

BASIC COURSE INFORMATION WITHIN THE STUDY PROGRAMME

PROFESSIONAL UNDERGRADUATE
STUDY PROGRAMME

**MANAGEMENT
IN CRISIS SITUATIONS**

Course title: Anthropogenic Hazards

Course Code:
KMM115

Semester:
3

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
5

Course objectives:

To familiarize students with the types, forms, and sources of hazards, the concept and characteristics of anthropogenic disasters and catastrophes, the reasons and conditions that contribute to their occurrence, and the basic principles of crisis management operations.

Course content:

The most common causes of human-induced incidents, accidents, major disasters, and catastrophes. Types, forms, sources, and consequences of incidents, accidents, major disasters, and catastrophes: war and terrorism; chemical accidents; nuclear accidents; biological disasters; marine and inland water pollution; fires and explosions; structural failures; transport accidents (air, road, rail, maritime). Common characteristics, manifestations, and consequences of anthropogenic hazards; interrelations between natural and anthropogenic threats. Risk assessment and rescue planning; preventive measures, warning systems, public notification and alerting, and computer models for calculating potential consequences and mitigation strategies. Personal, group, and collective protection, protective equipment, and materials; evacuation and care in contaminated areas; remediation measures and procedures; current legislation regarding protection and rescue in accidental disasters.

General and specific competencies (knowledge and skills):

Students will understand and identify crises caused by anthropogenic hazards and will be able to use hazard assessment methods and develop protection and rescue plans.

Learning outcomes:

Upon successful completion of the course, students will be able to:

1. Conceptually categorize types and forms of anthropogenic hazards and disasters.
2. Explain sources of hazards and differences between anthropogenic threats depending on origin and scale.
3. Interpret specific and common characteristics of manifestations and consequences of anthropogenic disasters.
4. Predict conditions, critical points, elements, and moments that contribute to the occurrence of anthropogenic disasters.
5. Based on given assumptions, design possible scenarios and predict consequences, develop protection and rescue plans, and identify resources required for mitigation and recovery. Analyze the current state of material, technical, and human capacities and propose improvements in line with contemporary standards and best practices.

Required Literature:

1. Črnko, M., Magdalenić, I., Orehovec, Z., & Strbad, T. (2012). Anthropogenic Hazards. Veleučilište Velika Gorica.
2. Toth, I. (2001). Civil Protection – Lecture Notes. IPROZ, Zagreb.

Course title: Civil Defense

Course Code:
KMMIII

Semester:
1

Lectures + Exercises + Seminar:
2 + 0 + 0

Total Hours:
30

ECTS Credits:
3

Course objectives:

Modern technology and communications have introduced new types of threats and challenges to security. Given the increasing dynamics of international relations, the conditions for achieving state and national security, including that of the Republic of Croatia, are continuously evolving. The aim of this course is to acquaint students with various forms of security threats on both global and national levels, as well as with the organization and activities of international and Croatian state institutions in achieving security. Special emphasis is placed on the study of Croatia's security policy, national security system, and the role of crisis management within that system.

Course content:

Concept and scope of security, security studies, and civil defense; security policies and national security systems of modern states; international security organizations and integrations; security policy of the Republic of Croatia; national security system of the Republic of Croatia; the role and position of civil defense within the national security system, and its use during war and peacetime crises; the concept of homeland security; protection and rescue systems; global security processes; modern (irregular) migration in the context of civil defense; NATO, the EU, and civil defense.

General and specific competencies (knowledge and skills):

Understanding the concept, types, and content of security, as well as international relations and their impact on Croatia's national security. Comprehension of the homeland security concept and the security policy of the Republic of Croatia. Understanding the structure of the national security system, civil defense, and the role of crisis management within that system.

Learning outcomes:

Upon successful completion of the course, students will be able to:

1. Explain the concept and types of security and assess their importance and role.
2. Analyze modern security processes and actors at international and national levels.
3. Present the functioning of crisis management within the national security system of the Republic of Croatia.
4. Evaluate the functioning and interconnections among all components of the national security system, including Homeland Security, Civil Defense, and Civil Protection.

Required Literature:

1. Collins, A. (2010). Introduction to Security Studies. Politička kultura, Zagreb.
2. Tatalović, S. et al. (2008). Contemporary Security Policies. Golden marketing–Tehnička knjiga, Zagreb.

Course title: English Language I

Course Code:
KMM107

Semester:
1

Lectures + Exercises + Seminar:
1 + 1 + 0

Total Hours:
30

ECTS Credits:
2

Course objectives:

To consolidate basic knowledge of the English language and apply it in spoken and written communication.

Course content:

Introduction to the field of crisis management and basic professional terminology (introduction to crisis management, crisis response, global warming, environmental protection, epidemics and pandemics, the COVID-19 pandemic, and global crisis situations). Basic verb tenses and forms, articles, plural nouns, word formation, adjectives, and their comparison.

General and specific competences (knowledge and skills):

Knowledge of basic professional terminology and its application in written and spoken English. Development of reading comprehension and effective communication skills in English.

Learning outcomes:

Upon successful completion of this course, students will be able to:

1. Correctly use grammatical structures: present and past tenses, adjective comparison, and definite and indefinite articles.
2. Correctly form new words using prefixes and suffixes and form plural nouns.
3. Use professional vocabulary and phrases in the field of crisis management, focusing on the basics of crisis management, climate change, epidemics, and global crisis situations.
4. Explain key professional concepts using the English language of the profession.
5. Present their own opinions on selected topics related to crisis management.

Required literature:

1. Evans, V., Dooley, J., Rodgers, K. (2014): Career Paths – Environmental Engineering. Express Publishing.

Course title: Ecology

Course Code:
KMM135

Semester:	Lectures + Exercises + Seminar:	Total Hours:	ECTS Credits:
1	2 + 1 + 0	45	3

Course objectives:

To familiarize students with the main research subjects and methodological approaches of ecology as a scientific discipline.

Course content:

Definitions, scope, and divisions of ecology; ecology of the individual; population ecology and population parameters; population growth; geographical and ecological space; ecological niche and ecological valence; habitat, biological communities, and ecosystems; origin, structure, dynamics, and stability of biological communities; biodiversity; protected areas; cycles and circulation of matter in ecosystems; ecological zoning; vegetation; water, soil, and air as ecological factors; global ecological changes; anthropogenic impacts on the environment; ecological accidents; global environmental problems; effects of radiation on the environment; sustainable development; transportation and the environment; economics and the environment.

