GIS-based cartography

Purpose of education

a) knowledge

- Comprehensive knowledge of the principles, methods and procedures for the design, development and operation of geoinformatics, in particular in the following areas: operating systems and database management, design and development of web-based geoinformatics tools and services, geoinformatics-related programming principles, geospatial application development.
- He/she has a complex knowledge of the general cartographic, geographic, mathematical and informatics principles, rules and interrelationships necessary for the practice of cartography and geoinformatics, in particular in the following subjects: surveying (geodesy, topography, remote sensing, photogrammetry), map construction and design, projection, thematic cartography, geovisualisation, geoinformatics, building geographic information systems.
- Ability to create maps and geoinformatics systems that can be used by economic sectors or clients in the desired field.

b) abilities

- Ability to interpret and formalise complex professional problems in the field of cartography and geoinformatics, to identify the necessary theoretical and practical background and to solve the problem. Ability to provide consultancy, problem-solving, design, development, operation and management of cartographic and geoinformatics systems, decision support systems and expert systems.
- Ability to interpret, plan, organise, manage and control processes in the field of cartography and geoinformatics.
- Ability to apply what has been learned in a diverse, multidisciplinary professional environment.

c) attitude

- It monitors professional and technological developments in the field of cartography and geoinformatics and the opportunities that will enable it to work in the public sector, in various companies or to set up and run its own business.
- Shares his/her own knowledge and values the dissemination of professional results in cartography and geoinformatics.
- It is committed to meeting and enforcing quality standards (accuracy, commitment).

d) autonomy and responsibility

- Able to work independently in IT, carrying out tasks, thinking through and developing technical issues in a self-directed manner and at a pace.
- Responsible for meeting and enforcing deadlines. Assumes responsibility for his/her own work and that of his/her colleagues working under his/her direction and with him/her (in a project).
- In the case of mission-critical mapping and geoinformatics systems, may be given development and operational responsibility appropriate with his/her professional competences.

Content of education

During the theoretical introduction to the course, the students become acquainted with the relation between geoinformatics and the world of general graphic software, presenting topics related to the antecedents, features, modules and applications. In the practices, students learn about the interaction of geoinformatics with drawing and editing options, importing and georeferencing GIS and graphic files, as well as preparing base maps, creating thematic maps and formatting a map sheet using a GIS module in a general graphic program. Students will be able to use topology-based drawing commands, to edit objects based on their attributes, to define attribute-based filters, to generate a nomenclature automatically and manually, and finally display the generated maps on printed and different interactive digital media (e.g. web and mobile devices).

Evaluation system: practical course mark based on course work.

Literature:

Obligatory:

- Avenza (2020) MAPublisher 10.6: What's new? https://www.avenza.com/help/mapublisher/10.6/index.html?whats_new_in_mapublisher.htm

- Dodge, M., McDerby, M. and Turner, M. John (2008) Geographic visualization: concepts, tools and applications. Wiley&Sons, Ltd. ISBN: 9780470515112

Recommended:

- Peterson, G. N. (2020) GIS Cartography: A Guide to Effective Map Design, Third Edition. Taylor & Francis Limited, ISBN: 0367857944, 9780367857943
- Cairo, A. (2016) The truthful art: data, charts, and maps for communication. New Riders. ISBN: 9780321934079
- Sui, D., Elwood, S. and Goodchild, M.(2013) Crowdsourcing Geographic Knowledge (VGI in theory and practice). Springer, ISBN: 9789400798267