Course: Anthropogenic Threats			**Course designation:** KMM115
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
3	2 + 1 + 0	45	5

Course objective:
Introduce students to the types, forms and sources of threats, the concept and specific characteristics of anthropogenic disasters, as well as the reasons and conditions which facilitate their occurrence, and the operating basics in crisis headquarters.

Course contents:
Most common causes for the occurrence of incidents, disasters and accidents through human activities. Types, forms, sources and consequences of accidents, incidents and disasters; war and terrorism, chemical accidents, nuclear accidents, biological accidents, marine and inland waters pollution, fires and explosions, accidents in buildings; traffic accidents (aviation, road, railway, marine...), common characteristics of phenomena and consequences caused by anthropogenic disasters, the impact of natural threats on anthropogenic threats, risk assessments and rescue and protection plans, preventive procedures, warning systems, informing and alerting of the population, computer models for calculating potential effects; as well as consequence mitigation procedures. Personal, group and collective protection, protective agents, equipment and materials.
Measures and procedures for the remediation of an area and decontamination after accidental disasters.
Current legislation regarding protection and rescue in case of accident disasters.

Course: Chemistry of Pollutants			**Course designation:** KMM101
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
1	2 + 1 + 0	45	5

Course objective:
Introduction into the major artificial pollutants in atmosphere, water and soil, their major sources, and their chemical behaviour with the purpose of reduction of emissions and the recovery of polluted environment.

Course contents:
Essential inorganic and organic chemistry, pollutant chemistry, biospheric evolution, adverse effects of energy production and exploitation; as well as of the combustion of fossil fuels (oil, gas, coal, schist oil), mining of metal and non-metal raw materials, metallurgy, industrial production, agricultural industry, urbanization (soaps, detergents, pesticides, PDB, chlorine organic compounds, smog, polymers, plastic material, etc.).
Chemistry of water systems (sources and transport of pollutants and protection methods), soil pollution, effects of artificial radioactivity as a source of pollution (nuclear plants, accidents, disposals of high, medium and low activity nuclear waste), nuclear tests (in atmosphere, under water and ground).
Analytical procedures in monitoring and detection of pollution; sample taking and storing, instrumental analytical methods; AAS, ICP-MS, ICP-ES, chromatography (gas and liquids), polarography, electronic microscopy, XRD, XRF. pH and Eh measurements.

Course: Communicology			**Course designation:** KMM145
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
3	2 + 1 + 0	45	3

Course objective:
Gaining insights into the communication process, types of communication and successful communication. Enhancing communication skills.

Course contents:
Nature of the communication process; Basic principles of communication; Prejudices on communication; Types of communication; Verbal and non-verbal communication; Sources of difficulties in communication; Speaker characteristics that aggravate communication; Communication skills; Presentation skills; Active listening; Complete and incomplete messages; Business communication; Non-violent conflict settlement; Negotiation and mediation; Individual and group differences in communication.

Course: Crisis Management			**Course designation:** KMM127
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
5	2 + 1 + 0	45	6

Course objective:
Introduction into the crisis management approach, training for planning and action during crisis, as well as for the elimination of crisis consequences.

Course contents:
The definition of the concept of "crisis", the properties of crisis. Types of crises and disasters. Potential crises. Crisis

consequences. Crisis factors. Structure, conditions and dynamics of crises. Causes of crises and disasters. Crisis from the point of view of an individual, an enterprise, organization or a state. Information on the status before, during and after a crisis. Protection against crises. Ethics and crisis. Crisis prevention. Crisis resistance. Purpose of crisis management, prevention, survival and successful overcoming of a crisis. Success criteria. Management in crisis conditions. Goals of management, rapid response and the development of management skills for the mastering of unpredictable events. Crisis management model. Crisis management planning. Prevention. Data collection, identification of risks, assessment of the occurrence and consequences, assessment of risk acceptability. Plan for informing. Forces and resources for the intervention. The concept of operational protection and rescue forces, regular forces in the protection and rescue system, the role of government in the protection and rescue system from the local to the state level. Public information and public relations during crisis. Elimination of crisis, remediation of consequences and return to normalcy. Evaluation of the operations and the application of the gained experience.