General and specific competencies (knowledge and skills):

After completing the course and passing the exam, students will be able to identify fundamental ecological concepts, understand ecological principles, and evaluate anthropogenic impacts on ecosystems.

Learning outcomes:

Upon successful completion of the course, students will be able to:

1. Explain basic ecological concepts and classifications, and interpret laws and regulations in the field of environmental and nature protection.
2. Apply fundamental ecological principles in the analysis of ecological processes and ecosystem dynamics.
3. Analyze global ecological issues and explain causal relationships between anthropogenic influences and environmental changes.
4. Critically evaluate the impact of transportation, emissions, and radiation on the environment and human health.
5. Assess environmental risks associated with waste and human activities, and apply principles of sustainable development.
6. Plan environmental protection measures and propose strategies for reducing ecological threats in the context of crisis management.

Required Literature:

1. Kalambura, S., Jovičić, N. (2018). Ekologija. Velika Gorica.

Course title: English Language I

Course Code:
KMM107

Semester:
1

Lectures + Exercises + Seminar:
1 + 1 + 0

Total Hours:
30

ECTS Credits:
2

Course objectives:

To consolidate basic knowledge of the English language and apply it in spoken and written communication.

Course content:

Introduction to the field of crisis management and basic professional terminology (introduction to crisis management, crisis response, global warming, environmental protection, epidemics and pandemics, the COVID-19 pandemic, and global crisis situations). Basic verb tenses and forms, articles, plural nouns, word formation, adjectives, and their comparison.

General and specific competences (knowledge and skills):

Knowledge of basic professional terminology and its application in written and spoken English. Development of reading comprehension and effective communication skills in English.

Learning outcomes:

Upon successful completion of this course, students will be able to:

1. Correctly use grammatical structures: present and past tenses, adjective comparison, and definite and indefinite articles.
2. Correctly form new words using prefixes and suffixes and form plural nouns.
3. Use professional vocabulary and phrases in the field of crisis management, focusing on the basics of crisis management, climate change, epidemics, and global crisis situations.
4. Explain key professional concepts using the English language of the profession.
5. Present their own opinions on selected topics related to crisis management.

Required literature:

1. Evans, V., Dooley, J., Rodgers, K. (2014): Career Paths – Environmental Engineering. Express Publishing.

Course title: English Language II

Course Code:
KMM114

Semester:
2

Lectures + Exercises + Seminar:
1 + 1 + 0

Total Hours:
30

ECTS Credits:
2

Course objectives:

To acquire basic professional terminology and apply it in business and professional communication in English.

Course content:

Introduction to crisis management and related terminology (natural disasters – fires, floods, weather hazards, earthquakes), with a special focus on natural disasters occurring in the Republic of Croatia. Study of basic grammatical structures – verb tenses and forms, articles, plural nouns, word formation, and the use of active and passive voice.

General and specific competences (knowledge and skills):

Development of understanding and active use of professional terminology in English. Acquisition of oral and written communication skills and the ability to follow and present short professional topics in English.

Learning outcomes:

Upon successful completion of this course, students will be able to:

1. Describe processes and methods used in the prevention, occurrence, and recovery from natural disasters.
2. Correctly use grammatical structures: active and passive voice, conditionals, and modal verbs.
3. Use professional terminology and phrases related to the studied subject areas.
4. Present their own opinions on topics related to crisis management.
5. Write short professional texts using newly acquired terminology and structures.

Required literature:

1. Majić, J. (2015): Crisis Management. Teaching script.

Course title: English Language III

Course Code:
KMM121

Semester:
3

Lectures + Exercises + Seminar:
1 + 1 + 0

Total Hours:
30

ECTS Credits:
2

Course objectives:

To acquire more advanced professional terminology and improve business and professional communication skills in English, with an emphasis on independent expression and presentation of more complex professional content.

Course content:

Study of complex topics in the field of crisis management – waste management, terrorism, occupational safety, and human-induced hazards. Review of all verb tenses and forms, use of relative clauses, complex word formation and linking devices, and exercises focused on presenting professional topics.

General and specific competences (knowledge and skills):

Students will be able to apply acquired terminology and grammatical structures in general and business English communication, and develop skills for independent presentation, argumentation, and discussion of professional topics.

Learning outcomes:

Upon successful completion of this course, students will be able to:

1. Design and deliver a presentation on a professional topic of their choice.
2. Correctly use grammatical structures: direct and indirect speech, and distinguish between varieties of English.
3. Use professional terminology and phrases from the field of crisis management in both spoken and written communication.
4. Argue and explain opinions related to crisis management topics.
5. Present critical reflections on professional topics related to crisis management.
6. Write a short professional text in English using appropriate terminology and structure.

Required literature:

1. Majić, J. (2015): Crisis Management. Script.
2. Čemerin Dujmić, V. (2023): English III. Script.

Course title: Environmental Geochemistry

Course Code:
ZAJ147

Semester:
3

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
3

Course objectives:

To introduce students to the geological structure of the Earth, its mineral and chemical composition, and natural factors that drive the cycles of major and trace elements. Students will gain knowledge of natural geological processes, their environmental impacts, and remediation methods.

Course content:

Composition of the Earth and natural geochemical differentiation of elements. Geochemical spheres: lithosphere, asthenosphere, and core. Genesis of rocks – igneous, sedimentary, and metamorphic. Formation of ore deposits and minerals. Natural environmental pollution and geochemical anomalies. Volcanic activity, weathering, erosion, landslides, rockfalls, earthquakes, and tsunamis and their effects on the environment. Solubility of minerals, groundwater, marine environments, estuaries, and oceans; the impact of waves on coasts. Urbanization of coastal areas. Karst geology and karst waters. Evolution of organic matter in sediments, formation of oil and gas. Deserts and their formation processes.

General and specific competences (knowledge and skills):

Students will understand natural geological processes, recognize the causes and effects of natural disasters, and apply fundamental knowledge of environmental protection and remediation following geological incidents.

Learning outcomes:

Upon successful completion of this course, students will be able to:

1. Categorize natural sources of environmental pollution.
2. Analyze the mechanisms of geological hazards.
3. Analyze geochemical characteristics and processes in the formation of different rock types.
4. Define the geological structure of the Earth and basic geological processes.
5. Present methods of environmental remediation after natural disasters and accidental events.

Required literature:

Teaching materials published on the Gaudeamus platform.

