

Name of the course: Geoinformatics	Total credits: 6
Code: INFPHD633	
Type: practical lecture	
Total hours of per semester: 2 hours/week (15 weeks x 2h) lecture: practice: 100% consultation: Other:	
Type of testing: practical exam Other:	
Semester: 1	
Description	
Geoinformatics represents an interdisciplinary field for studying theories, methods, and applications of spatial analysis, spatial data handling, management, visualization and modelling. It includes the acquisition, management, analysis, and visualization of spatial information and data, which includes data on locations, distances, directions, and other spatial properties. The key techniques used in spatial informatics include computer sciences, geographic information systems, remote sensing, spatial statistics, and spatial data mining. These techniques allow analysts to collect, store, manipulate, and analyse large volumes of spatial data, and to derive meaningful insights and actionable information from them. Spatial informatics is an important and rapidly growing field that is transforming the way we understand and manage spatial information, and how we use it to address real-world challenges and opportunities. During the course interested PhD students will get insights into the details of the theory and practise of this interdisciplinary field.	
Literature	
Compulsory De Smith, M. J., Goodchild, M. F., & Longley, P. (2021). Geospatial analysis: a comprehensive guide to principles, techniques and software tools. Troubador publishing ltd. ISBN 13 978-1-912556-05-2 ebook, https://www.spatialanalysisonline.com/ Banerjee, Sudipto; Carlin, Bradley P.; Gelfand, Alan E. (2014), Hierarchical Modeling and Analysis for Spatial Data, Second Edition, Monographs on Statistics and Applied Probability (2nd ed.), Chapman and Hall/CRC, ISBN 9781439819173	
Recommended The National Center for Geographic Information and Analysis: http://www.ncgia.ucsb.edu/ Geospatial Analysis online: https://www.spatialanalysisonline.com/	
Knowledge	
- Possess the necessary research methodological skills for independent research in a given discipline/subject. - Knowledge of the general principles, rules and traditions of information technology and spatial informatics.	

- Knowledge of the specific tools of the field of spatial computing, mastery of data management and analysis, understanding and effective application of cartographic representation in spatial informatics environment. - Knowledge and use of spatial data collection technologies, their geospatial aspects and key elements.
Competencies
- Ability to design and implement new projects, conduct research in a given field, develop new techniques and approaches. - The ability to select the most effective spatial informatics tools and software for the task in hand, depending on the complexity of the task. - Ability to process, evaluate, interpret and analyse data systematically using spatial informatics and to support the drawing of conclusions from this data in spatial informatics terms and to visualise them in an optimal way. - With the acquired knowledge of spatial information and cartography, the PhD student is able to carry out planning, development and consultancy tasks in an efficient, user-oriented manner in the operation of spatial informatics, decision support systems and expert systems.
Attitude
- - Have the interest and learning ability to keep abreast of the current state of the art in the field the identification and solution of unforeseen research problems in the field, which are currently not yet transparent. - The acquisition of a geospatial approach will help to develop an appropriate attitude to professional cooperation with professionals working in related fields.
Autonomy and responsibility
- The PhD student develops and initiates new research areas within spatial computing and initiates new practical solutions with creative autonomy. - Ability to act as an equal and discussion partner with professionals in the field. - With his/her knowledge and skills in spatial informatics, he/she is able to work responsibly with professionals from other disciplines.