



Máster en Erasmus Mundus en Ingeniería de Membranas 69134 - Individual project (bibliographic and experimental study)

Guía docente para el curso 2014 - 2015

Curso: 2, Semestre: 1, Créditos: 6.0

Información básica

Profesores

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Recomendaciones para cursar esta asignatura

Actividades y fechas clave de la asignatura

Key dates

- 1-9 October: Students will select the individual project.
 - 15 October -17 January: Period for developing the project
 - 23 January: Deadline for written report for evaluation
 - 28-1 February: Oral presentations
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Inicio

Resultados de aprendizaje que definen la asignatura

El estudiante, para superar esta asignatura, deberá demostrar los siguientes resultados...

- 1:** The student should be able...

2: To make a bibliographic search and to select the information.

3:
To develop a scientific methodology

4:
Self-organization of the experimental work

5:
To interpretate of characterization techniques

6:
To communicate and present scientific results

Introducción

Breve presentación de la asignatura

The students will prepare an individual Project that could be chosen among the different research lines in the Institute of Nanoscience of Aragon, relevant to the actual scene in science and technology.

The selection of the individual project, that will be tutored, should consider the previous background of the student.

The individual projects presented last year were the following:

- High speed water sterilization by using cellulose membranes grafted with metallic nanoparticles
- Palladium membranes for hydrogen removal in a two zone fluidized bed reactor for the dehydrogenation of propane.
- Large Pore Zeolites as Ionic Liquid Reservoirs in Polybenzimidazole membranes for High Temperature PEM Applications
- Development of strategies for zeolite seeding and growing zeolite membranes in silicon substrates.
- Mixed matrix membranes (MOFs based) for separation applications

Contexto y competencias

Sentido, contexto, relevancia y objetivos generales de la asignatura

La asignatura y sus resultados previstos responden a los siguientes planteamientos y objetivos:

The goal of the subject is to introduce the student in the development of a research project. The different steps to develop a research project will be study in this subject. Considering the 6ECTS credits of this subject, it means that the student will be in the laboratory for a period of 12 weeks an average of 10 hours per week in the lab.

The assignment given should be as much concise and clear as possible. With these perspective the student will see the evolution of a guided project, and would help him/her for the development of future projects.

Contexto y sentido de la asignatura en la titulación

This subject is presented in the third semester of the master, and it is the prelude of the Final Master Project. Furthermore since the subject includes experimental work the students should be able to develop the scientific knowledge already acquired in the previous subjects of the Master.

Al superar la asignatura, el estudiante será más competente para...

- 1: To evaluate the real difficulties which arise from the idea or concept to the practice.
- 2:
To face up to unexpected new problems with the appropriate methodology
- 3:
To apply the theoretical acquired knowledge to interpretation and discussion of results.

Importancia de los resultados de aprendizaje que se obtienen en la asignatura:

The learning outcomes are highly relevant for the student, and would help him/her to develop Final Master Project. Furthermore the development of an experimental methodology would help the student in the future in his/her professional career in the decision making process. The analysis of results and discussion would increase his/her ability to communicate with others.

Evaluación

Actividades de evaluación

El estudiante deberá demostrar que ha alcanzado los resultados de aprendizaje previstos mediante las siguientes actividades de evaluación

- 1: The **evaluation** will be through a written project and oral presentation at the end of the assignment.
 - 2: The written project (Maximum 20 pages including graphs and tables, Times New Roman 12, space 1.5) should contain the following sections: Introduction, Experimental Section, Results and discussion, Conclusions and Bibliography.
 - 3: The oral presentation should be either in English or Spanish in case the students select this language for evaluation of language skills in the Master. Oral presentation would last 15 minutes plus 10 minutes questions that should be evaluated by the supervisor and another teacher of this subject.
 - 4: During the assignment the student will be **tutorized**. The student would have meetings for discussion once every one or at least two weeks, where he/she will present the results and future work will be planned.
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Actividades y recursos

Presentación metodológica general

El proceso de aprendizaje que se ha diseñado para esta asignatura se basa en lo siguiente:

The learning process is based on a guided self-learning process. This subject is tutorized by supervisor who maintains regular meetings with student, at least every two weeks. In these meetings the student will present his/her results and the supervisor will teach on how to improve presentation and how to make interpretation of the results through discussions.

Actividades de aprendizaje programadas (Se incluye programa)

El programa que se ofrece al estudiante para ayudarle a lograr los resultados previstos comprende las siguientes actividades...

- 1:**
- Personal study
 - Laboratory experiments
 - Preparation of the written document and oral presentation
 - Tutoring by regular meetings every two week with supervisor

Planificación y calendario

Calendario de sesiones presenciales y presentación de trabajos

- 1-9 October: Students will select the individual project.
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Referencias bibliográficas de la bibliografía recomendada