Course title: Civil Engineering

Course Code:
KMM110

Semester:	Lectures + Exercises + Seminar:	Total Hours:	ECTS Credits:
2	2 + 0 + 0	30	3

Course Objectives:

To introduce students to the fundamental protective measures for urban structures and buildings in the event of disasters caused by natural forces or human activities, as well as to familiarize them with construction protection measures, evacuation principles, and rescue procedures.

Course Content:

Urban protection measures (zoning, decentralization of urban functions, utility infrastructure, building density, building height, calculation of structural vulnerability, calculation of building spacing, planning rescue areas, securing water reserves, and shelter planning). Basic building elements. Construction materials and structural systems. Types of impacts on buildings and their reactions to such impacts (earthquakes, fires, dynamic loads caused by war or terrorist actions, etc.). Combustion characteristics of construction materials in fire situations and their effects on endangered persons and rescuers. Fire and fire load. Fire protection. Resistance of load-bearing structures to earthquakes, fire, and impact forces (masonry, reinforced concrete, steel, and timber structures). Seismic-resistant construction. Design measures for protecting buildings from these hazards. Construction measures ensuring evacuation from endangered buildings. Principles of shelter design. Relevant legal regulations.

General and Specific Competencies (Knowledge and Skills):

Students will recognize the basic measures for protecting urban structures and buildings from natural and anthropogenic hazards, as well as the principles of evacuation and rescue planning.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Distinguish between urban protection measures (zoning, building density, spacing calculations, etc.).
2. Plan shelter layouts and develop principles of shelter design.
3. Identify basic building elements, construction materials, and structural systems.
4. Assess the effects of earthquakes, fires, and dynamic loads caused by terrorist actions on buildings.
5. Evaluate the resistance of load-bearing structures to fire, earthquakes, and dynamic impacts.
6. Organize and plan protective measures ensuring evacuation from endangered buildings.

Required literature:

1. Bell, G.F. (2003). Geological Hazards: Their Assessment, Avoidance and Mitigation. Spon Press.
2. Radić, J. (2016). Uvod u graditeljstvo. Školska knjiga.

Course title: Informatics I

Course Code:
ZAJ106

Semester:	Lectures + Exercises + Seminar:	Total Hours:	ECTS Credits:
1	2 + 2 + 0	60	4

Course Objective:

To equip students with the knowledge and skills to use fundamental computer functions and applications in everyday work. To introduce them to the possibilities of information and communication technologies in the development of information systems for business and other purposes.

Course Content:

Basic concepts, main components, and structure of information technology – their origin, significance, and application. The Windows operating system: purpose and essential user functions. Word processing software – basic and advanced document formatting functions. Presentation software – basic and advanced application functions. Spreadsheet software – concept and basic business functions in use. Database programs – fundamental functions and applications. Basic concepts of computer networks and technical and organizational measures for data and information system security.

General and Specific Competencies (Knowledge and Skills):

Students will be capable of creating seminar-level documents using advanced software features, independently developing multimedia presentations, and applying spreadsheet tools to build simple business applications. They will understand the complexity of information systems and acquire the necessary knowledge for their development.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Define the main concepts and components of information technology.
2. Use essential user functions of the Windows operating system and standard Microsoft Office software, including Internet applications.
3. Present professional content using appropriate software technologies.
4. Identify the main technical and organizational measures for information and data security.

Required literature:

1. Preppernau J., Lambert J., Frye C.: Microsoft Office 2010 – Step by Step, Algoritam, 2010, ISBN: 978-953-7398-29-3.
2. Lambert J., Lambert S.: Microsoft Windows 10 – Step by Step.

Course title: Informatics II

Course Code:
ZAJ114

Semester:	Lectures + Exercises + Seminar:	Total Hours:	ECTS Credits:
2	2 + 1 + 0	45	3

Course Objective:

To provide students with knowledge and skills in using applications for performing calculations, working with databases, graphical modeling, drawing, sketching, and project management.

Course Content:

Spreadsheet applications in MS Excel: data storage organization, navigation through tables and worksheets, editing worksheets, data types, entering, editing, and deleting data. Basic arithmetic operations and formulas, working with columns, rows, and cell ranges. Linear and incremental series. Graphical data representation and chart formatting. Formula construction and error correction. Function types. Working with data lists. Calculation analysis and data summarization. Databases in MS Access: basic database objects and data organization. Data types. Creating and updating tables, forms, queries, and reports. Indexing and key setting. Establishing relationships between tables.

Introduction to and work with available graphic modeling, drawing, and sketching software (MS Visio).

Project management software: tasks, time, task duration, resources (human, material, financial), critical path, dependencies, project creation, and project monitoring.

General and Specific Competencies (Knowledge and Skills):

Students will be able to:

- Use spreadsheets and create graphical data representations.
- Design plans and sketches.
- Create databases and design queries for data retrieval.
- Prepare and manage project plans and monitor their implementation.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Critically analyze the need for and suitability of specific software applications for solving complex problems.
2. Design document templates, calculation models, and database structures to solve practical problems.
3. Identify properties and methods of objects from object models in Word, Excel, Access, PowerPoint, Visio, and Project.
4. Present the results of developed solutions.
5. Integrate solutions using multiple software applications.

Required literature:

1. Srnc, T. et al.: ECDL 5.0 (Windows 7, Office 2010), PRO-MIL, 2011, ISBN: 978-953-7156-34-3.
2. Gvozdanović, T.; Ikica, Z.; Kos, I.; Srnc, T.; Zvonarek, Lj.: E-citizen, PRO-MIL, 2005, ISBN: 953-7156-17-6.

Course title: Chemistry of Pollutants

Course Code:
KMM101

Semester:
1

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
5

Course Objective:

To introduce students to the main artificial pollutants in the atmosphere, water, and soil, their principal sources, and their chemical behavior, with the aim of emission reduction and remediation of polluted environments.

Course Content:

Fundamentals of inorganic and organic chemistry. Chemistry of pollutants. Evolution of the biosphere. Harmful effects of energy production, exploitation and combustion of fossil fuels (oil, gas, coal, oil shale), mining of metallic and non-metallic raw materials, metallurgy, industrial production, agro-industry, and urbanization. Overview of pollutants such as soaps, detergents, pesticides, PCBs, chloro-organic compounds, smog, polymers, and plastics. Chemistry of aquatic systems (sources and transport of pollutants and protection methods). Soil pollution. Effects of artificial radioactivity as a source of pollution (nuclear power plants, accidents, disposal of high-, medium-, and low-level radioactive waste), and nuclear testing (in the atmosphere, underwater, and underground). Analytical procedures for monitoring and detecting pollution: sampling and sample storage, instrumental analytical methods – AAS, ICP-MS, ICP-ES, chromatography (gas and liquid), polarography, electron microscopy, XRD, XRF, pH and Eh measurements.

