Universidad Zaragoza

Year : 2019/20

29737 - Fluid Facility Design

Syllabus Information

Academic Year: 2019/20
Subject: 29737 - Fluid Facility Design
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
Degree: 434 - Bachelor's Degree in Mechanical Engineering
ECTS: 6.0
Year: 4
Semester: Second semester
Subject Type: Optional
Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

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

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The teaching and learning activities of this course are organised in several levels: lectures, case studies and assignments. The student gets progressively more involved as the course progresses.

During the lectures, the theoretical foundations of the course are presented and some sample problems are solved in detail.

The case-study classes are the perfect supplement for the lectures because they allow the students to fully understand the subject. At the same time, the case studies develop an engineering way of thinking. These classes are organised in smaller groups where the student solves the suggested cases.

The assignments are small scale projects, more complex than the case studies. They are solved in groups outside the class.

4.2.Learning tasks

The course includes the following learning tasks:

? Lectures (30 h): the theory will be explained here.

? Tutorials (20 h): in these sessions, the students will solve some case studies under the supervision of the lecturer. The cases will be closely related to the theory reviewed in the lectures.

? Lab exercises (10 h): the student will see either lab or computer demonstrations of the topics studied in the lectures.

? Assignments (30 h outside the class): There will be several small projects to be addressed by the students in groups.

? Individual study time (57 h outside the class): it is advisable the student carries out this study along with the term.

? Exam (3 h).

4.3.Syllabus

The course will address the following topics:

1. Multiphase flow. Transport and separation of particles.
2. Flow, temperature, pressure and level instrumentation.
3. Piping engineering. Materials. Fittings. MTO. Codes.
4. 2D and 3D drawing.
5. Piping design.
6. Pipe stress and flexibility analysis.
7. Inspections. Tests. Installation and Commissioning.

4.4.Course planning and calendar

The timetable for lectures and tutorials will be prepared by the School.
The following table shows the tentative distribution of workload among the different teaching and learning activities.

Module	**Lectures**	**Cases**	**Supervised exercises**	**Clinical tutorials**	**Personal work**
Multiphase flow. Transport and separation of particles	5	2			10
Flow, temperature, pressure and level instrumentation	5	2			10
Piping engineering. Materials. Fittings. MTO. Codes.2D and 3D drawing	7	5	8	2	10
Piping design.	6	5	6	2	10
Pipe stress and flexibility analysis.	6	4	10	2	15
Inspections. Tests. Installation and Commissioning.	1	2			5
TOTAL	30	20	24	6	60

4.5.Bibliography and recommended resources