Wydział Geodezji Górniczej i Inżynierii Środowiska AGH
Przykładowe zagadnienia na egzamin magisterski
- kierunek Informatyka Geoprzestrzenna

(obowiązujące od roku akademickiego 2023/2024 do odwołania)

SPECJALNOŚĆ Remote Sensing and GIS

Modelling of Environmental Processes
- Atmospheric dispersion modelling of pollutants.
- Types of environmental models.
- Modeling of hydrological processes.

Digital Terrain Model, ALS, TLS
- Data acquisition methods for DTM building and types of derived products.
- Steps in processing lidar data.
- Use of TLS data.

Geospatial Analysis
- Geoprocessing automation.
- UML modelling of geospatial information.
- Geocoding and network analysis.

Principles of Cartography and Databases in GIS
- Fundamentals of relational databases and SQL.
- Spatial SQL.
- Main principles of editing interactive maps.

Advanced Raster Analysis
- Deep learning tasks for image analysis.
- Factors influencing change detection analysis based on remote sensing images.
- Multidimensional rasters - data formats, examples, possible applications.

Foundation Geographical Information Science (GIScience)
- The difference between Geographic Information Science (GISc) and Geographic Information Systems (GIS).
- Evaluation of spatial data uncertainty.

Photo Interpretation
- Image processing and enhancement techniques to support and facilitate photo interpretation.
- Accuracy assessment in remote sensing classification.

Hyperspectral Image Processing
- Hyperspectral Image preprocessing methods.
- Classification of Hyperspectral Images.

Platforms and Sensors
- Characteristics and review of major satellites used in remote sensing (optical, SAR, thermal).
- Aerial platforms and unmanned aerial vehicles (UAVs) in remote sensing.

GIS for Decision Support System (DSS)
- Application of Monte Carlo method for uncertainty propagation in spatial analysis.
- Fuzzy sets and fuzzy logic in spatial analyses.

PYTHON and MATLAB Programming
- Variables and data types in Python.
- Controlling Python program flow.
- Main principles of object oriented programming.

Python, Matlab for Geoscience
- Geospatial data processing in Python.
- Visualization for raster and vector data in Python.

Mobile Aplications Programming
- Python frameworks for mobile applications.
- Environment for deploying mobile applications.

Information Security

Hazard identification and information processing;

Assessment of information risks in terms of consequences for the functioning of the IT system

Methods for estimating the probability and consequences of information risks

Thermal and Microwave Remote Sensing

Remote sensing in thermal and microwave.

Remote sensing in thermal EM range

Remote sensing in microvawe EM range

Remote Sensing Image Processing

The applied methods of remote sensing data processing.

The creation, recording and main characteristics of the image in the most important sensors used in photogrammetry and remote sensing.

Interpretation content and process satellite images in a basic scope.