1. BASIC DATA

Subject	Fluid mechanics
Qualification	Degree in Industrial Systems Engineering
School/Faculty	School of Architecture, Engineering, Science and Computer Science
Course	Second
ECTS	6
Character	Mandatory
Language(s)	Spanish
Modality	On-site
Semester	S2
Academic year	25-26
Coordinating teacher	Arisbel Cerpa

2. PRESENTATION

It is a second year course and belongs to the subject "Thermofluidomechanical Engineering". Students must have previous knowledge of mathematics, physics and chemistry. The course provides students with the necessary knowledge of Fluid Mechanics and links it with Heat Transfer Phenomena, Thermodynamics, Thermal Machines and Internal Combustion Engines, which are necessary for their future profession.

The objective of the course within the study plan is to provide students with all the theoretical concepts and laws governing Fluid Mechanics, as well as the resolution of practical problems that students will encounter in their future professional life.

3. LEARNING OUTCOMES

Skills

HAB2: Knowledge of the basic principles of fluid mechanics and their application to solving engineering problems. Calculation of pipes, channels and fluid systems.

Subject-specific skills

- Analyze the characteristics of fluid motion.
- Calculate the hydrodynamic resistance
- Calculate the existence of the boundary layer
- Analyze systems with fluids at rest
- Dimensioning fluid pipelines

Competencies

CP14: Integrate analysis with critical thinking in a process of evaluating different professional ideas or possibilities and their potential for error, based on objective evidence and data that leads to effective and valid decision making.

4. CONTENTS

- Basic principles of fluid mechanics.
- Incompressible fluids. Applications
- Fluid statics: incompressible fluids with steady flow
- Pipelines
- Hydrodynamic resistance. Boundary layer
- Non-stationary flow

5. TEACHING-LEARNING METHODOLOGIES

The following are the types of teaching-learning methodologies to be applied:

- Master Class
- Problem-based learning
- Learning based on workshop/laboratory teachings
- Simulation environments

6. TRAINING ACTIVITIES

The types of training activities to be carried out and the student's dedication in hours to each of them are identified below:

Presential modality:

Training activity	Number of hours
Master Classes	10
Practical application seminars	20
Troubleshooting	34
Preparation of reports and writings	6
Activities in workshops and/or laboratories	10
Self-employment	60
Debates and colloquiums	5
On-site evaluation tests	5
TOTAL	**150**

7. EVALUATION

The following is a list of the evaluation systems, as well as their weight in the total grade of the course:

Presential modality:

Evaluation system	Weight min.	Max. weight

On-site evaluation tests	50	60
Reports and writings	0	10
Case/problem	15	40
Performance evaluation	5	5
Laboratory/workshop practice notebook	5	10

In the Virtual Campus, when you access the course, you will be able to consult in detail the evaluation activities to be performed, as well as the due dates and evaluation procedures for each of them.

8. CHRONOGRAM

In this section you will find the chronogram with dates for the delivery of evaluable activities of the course:

Evaluable activities	Date
Performance of a written test Partial Examination	Completion of unit 2
Autonomous exercises. Tasks	At the end of unit 1 and 2
Laboratory Practice Determination of the flow behavior of Newtonian and non-Newtonian fluids. Calculation of viscosity.	At the end of unit 1
Laboratory practices 2 Statics practice. Determination of pressures and Archimedes' principles.	At the end of unit 2
Laboratory practices 3 Venturi Meter Practice	At the end of unit 4
Laboratory Practice 4 Reynolds experiment	At the end of unit 4
Final Exam	At the end of unit 5

Integrative knowledge test	

This schedule may be subject to modifications due to logistical reasons. Any modification will be notified to the student in due time and form.

9. BIBLIOGRAPHY .

The reference work for the follow-up of the subject is:

- White, Frank. M (2008) "Fluid Mechanics." Sixth edition. Mc Graw Hill Int. Spain.

The following is a recommended bibliography:

- Mataix, Claudio (1986) "Mecánica de Fluidos y Maquinas Hidráulicas". Second edition. Ediciones del Castillo, S.A. Madrid.
- Shames, I. H. (1995) "Fluid Mechanics". Third edition. Mc Graw Hill. Colombia.
- Giles R.V (1994). Fluid Mechanics and Hydraulics. Third edition. Mc Graw Hill.

10. EDUCATIONAL GUIDANCE, DIVERSITY AND INCLUSION UNIT

From the Educational Guidance, Diversity and Inclusion Unit (ODI) we offer support to our students throughout their university life to help them achieve their academic achievements. Other pillars of our actions are the inclusion of students with specific educational support needs, universal accessibility in the different campuses of the university and equal opportunities.

This Unit offers students:

1. Accompaniment and follow-up through counseling and personalized plans for students who need to improve their academic performance.
2. In terms of attention to diversity, non-significant curricular adjustments are made, that is, in terms of methodology and evaluation, for those students with specific educational support needs, thus pursuing equal opportunities for all students.
3. We offer students different extracurricular training resources to develop various competencies that will enrich their personal and professional development.
4. Vocational guidance through the provision of tools and counseling to students with vocational doubts or who believe that they have made a mistake in their choice of degree program

Students in need of educational support can write to us at:
orientacioneducativa@universidadeuropea.es

11. SATISFACTION SURVEYS

Your opinion matters!

Universidad Europea encourages you to participate in satisfaction surveys to detect strengths and areas for improvement about the faculty, the degree program and the teaching-learning process.

Surveys will be available in the survey area of your virtual campus or through your e-mail.

Your assessment is necessary to improve the quality of the degree.

Thank you very much for your participation.