General and Specific Competencies (Knowledge and Skills):

Students will be able to describe pollution processes, their consequences, prevention methods, pollution detection techniques, and environmental remediation procedures.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Classify pollutants and their sources.
2. Correlate the effects of pollutants on the environment and human health.
3. Propose remediation measures based on the type of pollutant.
4. Assess the severity of incidents depending on the type of pollutant.

Required literature:

1. Peternel, R., Hercog, P.: Zaštita atmosfere [Atmospheric Protection], VVG, Velika Gorica, 2010.

Course title: Communication Studies

Course Code:
KMM145

Semester:
3

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
5

Course Objective:

The main objective of the course is to familiarize students with the communication process, types of communication, and effective communication strategies, with a special emphasis on developing presentation skills.

Course Content:

The nature of the communication process; Basic principles of communication; Common misconceptions about communication; Types of communication; Verbal and non-verbal communication; Sources of communication difficulties; Traits of interlocutors that hinder communication; Communication skills; Presentation skills; Active listening; Complete and incomplete messages; Business communication; Non-violent conflict resolution; Negotiation and mediation; Individual and group differences in communication.

General and Specific Competencies (Knowledge and Skills):

Understanding the communication process and successful application of communication skills in various contexts.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Identify the basic elements of communication and communication processes.
2. Discuss key features of communication and types of communication processes.
3. Compare components of verbal and non-verbal communication.
4. Assess communication competence and negotiation techniques.
5. Integrate forms and rules of business communication.
6. Develop communication and presentation skills.

Required literature:

1. Fox, R. (2006): Poslovna komunikacija [Business Communication], Hrvatska sveučilišna naklada & Pučko otvoreno učilište, Zagreb (pp. 11–145).
2. Novosel Leinert, S. (2012): Komunikacijski kompas [Communication Compass], Plejada, Zagreb.
3. Tomić, Z., Jugo, D. (2021): Temelji međuljudske komunikacije [Foundations of Interpersonal Communication], Synopsis, Sarajevo.

Course title: Critical Infrastructure

Course Code:
KMM128

Semester:
5

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
6

Course Objective:

The aim of the course is to acquaint students with the organization of national and European critical infrastructure, the regulatory frameworks for its protection, and a comparative overview of resilience-building and protection systems in different countries. Students will learn about the sectors in which public administration bodies identify national critical infrastructures, the processes that threaten them, and the methods for performing risk analyses related to their operation. The course also covers the preparation of security plans by critical infrastructure owners/managers and the management of sensitive and classified information. Through this course, students will gain the knowledge and skills required to perform critical infrastructure risk assessments and understand methods for strengthening resilience and protection at both national and international levels.

Course Content:

Conceptual definition of critical infrastructure according to international standards; Critical infrastructures as part of national and international security systems; The concept and definition of criticality, content, and characteristics of critical infrastructure components; Legal and regulatory frameworks for critical infrastructure protection; Development of priority lists and detailed analysis of specific infrastructure sectors; Interdependencies and cascading vulnerabilities among infrastructures; Elements of risk, vulnerability, resilience, and redundancy; Protection of critical infrastructure in Europe and the European Critical Infrastructure framework; Examples of methodologies and models for critical infrastructure risk assessment; Scenario development and threat analysis addressing uncertain impacts on the achievement of critical infrastructure objectives.

General and Specific Competencies (Knowledge and Skills):

Upon completion, students will understand the significance and role of critical infrastructure in the Republic of Croatia and other countries. They will be capable of creating scenarios and conducting threat analyses for events that may impact the functioning and objectives of critical infrastructures.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Classify and categorize critical infrastructures and emergency situations.
2. Explain procedures for identifying critical infrastructures.
3. Critically analyze risk assessment processes.
4. Apply methods for risk calculation.
5. Develop qualitative risk analyses as a basis for determining the impact and consequences of operational interruptions or major disruptions of critical infrastructures.
6. Present examples of dependencies and interdependencies when assessing risk and determining the required level of protection for critical infrastructures.

Required literature:

1. Larkin, R., Cesarec, I., Mikac, R. (2018): Kritična infrastruktura – Platforma uspješnog razvoja sigurnosti nacija [Critical Infrastructure – A Platform for the Successful Development of National Security], Jesenski & Turk, Zagreb.
2. Directive of the European Parliament and of the Council on the Resilience of Critical Entities and repealing Council Directive 2008/114/EC.

Course title: Crisis Management

Course Code:
KMM127

Semester:
5

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
6

Course Objective:

To introduce students to the concept and approach of crisis management, and to train them in planning and acting during crises, as well as in mitigating and eliminating their consequences.

Course Content:

Definition and characteristics of the concept of "crisis." Types of crises and disasters. Potential crises and their consequences. Crisis factors. Structure, conditions, and dynamics of crises. Causes of crises and disasters. The concept of crisis from the perspective of the individual, enterprise, organization, and state. Information and data before, during, and after a crisis. Crisis protection and prevention. Ethics in crisis situations. Crisis resilience. The purpose of crisis management: prevention, survival, and successful recovery. Success criteria. Management in crisis conditions—objectives, rapid response, and developing managerial capacities to handle unpredictable events. Crisis management models. Crisis management planning: data collection, risk identification, likelihood and consequence assessment, risk acceptability evaluation. Information and communication planning. Intervention resources and capacities. Concept of operational protection and rescue forces; regular forces within the protection and rescue system; role of authorities from local to national level. Public communication and media relations during a crisis. Crisis elimination, consequence management, and return to normal operations. Evaluation of crisis operations and application of lessons learned.

General and Specific Competencies (Knowledge and Skills):

Students acquire knowledge necessary for understanding crisis management processes depending on the causes and locations of crises. They will be able to organize crisis prevention, preparedness, and response actions, as well as support decision-making in enterprises, local and regional self-government bodies, and state administration institutions.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Critically analyze the concepts of crisis, disaster, and emergency, and differentiate their processes and dynamics.
2. Analyze the causes and conditions of crises and disasters, and assess organizational capacities for managing potential crises.
3. Examine crisis management systems at national, local, and corporate levels, and analyze strategies for crisis governance.
4. Analyze real organizations and evaluate their measures and actions under crisis conditions.
5. Propose and develop crisis management plans, including prevention, control, and post-crisis recovery measures.
6. Critically apply acquired crisis management knowledge within enterprises, local and regional authorities, and state institutions.