Course: Critical Infrastructure			**Course designation:** KMM128
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
5	2 + 1 + 0	45	6

Course objective:
Introduce the students to the way in which national and European critical infrastructure is organized, the comparative overview of critical infrastructures in individual countries, sectors from which central government administration bodies identify national critical infrastructures, processes which endanger critical infrastructures, the manner of creating critical infrastructure operational risk analysis, security plans of CI owners/managers, as well as handling sensitive and classified data. Through the course, the students are taught to create critical infrastructure operational risk analysis.

Course contents:
Conceptual definition of critical infrastructure according to international standards. Critical infrastructures as part of the national security system and a part of international security. Concept and definition of criticality, content and characteristics of individual elements of critical infrastructure, normative regulation of critical infrastructure and its protection, creating a priority list for critical infrastructure, elaboration of elements for an individual critical infrastructure, interdependence of critical infrastructures and the transfer of vulnerability. Risk elements for critical infrastructures, vulnerability, resilience and redundancy. Protection of CI in Europe and European critical infrastructures. The examples of methodologies and models for analysing critical infrastructure operational risks. Development of scenarios and analyses of threats which could have uncertain impact on the realization of critical infrastructure goals.

Course: Ecology			**Course designation:** KMM135
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
1	2 + 1 + 0	45	3

Course objective:
Students will learn about the main subject matter of research and the methodological approaches of ecology as a science.

Course contents:
Definitions, limits and division of ecology; ecology of individual organisms, population and its parametres; population growth; geographical and ecological space; ecological niche and ecological valency; habitat, biological community and ecosystem; origin, structure, exchange and stability of biological communities; biodiversity; protected areas; cycles and circulation of matter in ecosystem; ecological division of space; vegetation; water, soil and air as ecological factors; evolution ecology and biogeography; global ecological changes; anthropogenic impact on the environment; ecological accidents; radiation impact on the environment; sustainable development and ethics; traffic and the environment, economy and the environment.

Course: English I			**Course designation:** KMM107
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
1	1 + 1 + 0	30	2

Course objective:
Revision of basic knowledge of the English language and its usage in spoken and written communication.

Course contents:
Introduction into the field of crisis management and basic professional terminology (introduction to crisis management, managing a crisis, global warming, environmental protection, epidemics and pandemics). Basic verb tenses and forms, articles, plural of nouns, word formation, adjectives and comparison of adjectives.

Course: English II			**Course designation:** KMM114
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
2	1 + 1 + 0	30	2

Course objective:

Acquisition of basic professional terminology and its usage in business communication in the English language.
Course contents: Introduction into the field of crisis management and basic professional terminology (the field of natural disasters – fires, floods, adverse weather events, earthquakes). Basic verb tenses and forms, articles, plural of nouns, word formation, active and passive voice.

Course: English III			**Course designation:** KMM121
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
3	1 + 1 + 0	30	2
Course objective: Acquisition of professional terminology and improvement of business communication in English.			
Course contents: Complex thematic units from the field of crisis management (waste management, terrorism, occupational safety, anthropogenic threats) will be covered. Revision of all verb tenses and forms, relative clauses, compound word formation, use of conjunctions, presentation of professional topics.			

Course: Fundamentals of Technological System Safety			**Course designation:** KMM104
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
1	2 + 1 + 0	45	4
Course objective: Acquisition of basic knowledge in the theory of reliability of technological systems.			
Course contents: Philosophy of safety of technological systems. Safety levels. Passive and active safety systems. Backup safety systems. Fundamentals of reliability theory. Component reliability. Reliability of a system. Mean time to failure. Systems with recovery. Mean time of recovery. Organization of an operational safety system. Readiness systems in technological plants. Readiness systems in the narrow and wider areas surrounding technological plants.			

Course: Leadership and Commands			**Course designation:** KMM123
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
4	2 + 2 + 0	60	5
Course objective: Introduction to the scientific and professional knowledge from the theory of leadership, certain methods and techniques of operational research appropriate for the decision-making support, some information of crypto-protection, methods of command in decision-making process. To train students through practical work in optimisation of decisions. To present the sociological-psychological-professional profile of a leader-manager.			
Course contents: Historical development of the leadership and command system. Fundamentals of management and leadership theory. Process functions of management, leadership and command. Auxiliary methods and techniques in the process of management, leadership and command. Operational documents and crypto-protection. Structure and organization of the command headquarters. Characteristics of a leader. Organization of work in the system of management, leadership and command.			

