General Information

Course name	Geographic Information Systems	**ECTS Credits**	6
		Semester	Winter 4 hours per week

Aims

This course focuses on introduction to the theory and application of the Geographic Information Science and Geographic Information Systems (GIS). The following key concepts of GIS are explained and used in the practial classes: conceptual models of landscape (discrete objects and continuous fields), spatial data models (rasters and vectors), methods of spatial analysis and geoprocessing, coordinate systems and transformations, terrain modeling and geomorphometry, vizualization of geographical data (2D,3D,4D). The practicals are based on the use of ArcGIS software platform by ESRI.

Contents

Geographic information science and system
Representig landscape in GIS
Cartographic coordinate systems and projections, georeferencing
Geographic database, spatial and attribute querries,
Spatial data collection, processing and input in GIS
Remote sensing of the Earth as the main source of GIS data
Transformation of geospatial data, spatial analysis
Digital terrain modeling and geomorphmetry
Visualization of spatial data
Web-based GIS
GIS in practice, new trends and future prospects

Assessment Methods and Criteria

Continuous Assessment Methods and Criteria is based on student's activity in the classes and work on assignments. The course ends with a final written examination.

Grading Scale (in %):

Grading System: The University recognises the followin

g six degrees for the Assessment Methods and Criteria of the study results: a) A – excellent (excellent results) (numerical value 1) b) B – very good (above average results) (1.5) c) C – good (average results) (2) d) D – satisfactory (acceptable results) (2.5) e) E – sufficient (results meet the minimum criteria) (3) f) FX –failed (requires further work) (4)

Bibliography

1. Heywood, I., Cornelius, S., Carver, S., 2012. An Introduction to Geographical Information Systems. Pearson, 4th edition, 480 p.
2. Longley, P.A., Goodchild, M., Maguire, D.J., Rhind, D.W., 2010. Geographic Information Systems and Science, Wiley, 3rd edition, 560 p.
3. Hofierka, J., Kaňuk, J., Gallay, M. (2014): *Geoinformatika*. Vysokoškolská učebnica, Košice (Univerzita Pavla Jozefa Šafárika), 194 p. Available on: http://geografia.science.upjs.sk/index.php/study/ucebnice-skripta-studijne-materialy