Required literature:

1. Kešetović, Ž., Toth, I. (2011): Problemi kriznog menadžmenta [Problems of Crisis Management], VVG, Velika Gorica.
2. Ogorec, M. (2010): Izazovi kriznog upravljanja [Challenges of Crisis Management], VVG, Velika Gorica.

Course title: Crisis Communication

Course Code:
KMM601

Semester:	Lectures + Exercises + Seminar:	Total Hours:	ECTS Credits:
0	2 + 1 + 0	45	4

Course Objective:

The aim of the course is to provide students with knowledge of the communication process, types of communication, and effective communication before, during, and after a crisis. Students will be introduced to the concepts of crisis, crisis management, and crisis communication. They will learn the fundamental rules of crisis communication, the methods of developing a crisis communication plan, and approaches to managing crisis situations through appropriate behavior and activities in all crisis phases (pre-crisis, crisis, and post-crisis).

Course Content:

The nature of the communication process; basic principles and types of communication. Theoretical foundations of crises and crisis management. Recognizing crises and understanding their impact and consequences. Identifying key publics and methods of communication during crises. Organizing events and developing a communication plan. The role of media in crisis situations. Common mistakes in crisis communication.

General and Specific Competencies (Knowledge and Skills):

Students will understand the fundamental communication processes and develop proactive communication abilities while gaining insight into media functioning. They will be able to apply communication skills and adhere to the principles of crisis communication. Students will also be trained to participate in event organization and to communicate effectively with the public and stakeholders during and after crises.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Explain the basic elements of communication and analyze the communication process.
2. Develop and enhance communication skills.
3. Classify types of communication and crises and understand the process of crisis management.
4. Identify and apply communication tools in crisis situations.
5. Design and develop a crisis communication plan.
6. Identify and assess common communication errors during crises.

Required Reading:

1. Tomić, Z. (2008): Public Relations: Theory and Practice, Synopsis, Zagreb.
2. Jugo, D. (2017): Crisis Communication Management, Školska knjiga, Zagreb.
3. Mihalinić, M. (2018): Crisis Management and Communication, University of Applied Sciences Velika Gorica.

Course title: Crisis Planning

Course Code:
KMM125

Semester:
4

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
5

Course Objective:

The course aims to introduce students to the fundamental elements of risk, the types and magnitudes of threats, risk assessment, and planning for crisis situations. It also focuses on understanding the dynamics of crisis situations and the specific characteristics of the phases of prevention, preparedness, response, and recovery.

Course Content:

Introduction to crisis planning through general concepts of risk assessment and hazard evaluation; theoretical approaches to crisis planning; fundamentals, elements, and processes of crisis planning; crisis planning for prevention/mitigation, preparedness, response, and recovery; methodology for developing hazard assessments for various types of disasters; methodology for developing protection plans against specific threats; development of operational plans for action at different levels; concept and content of operational protection and rescue plans; methodology and practical examples for plan testing and implementation; feedback mechanisms as an essential component of the crisis planning process.

General and Specific Competencies (Knowledge and Skills):

Through lectures and exercises, students will acquire the ability to define crisis planning processes, protection and rescue procedures, and to develop hazard assessments and action plans for disasters and other crisis situations. Additionally, students will be better prepared for subsequent courses, particularly Crisis Management.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Analyze a given area using analytical methods.
2. Develop hazard assessments for various types of disasters.
3. Prepare protection and rescue plans for specific types of threats.
4. Design strategic or field exercises to test systems or subsystems and protection and rescue plans.
5. Anticipate scenarios under which disaster activities may unfold.
6. Organize the operation of teams and services in accordance with protection and rescue plans.

Required Reading:

1. Kešetović, Ž., Toth, I. (2011): Problems of Crisis Management, VVG, Velika Gorica.
2. Trut, D. (2008): Crisis Planning, VVG, Velika Gorica.

Course title: Logistics and Security

Course Code:
KMM122

Semester:
4

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
5

Course Objective:

To understand the fundamentals of logistics and the security aspects of the logistics process. The course introduces students to approaches for planning and managing logistics support and its security in crisis situations. It covers the specifics of conducting logistics operations during crises, the importance of logistics in the reception and delivery of international assistance, and the development of competencies for planning and managing logistics support in the implementation of civil protection tasks, with an emphasis on the management of logistics centers and commodity reserves under crisis conditions.

Course Content:

Definition of basic concepts. Classification of logistics in relation to process functions. Planning and implementation of logistics operations in crisis conditions. Planning and management of logistics support. Factors influencing logistics support. Threats and risks in the transport and storage of goods. Logistics support in relation to the type of threat. Logistics centers and commodity reserves. Logistics in exercises and operational actions (standards). Logistics in the process of requesting, receiving, and providing international assistance. International organizations and agencies. Logistics in the European Union (best practices and experiences).

General and Specific Competencies (Knowledge and Skills):

Students acquire essential knowledge for understanding logistics processes and their security aspects. They gain skills in planning and managing logistics support during crises, as well as in logistics processes related to requesting, receiving, and providing international assistance. Students will be capable of preparing planning documents for logistics support management in crisis conditions for the implementation of civil protection measures and post-crisis recovery. They will also be trained to manage logistics centers and commodity reserves.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Assess the need for planning logistics operations in crisis conditions.
2. Plan and evaluate the implementation of logistics operations and the provision of necessary logistics support in crisis conditions.
3. Coordinate the activities of governmental institutions and non-governmental organizations in executing logistics operations.
4. Conduct activities related to planning and establishing temporary tent settlements for the accommodation of affected and endangered populations.
5. Manage the process of requesting and receiving international assistance by ensuring adequate logistics support for operations.
6. Plan the security aspects of logistics support implementation in crisis operations.

Required Reading:

1. Zelenika, R. (2005): Logistics Systems, Faculty of Economics, Rijeka.
2. Bloomberg, D. (2006): Logistics, Biblioteka Gospodarska Misao, Zagreb.

Course title: Mathematics

Course Code:
ZAJ105

Semester:	Lectures + Exercises + Seminar:	Total Hours:	ECTS Credits:
1	2 + 2 + 0	60	5

Course Objective:

To adopt a mathematical way of thinking, strengthen the key elements of secondary school mathematics, and acquire the fundamentals of differential and integral calculus, as well as the basics of vector and matrix calculus.

