

- Skills at oral and written communication, circulating the results and interaction with colleagues and professionals from other disciplines.
- General abilities for good professional practice.

## 2.2.Learning goals

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

- to develop an experimental project with significant levels of independence and originality
- to know how to apply the theoretical knowledge to the interpretation and review of the experimental results
- to interact with colleagues and professionals from other disciplines
- to communicate and disseminate (oral and written) scientific results

## 2.3.Importance of learning goals

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.

## 3.Assessment (1st and 2nd call)

### 3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

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 out 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 write-up (50%), oral presentation (30%), and defence (20%), which will take into account the tutors report about the student's work.

## 4.Methodology, learning tasks, syllabus and resources

### 4.1.Methodological overview

The project will be directed by doctors with a large experience in the supervision of doctoral theses and research projects. The students will have access to the next-gen laboratories of the departments and research institutes of the University of Zaragoza. There will also be free access to the UZ library which has powerful databases, specialised books and subscriptions to numerous scientific journals.

### 4.2.Learning tasks

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

Highly personalised tutoring which: i) favours an increase in the student's autonomous work, ii) encourages 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 tutors and other colleagues working in the research groups that the student has joined will also be encouraged.

### 4.3.Syllabus

### 4.4.Course planning and calendar

Students will defend their Master's Dissertation if they have successfully passed 36 ECTS (compulsory courses) and 10 ECTS (optional courses). The defense date is set by the Faculty of Sciences and will be published in its website.

Students commonly start their Final Master's Project once the CGCM (Comisión de Garantía de Calidad del Master) has approved the Project Assignments (by November at the latest). Please refer to <https://ciencias.unizar.es/master-en-materiales-nanoestructurados-para-aplicaciones-nanotecnologicas-2014-15> for a more detailed description of the procedures and dates related to Final Master Project.

### 4.5.Bibliography and recommended resources