

Name of the course: Mobile Mapping and Navigation	Total credits: 6
Code:	
Type: practical course	
Total hours of per semester: 1.5 hours/week (15 weeks x 1.5h) lecture: practice: 100% consultation: Other:	
Type of testing: practical exam Other:	
Semester: 2-4	
Description	
Navigation and mobile mapping are two related technologies that are commonly used for location-based services and mapping applications. Navigation can involve using maps, compasses, and other tools to determine one's position and plan a route to a destination. In modern times, navigation is done using GNSS technology, which uses satellite signals to determine one's location and provide directions to a destination. Mobile mapping, on the other hand, involves the collection of geospatial data using mobile devices such as smartphones or tablets. This can include GNSS data, as well as other types of data such as photographs, videos, and sensor readings. Mobile mapping is commonly used for applications such as street-level mapping, asset management, disaster response and much more. During the course interested PhD students will learn the theoretical and practical background of the above-mentioned technologies and techniques.	
Literature	
Compulsory Wilmott, C. (2020). Mobile mapping: Space, cartography and the digital (p. 346). Amsterdam University Press. ISBN: 9789462984530. Download here: https://library.oapen.org/handle/20.500.12657/37349 Farman, J. (2020). Mobile interface theory: Embodied space and locative media. Routledge. eISBN: 9781405124331 Jin, S. (Ed.). (2012). Global navigation satellite systems: signal, theory and applications. BoD–Books on Demand. ISBN978-953-307-843-4 Recommended: Google Maps: https://www.google.com/maps, Waze: https://www.waze.com/, HERE Maps: https://www.here.com/, OpenStreetMap: https://www.openstreetmap.org/, ArcGIS Online: https://www.arcgis.com/home/signin.html, MapQuest: https://www.mapquest.com/, Bing Maps: https://www.bing.com/maps/, TomTom Maps: https://www.tomtom.com/en_gb/, OsmAnd: https://osmand.net/, Sygic GPS Navigation & Maps: https://www.sygic.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 GIS. - 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 GIS 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 GIS 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 GIS and to support the drawing of conclusions from this data in GIS 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 GIS, 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 GIS, he/she is able to work responsibly with professionals from other disciplines.