

State Final Examinations	Academic Year: 2020/2021
Master's Degree Studies Program:	Engineering Informatics
Study Branch:	Security Technologies, Systems and Management
Study Focus:	Technical

Security Engineering Management

Compulsory Subject

1. The State Integrated Rescue System, (IRS) - Tasks, structures, scopes of the Fire Brigade, Police and Medical Rescue Services; rescue and clean-up work methods and procedures management; typological IRS activities.
2. The Crisis Management System in the Czech Republic - Threats and risks, the competence of crisis management entities, crisis plans, emergency plans, flood plans.
3. Crisis Management - Its definition and implementation reasons, crisis management specifics, sequential and parallel management functions, crisis management methods.
4. Population Protection - Objectives and tasks, population protection areas, warnings and notifications, population evacuation, emergency survival, sheltering, individual and collective protection.
5. Information Management Tasks – Information Management objectives and functions, the role of information managers in organisations, information support of management, the TCTV 112 /IVS information system, services, the crisis management information system.
6. Risk Management – The risk concept and its classification, risk identification and its factors, the determination of their significance, risk reduction measures, risk and uncertainty decisions, data management.
7. Managerial Profiles - Competency, style and relationship of a manager to subordinates, the qualification profile of managers for the 21st Century - knowledge, skills, habits, moral characteristics, corporate culture.
8. The "Economic Measures for Crisis Situations Concept" Definition - its basic division, the distinction between the emergency economy and economic mobilisation.
9. The Definition of Critical Infrastructures - The critical infrastructure of the Czech Republic and the European critical infrastructure, basic sectors, the identification process, cross-cutting and sectoral criteria, designation.
10. The State of Risk Analysis in Relation to Safety/Security Documentation - Characteristics of the nature and purpose of selected risk analysis methods, (KARS, FTA, ETA, HAZOP, What - If, etc.).
11. Modelling in Crisis Management - Possibilities of its utilisation, the TEREX instrument - specifications, architecture, and usage in the context of Act No. 224/2015 Coll., On Major Accident Prevention.
12. The Security Strategy of the Czech Republic – Its structure and objectives, link to security policy, security interests, security environment and the Czech Republic's security system.
13. Intelligent building and its management requirements, its components, intelligent building environment, requirements specification for intelligent building system, system architecture, home networks, communication gates, data security, regulated home equipment, PZTS, EPS, camera systems, communication interface.
14. Control of indoor environment of buildings and its parameters, ergonomics, thermal comfort and parameters, air temperature, air humidity, air velocity, air purity, acoustic environmental parameters, light technical parameters, measurement of indoor environment parameters.

15. Radiation protection and safety, types of ionizing radiation, their detection and protection against their effects, dosimetry, sources of radioactive radiation and their use in practice.
16. Forensic Sciences - Definition, categorisation, classification and relation to other scientific disciplines.
17. Spectroscopic Techniques in Forensic Sciences - Nuclear methods, RTG spectroscopy, UV-VIS spectroscopy, infrared terahertz and microwave spectroscopy, fields of application, the advantages and disadvantages of individual spectral regions.
18. Forensic Science Microscopic Techniques – The principles and limitations of optical microscopy, electron microscopy, atomic force microscopy and their applications in nanotechnologies.
19. Space Technologies in Security Applications - Satellite communications, navigation systems, hyperspectral observations, space traps and related issues.
20. Cosmic Weather and Its Impact on the Earth's Security Systems - Sun-Earth interactions, solar activity, magnetic storms on the Earth, power distribution systems, telecommunication systems, black-outs of large agglomerations.