Course Content:

NUMBERS. MATHEMATICAL LANGUAGE. Arithmetic expressions. Algebraic expressions. Equations and their applications. Coordinate system. Sets.

FUNCTIONS. The concept of a function – functional rule, graph, domain, and range. Continuity. Function sign. Increase, decrease, and extrema. Inflection points and curvature. Limit behavior and the concept of limits.

ELEMENTARY FUNCTIONS. Linear and quadratic functions. Polynomials and rational functions. Roots and powers. Exponential and logarithmic functions. Trigonometric and inverse trigonometric functions.

DERIVATION. The concept of a derivative. Differentiation rules. Mechanical applications of derivatives.

INTEGRATION. The concept of the indefinite integral and basic integration rules. Mechanical applications of the indefinite integral. The concept of the definite integral and its main properties. Applications of the definite integral in mechanics.

DIFFERENTIAL EQUATIONS. Basic concepts and the method of separation of variables.

VECTORS. The concept of a vector. Operations with vectors, their geometric meaning, and calculations.

MATRICES. Systems of linear equations. Matrix algebra. Geometry of matrices.

General and Specific Competencies (Knowledge and Skills):

Students will learn to use mathematical language; understand and apply the concept of functions; understand elementary functions and their properties in various contexts; apply differential and integral calculus to analyze non-uniform processes; apply differential equations in modeling continuous deterministic processes; use vectors in geometry and physics; and apply matrices to solve systems of linear equations and represent affine transformations.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Select and critically evaluate a system of equations in the mathematical modeling of a problem.
2. Select and critically evaluate a function in the mathematical modeling of a problem.
3. Select and critically evaluate the use of derivatives or integrals in mathematical modeling.
4. Select and critically evaluate vector expressions in mathematical modeling.
5. Select and critically evaluate matrix expressions in mathematical modeling.

Required literature:

1. Čulina, B., Zlopaša, S. (2010): Mathematics for Technical Colleges, Part I, II, and III, University of Applied Sciences Velika Gorica.

Course title: Management and Entrepreneurship

Course Code:
KMM139

Semester:
0

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
3

Course Objective:

To enable students to make responsible business decisions in the role of employees or entrepreneurs, in accordance with the principles of economic efficiency, professionalism, and social responsibility. To develop knowledge and skills that allow students to identify business opportunities and to initiate and implement their own entrepreneurial or professional projects.

Course Content:

Application of managerial functions in the field of crisis management. Introduction to the business environment (internal and external). SWOT and TOWS analysis, PESTLE analysis, with an emphasis on management in crisis conditions. Professional and responsible management of teams and resources; team dysfunctions. Marketing strategies (generic strategies) and competitive advantage. Entrepreneurial project (purpose, structure, and presentation).

General and Specific Competencies (Knowledge and Skills):

Students will develop organizational and entrepreneurial abilities, as well as skills in analytical reasoning, interpretation of results, presentation, and teamwork.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Analyze and apply fundamental management functions in managing processes under conditions of crisis and uncertainty.
2. Evaluate internal and external factors of the business environment using analytical tools (SWOT/TOWS, PESTLE) for the purpose of making strategic and operational decisions in crisis situations.
3. Identify and analyze team dysfunctions under stress and pressure, and apply methods to improve team collaboration.
4. Design and develop an entrepreneurial or socially responsible project based on current challenges in crisis conditions, in accordance with the criteria of startup pitch events or student innovation competitions.
5. Present an entrepreneurial or socially responsible project using the standards and methodology of modern startup competitions (pitch, impact assessment), clearly defining the problem addressed, target groups, and project sustainability.

Required literature:

1. Belak, V. (2015): Management in Theory and Practice, Belak excellens d.o.o., Zagreb.
2. Golob, B. (2009): Innovation: From Idea to Market, Dragon d.o.o., Rijeka. (Free e-book available via een@bicro.hr)

Course title: Environmental Impact Assessment Methods

Course Code:
KMM133

Semester:
4

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
3

Course Objective:

To familiarize students with the objectives, principles, content, procedures, techniques, and methods of assessing the environmental impact of various human activities and projects.

Course Content:

Introduction to environmental impact assessment (EIA) – history, goals, principles. Types of assessments: strategic environmental assessments and environmental impact studies. Legal framework. Determining the need for assessment and defining the scope of the assessment. Impact prediction and identification of mitigation measures. Evaluation of the significance of impacts. Economic assessment of environmental impacts and cost-benefit analysis. Post-implementation monitoring. Stakeholders in the assessment process. Public participation in the EIA process. Quality control of environmental assessments. Data collection and preparation for impact assessments. Interpretation and integration of thematic maps. Interpretation of measured and estimated data. Use of GPS in fieldwork for environmental assessment. Application of digital terrain models (DTM) in assessment. Spatial analyses and land-use conflict identification. Area analysis based on land use, land cover, and habitat naturalness using remote sensing. Multicriteria analyses. Environmental protection measures. Case studies and practical examples.

General and Specific Competencies (Knowledge and Skills):

After completing the course and passing the exam, students will be able to independently collect, process, and interpret data required for environmental impact assessments. They will be able to organize and carry out fieldwork using cartographic (topographic and thematic) data, GPS, and other modern technologies. Students will also be capable of preparing, conducting, and interpreting data using multicriteria analysis methods.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Identify measures to reduce environmental impact.
2. Perform economic assessments of environmental impact.
3. Conduct fieldwork required for environmental impact assessment.
4. Interpret data using multicriteria analysis methods.

Required Reading:

1. Herceg, N. (2013): Environment and Sustainable Development, Synopsis, Zagreb.

Course title: Legal Framework of Civil Protection and Rescue

Course Code:
KMM117

Semester:
3

Lectures + Exercises + Seminar:
2 + 0 + 0

Total Hours:
30

ECTS Credits:
4

Course Objective:

To acquaint students with the legislative system and legal framework of civil protection in the Republic of Croatia at the national level (laws and by-laws), regional and local government levels, and within legal entities. The course also covers the basics of the legal regulation of civil protection in the European Union and selected examples from other countries.

Course Content:

Introduction to the legislative system of the Republic of Croatia; the concept of legal norms and legal acts; the structure of laws and other regulations. Constitutional and administrative law. The Civil Protection System Act and other regulations governing civil protection, as well as regulations related to defense, security, and other areas of risk management relevant to the functioning of the civil protection and risk management systems. International conventions and agreements, and EU legislation in the field of civil protection.

