POLI ESCOLA SUPERIOR TECNOLOGIA GESTÃO TÉCNICO GUARDA	**SUBJECT DESCRIPTION**	**MODELO** PED.013.03

Course	**Topographic Engineering**					
Subject	**Satellite Navigation and Positioning Systems**					
Academic year	2023-2024	*Curricular year*	3rd	*Study period*	2nd semester	
Type of subject	Compulsory	*Student workload (H)*	Total: 182	Contact: 97,5	*ECTS*	6,5
Professor(s)	PhD Eufémia da Glória Rodrigues Patrício					
☒ *Area/Group Coordinator* ☐ *Head of Department* *(select)*	PhD Maria Elisabete Santos Soares					

PLANNED SUBJECT DESCRIPTION

1. LEARNING OBJECTIVES

Qualify the students with knowledge about topographic and geodesic spatial techniques of measurement to the definition and calculation of geodesic nets and modelling of reference surfaces.

Qualify the students for the importance of the reference systems in the use of satellite positioning and navigation systems.

2. PROGRAMME

I. Terrestrial and celestial reference System.

II. Description of satellite positioning and navigation systems.

III. Equations of Observations.

IV. Errors of the Spatial Observations.

V. Positioning Methods.

VI. Positioning Precision.

VII. Techniques of data processing.

VIII. Practical Applications.

3. COHERENCE BETWEEN PROGRAMME AND OBJECTIVES

To reach the objectives of this subject, the content lectured aims to contribute to the training of students as future professionals of a company. Students should acquire professional competence in using of Global Navigation Satellite Systems through their characterization, the importance of reference systems in the use of this equipment and the importance of data processing techniques according to the required precision of the various tasks to be carried out by the future professional.

4. MAIN BIBLIOGRAPHY

Mandatory

[1] Notes prepared by the teacher for the discipline and available on the e- learning platform.

[2] Alfred Leick, GPS Satellite Surveying, Second Edition, 1994.

[3] Casaca, J.; Matos, J.; Baio, M.; " Topografia Geral" Edições Lidel, 2005.

[4] Users Guide of the GPS receiver, Model GS20 of the Leica.

[5] Users Guide of de Software GISDataPro of the Leica.

Recommended

[1] Seeber, G. Satellite Geodesy Foundations Methods, and applications, Walter de Gruyter, 2003.

5. TEACHING METHODOLOGIES (INCLUDING EVALUATION)

Oral exposition with resource audiovisual ways, use the topographic equipment and automatic program

Availability of content on the e-learning platform.

Test theoretic-practical with a weight of at least 70%, accomplishment of a practical work with a weight of at least 30%.

6. COHERENCE BETWEEN TEACHING METHODOLOGIES AND OBJECTIVES

To reach the objectives of this subject, theoretical and practical lectures with teacher-student interaction enhance the understanding of a number of more abstract concepts on celestial and terrestrial space while practical laboratory training and fieldwork, with in loco data collection followed by computer software treatment create some instruments experience as well as a broad overview of the applications of these techniques.

7. ATTENDANCE

Thera are no rules for the attendance.

8. CONTACTS AND OFFICE HOURS

Teacher: Eufémia da Glória Rodrigues Patrício

email: gpatricio@ipg.pt

Office: nº 78

Office hours: Thursday, 10:00-13:00 a.m and Friday 10:00-11:00 a.m

Subject area coordinator: Maria Elisabete Santos Soares

9. OTHERS

Be careful in the use of computer equipment and field equipment.

DATE

1 de março de 2024

SIGNATURES

Professor(s), Area/Group Coordinator

Professor

(signature)

Area/Group Coordinator

(signature)