

Academic Year/course: 2021/22

66115 - Multidisciplinary Joint Educational Project

Syllabus Information

Academic Year: 2021/22

Subject: 66115 - Multidisciplinary Joint Educational Project

Faculty / School: 100 - Facultad de Ciencias

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

ECTS: 5.0

Year: 1

Semester: Second semester

Subject Type: Optional

Module:

1. General information

1.1. Aims of the course

This course allows students to gain a significant level of specialisation in the topic area chosen and become even more aware that Nanoscience and Nanotechnology are interdisciplinary disciplines that require the collaboration of chemists, physicists, engineers, biochemists, phylogologists, economists, publicists, marketing managers... to cover the full value-chain. In addition, the students will gain experience in their ability to self-teach; to face different and unknown problems; interaction with other researchers to increase their ability to work in a team; take decisions; increase their ability to communicate their ideas and results via the creation of a scientific report, etc.

These approaches and objectives are aligned with the following Sustainable Development Goals (SDG) of the Agenda 2030 of the United Nations (<https://www.un.org/sustainabledevelopment/es/>), in such a way that the acquisition of learning outcomes of the subject provides training and competence to contribute to some extent to the achievement of O9. Industry, innovation and infrastructures. More specifically, they will create action to enhance research, foster innovation and upgrade industrial technologies.

1.2. Context and importance of this course in the degree

This course represents a practical application of the Master's syllabus to a real problem where the student - always under supervision of at least two tutors - faces the task of writing a report about the topics provided by the Master's lecturers. The student will make use of the theoretical knowledge, attitudes, aptitudes and skills acquired over the core courses of the Master programme.

1.3. Recommendations to take this course

The course 'Multidisciplinary Joint Educational Project' is an optional module equivalent to 5 ECTS credits or 125 student work hours.

The objective of this module is to introduce the student in a multidisciplinary research team, composed by researchers of at least two different disciplines.

As the whole course is taught in English, students need to have an upper-intermediate level in the language: minimum level B1 in the European Common Framework Language Reference, but preferably level B2. Level B1 is reached when the student is able to understand the main points of clear, standard-language texts when covering known matters - whether in terms of work, study or leisure; when able to cope in most situations which the student encounters during a trip to places where the language is spoken; when able to write simple, coherent texts on familiar topics or those in which the student has an interest; and when able to describe experiences, happenings, wishes and ambitions as well as briefly justify opinions or explain plans. B2 is achieved when the student is able to understand the main ideas of complex texts that deal with both specific and abstract topics, even if these are technical - though within the field of specialisation; when able to communicate with native speakers with the degree of fluency and ease such that the communication takes place without effort on either side; and when able to write clear, detailed texts on diverse subjects as well as defend a point of view on general topics - giving the pros and cons of the different options.

Additional information about examples of proposed Multidisciplinary Joint Educational Projects for the year 2019-20 can be found on the web site <http://ina.unizar.es/academic/master/>

2. Learning goals

2.1. Competences

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

- Assess the true difficulties that come with the practical pursuit of an idea or concept.
- Perform independent study and self-teaching that are required to undertake the research or professional activity in the near future.
- Summarize the state of the art and technique on a certain topic and find the hot points of this topic proposing new ideas or concepts to achieve progress beyond the state of the art.
- Oral and written communication, circulating the results and interaction with colleagues and professionals from other disciplines.

2.2. Learning goals

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

- Understand and resume the state of the art or technique in a multidisciplinary research line.
- Search for the hot topics and the crucial issues in the project and propose new ideas.
- Develop an original multidisciplinary project with significant levels of independence
- Oral and written communication capabilities, circulating the ideas, results and interaction with colleagues, supervisors, and professionals from other disciplines.

2.3. Importance of learning goals

Through this highly specialised module, the students will be able to apply their knowledge of the topic to propose new ideas and projects, 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 15 pages excluding cover page and index (Times New Roman 12, spacing 1.5) that brings together the multidisciplinary project undertaken. This report should have the previous approval from both supervisors. The report will be assessed by a committee of three members (score between 1 and 10). In addition to the written report, a public presentation of the work will be made in front of a board of three examiners. The presentation will last a maximum of 15 minutes and will be followed by a debate. The final mark will take into account the supervisors' report, the quality of the written report (70% of the final mark) and its oral presentation and defence (30% of the final mark).

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The project will be proposed and supervised by two doctors with a large experience in the supervision of doctoral theses and scientific projects in different fields dealing with nanoscience and nanotechnology, science education, communication, marketing, business administration... It is mandatory that the two supervisors belong to two different areas of knowledge.

The students will have free access to the UZ library which has powerful databases, specialized books and subscriptions to numerous scientific magazines. In addition, the students will have access to the INMA laboratories, as well as other singular facilities and infrastructures available at UZ.

4.2. Learning tasks

This is a 5 ECTS course that offer to the students highly personalised guidance which favours an increase in the student's autonomous work and encourages students to propose their own ideas and to participate in all stages of the multidisciplinary project. Frequent open discussions with the supervisors and other colleagues working in the research groups that the students join will also be helpful.

- **Tutorials** will allow students to solve questions, discuss unclear ideas or doubts related to the academic project. It is advisable to come with clear and specific questions to tutorials.
- **Autonomous work.** Students are expected to devote about 125 hours to this course.

Note: The learning and evaluation activities will be carried out in person unless, due to COVID-19, the provisions issued by the competent authorities and by the University of Zaragoza oblige to carry out virtually.

4.4. Course planning and calendar

This course will take place in the second term. Preferably, tutorials will be in the mornings to avoid interference with the master lectures.

Further information concerning the Multidisciplinary Joint Educational Projects offered for the year 2021-22 will be provided on the welcome session by the coordinator of the Master.

Additional information about examples of proposed Multidisciplinary Joint Educational Projects for the year 2020-21 can be found on the web site

<https://inma.unizar-csic.es/formacion/estudiantes-master/estudios-master-unizar/nanociencia-materiales/>