Name of the course: Map Projections in Geoinformatics	Total credits: 6
Code: **INFPHD161**	
Type: lecture	
Total hours of per semester: 2 hours/week (15 weeks x 2h) lecture: 100% practice: consultation: Other:	
Type of testing: exam Other:	
Semester:	
Description	
The most common units of measurement on maps. Planar, spatial and surface (especially spherical and ellipsoidal) coordinate systems. Relationship of astronomical latitude, longitude, and altitude defined on the geoid to ellipsoidal coordinates, geodetic datums, possible transformation between reference frames. Conversion between coordinate systems of the reference frame (direct and inverse fundamental tasks of geodesy on the sphere and on the ellipsoid of revolution, metacoordinates), auxiliary spheres. Distortions of map projections, Tissot's distortion theory. The most common conic, azimuthal, and cylindrical projections used in topography. Common conformal projections used for mapping European countries. Description of coordinate systems in a GIS environment, defining custom projections.	
Literature	
Compulsory Snyder, J. P.: Map projections: A working manual U. S. Government Printing Office. Washington D.C. 397 p., 1987, ISBN: 9781782662228 Fenna, D.: Cartographic Science: A Compendium of Map Projections, with Derivations. CRC Press, Boca Raton, 504 p., 2007, ISBN: 9780367390037 **Recommended** Grafarend, E. W., Krumm F. W.: Map Projections: Cartographic Information Systems. Springer Berlin, Heidelberg, 714 p. 2006, ISBN: 9783540367024	
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.