

Name of the course: Spatial Information Systems	Total credits: 2+0+0=2
IPM-AUTESISE	
Type: Optional	
Total hours per semester: lecture: 26	
Type of testing: exam	
Semester: 1, 2, 3, 4th	
Description	
• gravity field and shape of the Earth • spatial reference systems • vector-based data model, data capture • topology of spatial systems • spatial database management systems • tools for access and analysis of spatial data • tools for visualisation of graphics (vector or raster maps) • file formats, import/export • object localization and control features, vehicle tracking • using map providers • spatial functions and queries • raster-based data model, data capture • pixel-based raster processing • digital filtering, clustering, segment-based raster processing • 3D data model: TIN and DEM models	
Literature	
Compulsory • P. Rigaux – M. Scholl – A. Voisard: „Spatial Databases with Application to GIS”, Morgan Kaufmann Publishers, 2002 • R.O.Obe – L.S Hsu: „PostGIS in action”, Manning Pub., 2015	
Competencies	
Knowledge • complex knowledge on spatial information systems • high level knowledge on spatial thinking, spatial database management and its possibilities and theoretical background • high level knowledge on software-technological tools which are for building spatially referenced databases • high level knowledge on the theoretical background of navigation, position identification, spatial referenced systems and their application possibilities • high level knowledge on tools, possibilities and sources of spatial data • high level knowledge on spatial data analysis	
Competencies • he or she is able to design complex spatial systems • he or she is able to design complex spatial databases • based on his or her professional skills is able to participate in independent or supervised research and development work	

- he or she can work in a team, from project planning to implementation of part tasks
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Attitude

- Attends professional, technological development related to their qualification.
- Commitment to critical feedback and self-assessment.
- Commitment to lifelong learning and receptivity to new IT competencies.
- Adopts and coordinates the ethical principles of work, organizational culture and research.
- Shares professional knowledge, mediates professional results.
- Mediates and implements eco-conscious behavior and social responsibility, helping them with IT tools.
- Commitment to quality standards and its IT tools.
- Open to initiate collaboration with IT and other specialists

Autonomy and responsibility

- Takes responsibility for his professional decisions taken during his professional activities.
- Takes responsibility for observing and enforcing deadlines.
- Takes responsibility for own and fellow workers' work.
- In the case of operational critical IT systems, he/she can be assigned responsibility for development and operation, according to his/her professional competencies.