Course: Logistics and Safety			**Course designation:** KMM122
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
4	2 + 1 + 0	45	5
Course objective: Understanding of essential logistics and security aspects of the logistic process; introduction into the approach to planning and managing logistic support and its safety in crisis situations. Specificities of conducting a logistic operation in crises. The importance of logistics in receiving and providing international assistance. To qualify the students for planning and managing logistic support in the realization of protection and rescue tasks, with an emphasis on the managing of logistic centers and commodities reserve in crisis conditions.			
Course contents: Concept definitions. Logistic support planning and managing. Logistic support factors. Hazards and risks in transport and storage. Hazardous materials in traffic pursuant to the ADR and RID Conventions. Logistic support in relation to types of threats. Logistic centres and commodities reserves. Logistics in exercises and operations (norms). Logistics in requesting and receiving of international assistance. Logistics in providing international assistance. International organisations and agencies. Logistics in the EU (experiences).			

Course: Management and Entrepreneurship			**Course designation:** KMM139
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
0	2 + 1 + 0	45	3
Course objective: Acquiring the knowledge and skills that will allow the students to successfully start and realize their own entrepreneurial and other projects, as well as managing the business by the principles of economical and social responsibility from the role of a future employee or entrepreneur.			
Course contents: Definition of management and basic management functions with the emphasis on planning (strategy, vision, mission, SWOT analysis), human resource potential and control (use of individual indices, absolute and relative change rates). CSR (Corporate Social Responsibility). Entrepreneurship. Marketing strategies (generic strategies) and competitive advantage. Entrepreneurial project (purpose, structure of the project and presentation).			

Course: Methods of Environmental Impact Assessment			**Course designation:** KMM133
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
4	2 + 1 + 0	45	3
Course objective: Students will learn about the goals, principles, content, procedure, techniques and methods of environmental impact assessment of various (objects and human) interventions and activities			
Course contents: Introduction to environmental impact assessment – history, goal, principles; types of impact assessment: strategic assessments and impact studies; legal regulations; establishing the need for assessment; establishing the content of assessment; prediction of impact; identification of measures for impact reduction; assessment of significance of impact; economic assessment of environmental impact and cost-benefit analysis; observing impact after intervention; participants in impact assessment process; public participation in the process; control of quality of environmental impact assessment; gathering and preparation of data for impact assessment; interpretation of thematic maps; integration of data from thematic maps; interpretation of assessed and measured data; use of GPS in field work in impact assessment; application of DMR in impact assessment; spatial analyses; spatial conflicts; area analysis by establishing the way of land-use, soil covering, habitat naturalness, assessments and establishing these elements through recording interpretation; multi-criteria analyses; protection measures; examples from practice.			

Course: Protection of Air Quality			**Course designation:** KMM143
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
2	2 + 1 + 0	45	3
Course objective: Introduce students to the major problems related to atmospheric pollution, analysis methods, influences of pollution on human health and pollution control programmes.			
Course contents: Composition and structure of atmosphere, sources and types of pollution, types of pollutants, historical overview of pollution with the emphasis on the most important episodes in the world, influence of meteorological parameters on pollutants, mechanism of creation of pollutants, variations of concentration of pollutants and their spatial distribution, measurement and analytical methods, allergenic particles in the air (pollen and spores), sampling and analysis, automatic stations, data analysis and creation of databases, air quality monitoring networks (national, regional, special purpose measurements), medical effects of pollutants, exposure time, concentrations threatening health, public information, legislation, conventions, protocols, declarations, emission limits, air quality standards, pollution control programmes, international cooperation, global problems as a consequence of pollution (greenhouse effect, ozone holes, acid rains).			

