

<i>Course</i>	Mechanical and Industrial Informatics			<i>Academic year</i>	2021/2022		
<i>Subject</i>	Technical Drawing and CAD			ECTS	5		
<i>Type of course</i>	Compulsory						
<i>Year</i>	1st	<i>Semester</i>	1st	<i>Student Workload:</i>			
<i>Professor(s)</i>	Luís Miguel Lopes Lourenço			<i>Total</i>	135	<i>Contact</i>	60
<i>Area Coordinator</i>	José Reinas dos Santos André						

Planned SD

1. LEARNING OBJECTIVES

Intended learning outcomes A - interpret and carry out perspective drawings and 2D representations from solids.

Intended learning outcomes B - interpret and carry out technical drawings of mechanical constructions.

Intended learning outcomes C - meet the standards in technical drawing.

Intended learning outcomes D- recognize the symbols and typology of electrical scheme drawings.

Intended learning outcomes E - edit, manipulate, and carry out technical drawings in CAD.

2. PROGRAMME

1. Introduction to technical drawing.
2. Orthogonal projections.
3. Cross-Sectional views
4. Perspectives and isometric drawing practice.
5. Dimensioning.
6. Dimensional and geometrical tolerances and surface finish representation.
7. Drawing Machine elements and linked machine parts: fasteners, gears, bearings, welding, etc.
8. Assembly drawing.
9. Mechanical drawing practice.
10. Fundamentals of electrical scheme drawing.
11. Computer aided drawing (CAD).

3. COHERENCE BETWEEN PROGRAMME AND OBJECTIVES

Intended learning outcomes A – syllabus contents in 1, 2, 3 and 4.

Intended learning outcomes B – syllabus contents from 1 to 9.

Intended learning outcomes C – syllabus contents from 2 to 10.

Intended learning outcomes D – syllabus contents in 10.

Intended learning outcomes E – syllabus contents in 11.

4. MAIN BIBLIOGRAPHY

Cunha, L. V.; Desenho Técnico, 12^o Edição, Fundação Calouste Gulbenkian, 2004. ISBN: 9789723110661.

Morais, S.; Desenho Técnico Básico 3, Porto Editora, 2006. ISBN: 978-972-96525-2-3.

Silva, A.; Desenho Técnico Moderno, 4^o Edição, Lidel, 2004. ISBN: 978-972-757-337-0.

Martins, P.; Desenho de Construção Metalomecânica, FCA, 2016. ISBN 9789727228416.

Bland, S.; Technical Drawing 1and Technical Drawing 2, Pearson / Longman, 1991.
ISBN: 9780582651395; ISBN: 9780582588578.

Moss, E.; Autodesk Autocad 2019 Fundamentals, Butch Bliss, SDC Publications, 2019. ISBN: 9781630571825.

ISO Standards Handbook - Technical Drawings, Vols 1 and 2, International Organization for Standardization, 2002.

Class slides and manuscripts provided by teaching team.

5. TEACHING METHODOLOGIES (INCLUDING EVALUATION)

Methodologies

The contents are presented using theoretical-practical lessons (TP).

The contents are presented through lectures, using the whiteboard and audiovisual media, followed by practice.

Evaluation

Continuous assessment (minimum grade – 10/20):

- Practical assignments throughout the classes (a minimum of 6 practical assignments), delivered according to delivery deadline previously stipulated for each practical assignment (mandatory) – 70%;
- Written theoretical-practical test - 30%.

Assessment by final exam (minimum grade – 10/20):

- Written theoretical-practical exam - 100%.

6. COHERENCE BETWEEN TEACHING METHODOLOGIES AND OBJECTIVES

The oral presentation of the contents, using the whiteboard, audiovisual media and practical examples ensures that students acquire skills to interpret technical drawings. The ongoing practice throughout the lessons ensures the students acquire skills in carrying out technical drawings by hand or using CAD tools.

7. ATTENDANCE

N.A.

8. CONTACTS AND OFFICE HOURS

Professor: Luís Miguel Lopes Lourenço (PhD), mlopes@ip.pt; office n.º 67

Area Coordinator: José Reinas dos Santos André (PhD), jandre@ipg.pt; office n.º 13

Date: 30/06/2021