Specialization in Land Surveying and Geoinformatics
Final exam questions

Theory and Application of GNSS (BMEEOAFMF-1)

1. Main characteristics of Global Navigation Satellite Systems (GNSS). Reference systems and frames, time systems. GNSS signal structure.
2. The fundamentals of satellite orbit calculations. The principle of absolute positioning (SPP, PPP). The systematic error sources of GNSS positioning.
3. Geodetic positioning techniques. Relative positioning using the differencing technique. Single, double and triple differences and their properties.
4. The generations of GNSS infrastructure. Network RTK services. Transformation of coordinates to separated horizontal and vertical reference frames.

Information Technologies (BMEEOFMF-1)

1. Present the devices, requirements, and process of computer network communication.
2. Present virtualization technologies.
3. Present the current achievements, solutions and process of artificial intelligence and IT solutions that enable the process.
4. Describe the current solutions and possibilities for collecting and processing large amounts of data.

Automated Surveying (BMEEOAFMF-2)

1. Monitoring systems in engineering surveying.
2. Programming of surveying instruments. Applications.
3. Present a few examples regarding the automatic process of measurements in land surveying or geoinformatics.

Applied GIS (BMEEOFTMF-2)

1. How does GIS support the operational tasks of disaster management? What common modeling methodologies are used in evacuation simulation? How does the role of space change in different modeling alternatives?
2. Describe the data sources, data models, analysis capabilities and products of spatial information systems for environmental purposes. The concept, purpose, regulation of environmental protection. Grouping of environmental studies, environmental elements and their pollutants.
3. Explain the means by which GIS helps the sustainable management and operation of the built and natural environment. Describe the goals, functions of multipurpose cadaster.

Mapping Technologies (BMEEOFMF-3)

1. How does Kalman filter work in localization? What are the variants, what parameterization options are available?
2. What are the components of a mobile mapping system and how is the measured data set processed?
3. What is the principle of SAR sensor data capturing? What is the acquisition geometry of the sensor? What is the difference between slant range and azimuth resolution?
4. What is interferometry? What is the basic principle of InSAR and DinSAR technology, its processing steps and results? What is the difference between spatial and temporal baseline?