General and Specific Competencies (Knowledge and Skills):

Upon completion of the course, students will be able to use legal and normative materials in the field of civil protection and actively participate in drafting specific legal acts, as well as interpret and apply the provisions of existing legal regulations.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Independently comment on the legal framework of civil protection in the Republic of Croatia and the EU, as well as the basic concepts and principles of risk management in Croatia.
2. Explain the fundamental elements and hierarchy of the Croatian legal system.
3. Interpret basic legal concepts and the structure of legal regulations.
4. Apply relevant legal provisions in the field of civil protection.
5. Participate in the drafting of specific legal acts related to civil protection.

Required literature:

1. Toth, I., Čemerin, D., Vitas, P. (2011). Fundamentals of Disaster Protection and Rescue, VVG, Velika Gorica.
2. Kešetović, Ž., Toth, I. (2012). Problems of Crisis Management, VVG, Velika Gorica.

Course title: Operational Centers and Communication Systems

Course Code:
KMM116

Semester:
3

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
5

Course Objective:

To familiarize students with the role, development, organization, and operation of operational centers, communication systems, and collaborative systems for intersectoral information exchange. The course also aims to train students in early warning and public alerting methods, as well as in operational center management and coordination.

Course Content:

Operational centers – concept, stationary and mobile centers, functions, organization, and operational challenges.

Expert systems for decision support. The impact of artificial intelligence development on the efficiency of operational centers in crisis management.

Data collection for monitoring spatial and process conditions; data processing, generation, and presentation of information about the monitored area or process; status monitoring of intervention units and support capacities of cooperating sectors.

Monitoring the implementation of decisions and tracking the status of intervention forces.

Telecommunications and radiocommunications in protection and rescue operations.

Functional requirements for designing and organizing operational centers and establishing communication systems. Equipment of operational centers – selection criteria. Workstations, required skills, and competencies.

Operational Communication Centers (OCC) – legal and normative framework for OCC operation in Croatia and the EU.

Emergency number system 112. Early warning and public alerting.

Data collection, organization, and processing. Presentation of information in the OCC.

Field visits to operational centers: Civil Protection, Firefighting Units, Ministry of the Interior (MUP), and Croatian Motorways (HAC). VVG field exercise.

General and Specific Competencies (Knowledge and Skills):

Students will gain knowledge about the importance of information in crisis situations, the organization and functioning of operational centers, and communication and data exchange methods during protection and rescue operations.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Receive, analyze, and determine the end-user of operational information.
2. Prepare early warning and public alerting messages.
3. Operate basic radio communication equipment.
4. Develop a standard operating procedure (SOP) diagram.
5. Evaluate and specify the necessary equipment for an operational center.
6. Analyze a simulated communication exercise of an operational center.

Required literatura:

1. Mikec, Ž. (2012). Operational Centers and Communication Systems, VVG, Velika Gorica.

Course title: Weapons of Mass Destruction

Course Code:
ZAJ149

Semester:
4

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
3

Course objective:

To introduce students to the fundamentals of the design and technologies of nuclear, chemical, biological and toxic weapons and to explain their effects on humans, animals, plants, material assets and the environment. Students will learn detection and dosimetry methods for CBRN(T) threats and acquire basic knowledge of decontamination, protection, rescue, evacuation and care of casualties and affected persons.

Course content:

Conceptual definition of weapons of mass destruction. Construction, use and effects of WMD and associated nuclear, chemical, biological and toxic technologies on humans, flora and fauna, the environment, buildings and material-technical assets. Threat detection and classification. Detection, dosimetry and identification of CBRN(T) agents. Individual and collective protection. Tactics and strategies in accidental or deliberate events (prevention and deterrence, response to threats, recovery, restoration). Roles of system components in threat response. Procedures to prevent the proliferation and spread of WMD. Databases on weapons of mass destruction. Destruction/disposal of WMD. Investigative procedures.

General and specific competencies (knowledge and skills):

Students will acquire the necessary knowledge to understand the effects of weapons of mass destruction and the principles of prevention, protection and rescue in the event of an incident.

Learning outcomes:

Upon successful completion of the course, students will be able to:

1. Classify the type and scope of a CBRN(T) threat.
2. Identify similarities and differences among CBRN(T) agents and threats and their potential consequences.
3. Analyze mechanisms of action of CBRN(T) agents on humans, animal and plant life, material assets and the environment.
4. Distinguish detection and dosimetry methods applicable to each type of CBRN(T) threat.
5. Define decontamination measures and organize decontamination of people, material-technical resources and facilities.
6. Plan protection, rescue, evacuation and casualty-care measures under CBRN(T) conditions.

Required literature:

1. Bokan S., Jukić I., Orehovec Z., Radalj Ž., Ilijaš B., Čižmek A.: Weapons of Mass Destruction – Nuclear, Chemical, Biological and Toxic Weapons, Open Adult Education Centre Zagreb, 2003.

Course title: Fundamentals of Technological Systems Safety

Course Code:
KMM104

Semester:
1

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
4

Course objective:

To provide students with fundamental knowledge of the theory of reliability and safety of technological systems.

Course content:

Philosophy of technological systems safety. Safety levels. Passive and active safety systems. Redundant (backup) safety systems. Basics of reliability theory. Component reliability. System reliability. Mean time to failure (MTTF). Systems with repair. Mean time to repair (MTTR). Organization of operational safety systems. Standby systems within technological facilities. Standby systems in the immediate and broader environment of a technological installation.

General and specific competencies (knowledge and skills):

Students will acquire the knowledge necessary to understand and apply the principles of reliability theory, operational safety organization, and readiness systems in technological plants.

Learning outcomes:

Upon successful completion of the course, students will be able to:

1. Apply safety levels to technological systems.
2. Critically explain the basic principles of reliability theory.
3. Define the concept of mean time to failure (MTTF) for technological systems.
4. Analyze the mean time to repair (MTTR) of systems.
5. Apply acquired knowledge to analyze readiness systems within technological facilities.

Required literature:

1. Škanata, D. Fundamentals of Reliability Theory, Part I, VVG, Velika Gorica, 2012.
2. Škanata, D. Fundamentals of Reliability Theory, Part II, VVG, Velika Gorica, 2013.

