

## 1. BASIC INFORMATION

<b>Course</b>	Thermal Engineering
<b>Degree program</b>	Bachelor's Degree in Industrial Systems Engineering
<b>School</b>	School of Architecture, Engineering, Science and Computing
<b>Year</b>	3º
<b>ECTS</b>	6
<b>Credit type</b>	Elective
<b>Language(s)</b>	English
<b>Delivery mode</b>	Face to face
<b>Semester</b>	S2
<b>Academic year</b>	25-26
<b>Coordinating professor</b>	Andrea Galán Salazar

## 2. PRESENTATION

In this course, the mixtures of air and water are studied, as well as the main equipment that regulates temperature and humidity, concluding with the study of refrigeration cycles.

## 3. LEARNING OUTCOMES

### Knowledge

KNO21: Applied Knowledge of Thermal Engineering

- Describe simple thermodynamic gas and steam cycles.
- Describe complex thermodynamic gas and steam cycles.
- Recognize refrigeration cycles.

### Competences

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

## 4. CONTENT

- Steam power generation cycles.
- Gas power generation cycles.
- Power generation cycles. Combined cycle.
- Refrigeration.

## 5. TEACHING-LEARNING METHODOLOGIES

The types of teaching-learning methodologies used are indicated below:

- Master class
- Cooperative learning
- Problems based learning
- Project Based Learning

## 6. LEARNING ACTIVITIES

Listed below are the types of learning activities and the number of hours the student will spend on each one:

### Campus-based mode:

Learning activity	Number of hours
Individual or group tutoring	10
Problem solving	14
Master class	12
Company tour visit	7
Laboratory and workshop practices	13
Project based learning	45
Search for information and/or preparation of written assignment and reports	13
Autonomous study	30
Assessment tests	6
<b>TOTAL</b>	<b>150</b>

## 7. ASSESSMENT

Listed below are the assessment systems used and the weight each one carries towards the final course grade:

### Campus-based mode:

Assessment system	Weight
Tests to evaluate theoretical/practical cognitive objectives	20 – 40 %
Tests to evaluate objectives of skills	20 – 40 %
Tests to evaluate attitudes	10 %
Final exam	20 - 40 %

When you access the course on the *Campus Virtual*, you'll find a description of the assessment activities you must complete, as well as the delivery deadline and assessment procedure for each one.

## 8. SCHEDULE

This table shows the delivery deadline for each assessable activity in the course:

**Campus-based mode:**

Assessable activities	Deadline
Course introduction and initial assessment	Week 1 – 2
Individual or group activities	Week 3 - 7
Project Milestones Tracking	Week 8 - 14
Individual or group activities	Week 15 - 17

This schedule may be subject to changes for logistical reasons relating to the activities. The student will be notified of any change as and when appropriate.

## 9. BIBLIOGRAPHY

The main reference work for this subject is:

- “Termodinámica”, Gengel, McGraw-Hill.

The recommended Bibliography is:

- “Fundamentos de termodinámica técnica”, Michael. J. Moran Howard. N. Shapiro , Reverté.

## 10. EDUCATIONAL GUIDANCE, DIVERSITY AND INCLUSION UNIT

From the Educational Guidance, Diversity and Inclusion Unit we offer support to our students throughout their university life to help them reach their academic achievements. Other main actions are the students inclusions with specific educational needs, universal accessibility on the different campuses of the university and equal opportunities.

From this unit we offer to our students:

1. Accompaniment and follow-up by mean of counselling 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 in terms of methodology and assessment for those students with specific educational needs, pursuing equal opportunities for all students.
3. We offer students different extracurricular resources to develop different competences that will encourage their personal and professional development.
4. Vocational guidance through the provision of tools and counselling to students with vocational doubts or who believe they have made a mistake in their choice of degree.

Students in need of educational support can write to us at:

[orientacioneducativa@universidadeuropea.es](mailto:orientacioneducativa@universidadeuropea.es)

## **11. ONLINE SURVEYS**

Your opinion matters!

The Universidad Europea encourages you to participate in several surveys which help identify the strengths and areas we need to improve regarding professors, degree programs and the teaching-learning process.

The surveys will be made available in the “surveys” section in virtual campus or via e-mail.

Your assessment is necessary for us to improve.

Thank you very much for your participation.