1. BASIC INFORMATION

Course	Technical Drawing
Degree program	Degree in Aerospace Engineering and Aircrafts
School	School of Architecture, Engineering and Design
Year	First
ECTS	6 ECTS
Credit type	Compulsory
Language(s)	English
Delivery mode	On-site
Semester	Second semester
Academic year	2024-2025
Coordinating professor	Mohamad Asrardel
Teacher	Mohamad Asrardel

2. PRESENTATION

Technical Drawing constitutes the graphic language of engineering, which is characterized by being a standardized, universal and precise. It is a means of expression and communication of ideas, essential in both the development of scientific research processes and the analysis and graphic representation of technological projects whose goal is the creation and manufacture of a product.

The Graphic Expression course is made up of two parts:

- Standard Technical Drawing.
- Computer Aided Drawing CAD.

The first part must cover the basic knowledge of Technical Drawing, including representation systems, standardized representation of industrial drawing, dimensioning procedures and calculation of tolerances. CAD is focused on learning and using graphic software as a work tool for the design and representation of documents and technical drawings.

3. LEARNING OUTCOMES

Skills

FB05. Spatial vision ability and techniques of graphical representation, both through traditional methods of metric geometry and descriptive geometry, as well as through computer-aided design applications.

Specific skills of the subject:

- Use digital design programs for creating parts, assemblies, and blueprints.
- Design components under defined geometric and functional conditions.
- Analyze and design assemblies and components, establishing relationships and potential interactions between them.

- Create presentations (animations, exploded views, or assembly videos).
- Calculate and represent dimensional and surface tolerance dimensions.
- Proficiently use computer-aided design software.

Competencies

CP12. Generate new ideas and concepts from known ideas and concepts, reaching conclusions or solving problems, challenges, and situations in an original way in the academic and professional environment.

CP13. Convey messages (ideas, concepts, feelings, arguments), both orally and in writing, strategically aligning the interests of the various parties involved in communication in the academic and professional environment in the field of aerospace engineering.

CP14. Employ information and communication technologies for data search and analysis, research, communication, and learning in the field of aerospace engineering.

CP15. Influence others to guide and lead them towards specific objectives and goals, taking into consideration their viewpoints, especially in professional situations arising from the volatile, uncertain, complex, and ambiguous (VUCA) environments of the current world.

CP16. Collaborate with others in achieving a shared academic or professional objective, actively participating, demonstrating empathy, and practicing active listening and respect for all team members.

CP17. Integrate analysis with critical thinking in an evaluation process of different ideas or professional possibilities and their potential for error, relying on evidence and objective data that lead to effective and valid decision-making.

CP18. Adapt to adverse, unexpected situations that cause stress, whether personal or professional, overcoming them and even turning them into opportunities for positive change.

CP19. Demonstrate ethical behavior and social commitment in the performance of professional activities, as well as sensitivity to inequality and diversity.

4. CONTENTS

List of Topics:

1. Standardized representations of mechanical parts.
2. Representation of sets. Part lists.
3. Dimensioning procedures and standards.
4. Adjustments and tolerances.
5. Practical management of CAD Software.

5. TEACHING-LEARNING METHODOLOGIES

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

- Objectives and surveys of interests
- Lecture-Based Class
- Research and problem-solving by groups
- Practical case study

6. LEARNING ACTIVITIES

Listed below are the types of learning activities and the number of hours:

Campus-based mode:

Actividad formativa	Número de horas
Lecture-based class	12 h
Integration of team work	68 h
Self-study	50 h
Mentoring, academic monitoring and assessment	20h
TOTAL	150 h

7. ASSESSMENT

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

Campus-based mode:

SISTEMAS DE EVALUACION	WEIGHT
Exams, tests and other test knowledge	30%
Tests to evaluate objectives of skills (Participation in group sessions, Simulation tests, Participation in cases / problems Rol playing, Reports)	20%
Tests to evaluate attitudes (Participation in class, attitudes assessment rubric)	20%
Final examination of competencies (final test of the whole, includes different types of the aforementioned tests, and projects)	30%

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

7.1. Ordinary call

To pass the course in the first exam period, you must obtain:

- 50% attendance.
- Obtain a grade greater than or equal to 5 in the exam and the CAD project.
- Obtain a grade greater than or equal to 4 in the technical drawing tasks and in the CAD tasks.
- Obtain a grade greater than or equal to 5 in the final average of the subject, counting on the weighting of all the activities.

When the minimum required to carry out the weighted average of the evaluable activities is not met (the minimum is not reached in any of the previous points), the final grade will be:

- the weighted mean if its value is less than or equal to 4.
- 4 if the value of the weighted mean is greater than 4.

The grade in the first exam period will be considered as NP (Not Presented) when the student has not delivered any evaluable activity of those that are part of the weighted average.

7.2. Extrordinary call

To pass the course in the second exam period, you must obtain:

- Obtain a grade greater than or equal to 5 in the exam and the CAD project.
- Obtain a grade greater than or equal to 4 in the technical drawing tasks and in the CAD tasks.
- Obtain a grade greater than or equal to 5 in the final average of the subject, counting on the weighting of all the activities.

When the minimum required to carry out the weighted average of the evaluable activities is not met (the minimum is not reached in any of the previous points), the final grade will be:

- the weighted mean if its value is less than or equal to 4
- 4 if the value of the weighted mean is greater than 4

The grade in the second exam period will be considered as NP (Not Presented) when the student has not delivered any evaluable activity of those that are part of the weighted average.

The student must deliver the activities not successfully completed (note less than 5) in the first exam period or those that were not delivered in the first place.

8. SCHEDULE

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

Assessable activities	Assessment (Weight)	Deadline
Technical drawing tasks	20 %	Weeks 1-8
CAD tasks	20 %	Weeks 7-12
CAD project	30 %	Weeks 12-17
Final exam	30 %	Week 9

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 recommended bibliography is indicated below:

- J. M. LEAKE; with special contributions by J. L. BORGERSON. Engineering design graphics: Sketching, modeling, and visualization. John Wiley & Sons Inc.
- ISO STANDARDS HANDBOOK. Technical drawings. International Organization for Standardization.
- C. H. SIMMONS, D. E. MAGUIRE. Manual of engineering drawing to British and International Standards. 2nd edition. Elsevier.

10. EDUCATIONAL GUIDANCE AND DIVERSITY UNIT

From the Educational Guidance and Diversity 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 means 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 an 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

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.