Course title: Fundamentals of Systems and Safety Theory

Course Code:
KMM105

Semester:
1

Lectures + Exercises + Seminar:
2 + 0 + 0

Total Hours:
30

ECTS Credits:
3

Course objective:

To provide students with fundamental knowledge of general systems theory and safety theory, and to enable them to apply a systematic approach to understanding safety within the context of crisis management studies.

Course content:

Introduction to systems theory. Systemic approach. Definition, structure, and properties of systems. Types of systems: open and closed systems. System equilibrium. Goals, environment, resources, activities, and system management. Concept of entropy. Feedback. Modelling and simulation. Definition of safety and security. Threats. Vulnerability, resilience, robustness, crisis. Defense. Protection (state and private). Safety system. Safety system management.

General and specific competencies (knowledge and skills):

Students will acquire the knowledge necessary to define systems theory and to apply a systematic approach to the study of safety systems, with an emphasis on crisis management.

Learning outcomes:

Upon successful completion of the course, students will be able to:

1. Apply systems theory and the systemic approach to safety theory due to the complexity of safety systems.
2. Distinguish the structure and components of a safety system.
3. Analyze and explain the concepts of risk and safety, as well as danger, vulnerability, resilience, robustness, defense, and protection, and their interrelations.
4. Analyze safety systems and their environments at national, corporate, and personal levels.
5. Analyze and explain threats to safety and appropriate protective measures.

Required literature:

1. Radošević, D. Fundamentals of Systems Theory, Izdavački zavod Matice Hrvatske, Zagreb, 2001.
2. Dobranović, Ž., Mihaljević, B. Private Protection in Standards and Practice, VVG, Velika Gorica, 2008.

Course title: Applied Physics

Course Code:
KMM102

Semester:	Lectures + Exercises + Seminar:	Total Hours:	ECTS Credits:
1	2 + 1 + 0	45	4

Course objective:

To provide students with knowledge of physics necessary for understanding fundamental physical processes and their application in courses that follow within the study program.

Course content:

SI system of measurement units, scientific notation, and orders of magnitude. Kinematics and dynamics of translational motion, circular motion. Work and energy transfer. Oscillations, forced oscillations, and resonance. Oscillations of extended bodies: standing waves. Wave phenomena: reflection, refraction, and interference. Mechanical waves: sound waves, seismic waves. Electromagnetic spectrum: visible light and ionizing radiation. Density of matter, hydrostatic and atmospheric pressure, buoyant force. Fluid dynamics: continuity equation and Bernoulli's equation. Electrical and magnetic properties of materials. Electrical energy and Joule heating. Gas laws, gas work and thermodynamic processes, heat transfer. Nuclear energy, nuclear reactions, and radioactivity. Sustainable energy sources and emerging technologies.

General and specific competencies (knowledge and skills):

Students will develop the ability to organize and interconnect various physical concepts when interpreting real-world and professional problems.

They will acquire skills in logically and mathematically reasoned problem analysis and qualitative discussion of results, as well as the ability to continue independent professional development through lifelong learning and engagement with relevant scientific literature.

Learning outcomes:

Upon successful completion of the course, students will be able to:

1. Predict the motion of bodies under external forces, calculate dynamic quantities, and relate them to the system's energy exchange with the environment.
2. Compare natural oscillations and resonance properties of systems with one or more degrees of freedom, and describe the types and characteristics of mechanical and electromagnetic wave propagation.
3. Evaluate pressure and forces acting on a body immersed in a fluid, and describe fundamental principles of fluid dynamics.
4. Interpret the electrical and thermal properties of materials on both macroscopic and microscopic levels, linking them conceptually to the physical principle of energy conservation.
5. Identify relevant data in problem-solving, model and solve simplified physical problems using mathematical and computational tools.
6. Critically assess the influence of simplifications and mathematical approximations on model results and qualitatively generalize them to real-world problem situations.

Required literature:

1. Jelčić Dubček, D. Physics (e-course). Veleučilište Velika Gorica, 2018.
2. Jelčić Dubček, D. Physics – Problem Collection (e-edition). Veleučilište Velika Gorica, 2019.
3. Paić, M. Motion, Forces, Waves. Školska knjiga, Zagreb, 1997.
4. Paić, M. Heat and Thermodynamics. Školska knjiga, Zagreb, 1994.

Course title: Risk Assessment

Course Code:
KMM124

Semester:
4

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
5

Course objective:

To provide students with fundamental knowledge of risk theory and to train them in the principles and methods of risk assessment.

Course content:

The origin of risk. Definitions of risk. Risk and safety. Types of risks. Risk and environmental protection. Technological risks. Risk assessment procedure. Hazard identification. Probability assessment of risk occurrence. Consequence assessment. Risk characterization. Acceptability criteria. Risk perception. Risk communication. Uncertainty in assessment. Risk management. Relationship between risk and cost. Decision-making methods for risk reduction. The decision life cycle.

General and specific competencies (knowledge and skills):

Through lectures and exercises, students will recognize the principles of risk theory and acquire the ability to perform risk assessments.

Learning outcomes:

Upon successful completion of the course, students will be able to:

1. Categorize hazards (extraordinary events) that can lead to technological accidents.
2. Assess the probability of occurrence of extraordinary events.
3. Evaluate the consequences (impact on people, material damage, and environmental effects) of such events.
4. Distinguish between acceptable and unacceptable risks.
5. Develop measures for reducing unacceptable risks.

Required literature:

1. Zio, E. An Introduction to the Basics of Reliability and Risk Analysis. World Scientific, 2007.

Course title: Project Assignment

Course Code:
KMMPZ

Semester:
5

Lectures + Exercises + Seminar:
1 + 3 + 0

Total Hours:
60

ECTS Credits:
9

Course objective:

To familiarize students with the regulations on the preparation and defense of the final thesis, the fundamentals of professional and scientific writing, research methods, and procedures for searching and evaluating relevant literature. The course also serves as preparation for the development of the final thesis through exercises and the creation of a final thesis proposal.

Course content:

The project assignment serves as preparation for the final thesis and represents a draft of a potential final thesis topic, based on the official forms for thesis topic proposals. It is a document that enables the student to contact a potential mentor and, under their guidance, conduct activities for the preparation and development of their final thesis. If the topic of the project assignment matches the approved final thesis topic, the project assignment serves as the framework for the thesis.

Topics covered:

Introductory notes and student obligations. Introduction to science and methods of scientific research. Experimental and non-experimental designs. Research of social phenomena: methods and techniques. Survey, interview, and focus groups.

Scientific communication. Concepts and types of scientific and professional works. Searching and collecting literature. