Universidad Zaragoza

Year : 2019/20

28304 - General cartography

Syllabus Information

Academic Year: 2019/20
Subject: 28304 - General cartography
Faculty / School: 103 - Facultad de Filosofía y Letras
Degree: 419 - Degree in Geography and Land Management
ECTS: 6.0
Year: 1
Semester: First semester
Subject Type: Compulsory
Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The methodology followed in this course is oriented towards achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures, practical exercises, individual and group tasks, guided tasks, field work, autonomous work and study.

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course syllabus, as well as other course-specific learning materials.

4.2.Learning tasks

The course includes the following learning tasks:

- **Lectures**. Given the eminently practical character of this course there are few sessions that we might consider to be as lecture sessions. Usually, after a brief presentation of the conceptual and methodological aspects of the topic we introduce interactive, individual or group activities. There are frequent consultations of web pages related to the subject of study and commentaries of printed cartography. Diverse teaching and learning skills are put into practice to encourage the participation of students like class discussion, brainstorming, forums, etc. The students have in the Anillo Digital Docente (Moodle) a repository of the lecture notes used in class as well as other forms of course-specific complementary materials (web pages links, analogical and digital cartographic resources, etc.).
- **Practice sessions.** These sessions will take place in the assigned classroom or, punctually, in the computer classroom. At the beginning of every session, the necessary information will be facilitated to the student to carry out the tasks to be developed in the class. Among the activities that are programmed we can stand out: practical tasks related to the access and handling of cartographic resources on the Internet; commentaries of different types of maps; tasks related to the handling and analysis of the topographic map; scale problems; exercises of spatial

orientation on the map and on the field (handling of compass and GPS); making and handling of Digital Elevation Models and development of derivative information (illumination, contours, slope, aspect, topographic profiles, 3-D visualization, etc.).

- **Field work.** In this session, diverse skills related to spatial orientation on the map and on the field will take place (use of the compass and GPS, map orientation).
- **Guided tasks**. They are implemented to help the students to carry out the assignments, tasks and exercises that they must solve individually, and also as a help to solve doubts related to the course contents.

4.3.Syllabus

The course will address the following topics:

Section I. Cartography.

- Topic 1. General concepts: introduction to the cartographic document.
- Topic 2. The historical process of the Cartography.

Section II. Introduction to Geodesy.

- Topic 3. Basic concepts of Geodesy.
- Topic 4. The cartographic projections.

Section III. The Topographic Cartography.

- Topic 5. The National Topographic Map.
- Topic 6. Methods of representation of the relief.
- Topic 7. Web Map Services (WMS): available resources in topographic cartography.

Section IV. Spatial relationships.

- Topic 8. The scale.
- Topic 9. Calculation of distances and areas.

Section V. Spatial Reference.

- Topic 10. Determination of geographical and UTM coordinates.
- Topic 11. Orientation.
- Topic 12. Global Positioning Systems: essentials and applications in Geography.

Section VI. Analysis of topographic variables.

- Topic 13. Calculation and mapping of topographic variables: heights, slopes, topographic profiles.
- Topic 14. Digital Elevation Models: development of derivative information.

4.4.Course planning and calendar

The course *Cartografía general* is divided into 6 sections. The first and second sections are introductory and include the topics 1 to 4; they run during the first four weeks of the semester. The sections 3-5 include the topics 5 to 12; they are taught during the middle and final part of the semester. The block 6 covers the topics 13 and 14 and develops during the final three weeks of the course.

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to the Facultad de Filosofía y Letras website (https://fyl.unizar.es/horario-de-clases#overlay-context=horario-de-clases)

4.5.Bibliography and recommended resources

Basic bibliography:

- ROBINSON, A.H., SALE, R. y MORRINSON, J. (1987): *Elementos de Cartografía*, Omega, Barcelona, 543 pp.
- SLOCUM, T.A., McMASTER, R.B., KESSLER, F.C. y HOWARD, H.H. (2005): *Thematic cartography and geographic visualization*, Prentice Hall, London, 518 pp.

Recommended bibliography:

- ANSON, R.W. y ORMELING, F.J. (1993): *Basic cartography for students and technicians*, International Cartographic Association, London, 344 pp.
- BÉGUIN, M. y PUMAIN, D. (1994): *La représentation des données géographiques: statistique et cartographie*, Armand Colin, Paris, 192 pp.
- BERTHON, S. y ROBINSON, A. (1991): *The shape of the world: the mapping and discovery of the Earth*, George Philip, London, 192 pp.
- BERTIN, J. (1967): *Sémiologie graphique*, Gauthier-Villars, Paris, 431 pp.

- BROTHERTON, L. (2011): *Manual de orientación*, Paidotribo, Badalona, 364 pp.
- BROTTON, J. (2012): *Historia del mundo en 12 mapas*, Debate, Barcelona, 607 pp.
- CRONE, G.R. (2000): *Historia de los mapas*, Fondo de Cultura Económica, Madrid, 300 pp.
- GARCÍA GÓMEZ, E. (2000): *Orientación. Desde el mapa y la brújula hasta el GPS y las carreras de orientación*, Desnivel, Madrid, 124 pp.
- DENT, B.B. (1985): *Cartography: thematic map design*, WCB Publishers, Dubuque, 427 pp.
- DODGE, M., KITCHIN, R. y PERKINS, C. (Eds.) (2011): *Rethinking maps: new frontiers in cartographic theory*, Routledge, London, 246 pp.
- DOMÍNGUEZ, F. (1991): *Topografía general y aplicada*, Dossat, Madrid, 823 pp.
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- JIMÉNEZ, J. y MONTEAGUDO, E. (Eds.) (2001): *La documentación cartográfica. Tratamiento, gestión y uso*, Publicaciones de la Universidad de Huelva, Huelva, 596 pp.
- JOLY, F. (1988): *La cartografía*, Oikos-Tau, Barcelona, 133 pp.
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- MORENO JIMÉNEZ, A. (2007): *Sistemas y Análisis de la Información Geográfica*, Ra-Ma, Madrid, 911 pp.
- ORDÓÑEZ, C. y MARTÍNEZ-ALEGRÍA, R. (2002): *Sistemas de Información Geográfica*, Ra-Ma, Madrid, 227 pp.
- PEÑA, J. (2006): *Sistemas de Información Geográfica aplicados a la gestión del Territorio*, ECU, Alicante, 310 pp.
- PETERS, A. (1992): *La Nueva Cartografía*, Vicens Vives, Barcelona, 132 pp.
- PUCH, C. (2002): *GPS. Aplicaciones prácticas*, Desnivel, Madrid, 144 pp.
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- RAISZ, E. (1978): *Cartografía general*, Omega, Barcelona, 436 pp.
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- TYNER, J.A. (2010): *Principles of Map Design*, Guilford, New York, 259 pp.
- VALDÉS, F. (1989): *Prácticas de topografía, cartografía, fotogrametría*, Biblioteca del Topógrafo, CEAC, Barcelona, 387 pp.
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