Course: Psychology of Stress			**Course designation:** ZAJ132
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
1	2 + 1 + 0	45	3
Course objective: The aim is to introduce the students to the psychosocial and physiological processes responsible for the occurrence, experience and control of stress, as well as the effect of psychosocial stress on the human experience and behavior and various, above all health, outcomes (diseases).			
Course contents: Introduction to the course, an overview of the concepts and definitions of stress. Theories of stress, mechanisms of stress occurrence, psychophysiology of stress, sources of stress, stressors, types of stress. Personality traits and coping with stress. Work stress and work organization, organizational climate and culture as stress prevention. Burnout. Mobbing - psychological			

abuse at the workplace. Bullying and other abuse forms as sources of stress. Traumatic stress and post-traumatic stress disorder. Stress and crisis/ crisis interventions. Physiological control of stress response, stress and immune functions. Stress, personality, emotions and health. Mediators of the relationship between stress and health. Stress prevention and procedures for mitigating the effects of stress. Physical activity and humor in the function of protection against stress. Stress management and prevention of harmful stress effects.

Course: Risk Assessment			**Course designation:** KMM124
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
4	2 + 1 + 0	45	5
Course objective: Acquisition of basic knowledge of the risk theory and training to perform risk assessments.			
Course contents: Origin of risk. Definitions of risk. Risk and security. Types of risk. Risk and environmental protection. Technological risks. Procedure of risk assessment. Identification of hazards. Assessment of risk probability. Assessment of consequences. Characterization of risk. Criteria of acceptability. Perception of risk. Communication on risks. Vagueness of assessment. Risk management. Risk – costs relation. Decision-making on the reduction of risk. Lifecycle of a decision.			

Course: Terrorism			**Course designation:** KMM108
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
2	2 + 1 + 0	45	4
Course objective: To inform students of the basic characteristics of terrorism as the most serious threat to peace and security in the world. To inform them about terrorist organisations and modes of operations, to present to them examples of terrorist operations, with emphasis on non-conventional terrorism. To clarify the concepts and essence of diversions and sabotages. To enable students to learn the basic rules of management in protection and rescue in case of terrorism.			
Course contents: The concept and historical development of terrorism. Contemporary terrorism – asymmetrical threats. Manifestations and methods of contemporary terrorism. Terrorist resources and equipment. CBRN terrorism. Terrorist organisations and principles of operation. Globalisation of contemporary terrorism and organised crime. Counterterrorism techniques and methods. Crisis management and the terrorist threat. Republic of Croatia and terrorist threats.			

Course: Waste Management			**Course designation:** KMM137
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
6	2 + 1 + 0	45	3
Course objective: Students will learn and analyze issues in the field of waste and garbage management.			
Course contents: Definition of the concept of waste and waste management, integral system of environment and human health protection. Types, quantities, volume and waste system: systems of analysis of waste and the waste management system. Sanitary gathering of utility and technological (production) waste, separated water collection with waste flow monitoring, record keeping and documentation. Measures for reduction and avoiding of waste, such as: primary waste recycling, secondary waste recycling, biological processing procedures, thermal treatment procedures, mechanical processing and combined processing procedures. Separate collection of problematic material and hazardous waste, recycling procedures and treatment procedures. Hazardous waste handling. Waste temporary storage and depositing, and permanent waste disposal. Managing special types of waste, risks in waste handling. Ecotoxicological balance of waste management system and legislation. Waste handling programme. Education and PR.			

Course: Weapons of Mass Destruction			**Course designation:** ZAJ149
Semester:	**Lectures + exercises + seminar:**	**Total:**	**ECTS credits:**
4	2 + 1 + 0	45	3
Course objective: Introduce students to the basics of: designs of nuclear, chemical, biological and toxic weapons; methods of their effect on people, fauna and flora, material assets and the environment; method of detection and dosimetry for CBRN and toxins; introduce the students to the fundamentals of decontamination; protection, rescue, evacuation and taking care of those injured and vulnerable to the effects of these weapons.			
Course contents: The concept of weapons of mass destruction. Construction, use and effects of WMD (biological, chemical, nuclear, toxin) on			

people, flora and fauna, the environment, buildings and material-technical resources. Detection and classification of threat. Detection, dosimetry and identification of CBRN and toxic agents. Personal and collective protection. Tactics and strategy in the case of an accident (prevention and averting, threat response, recovery, restoration). The role of individual system components in the threat response. Procedures for the suppression of proliferation of weapons of mass destruction. Databases of weapons of mass destruction. Demolition of weapons of mass destruction. Investigation procedures.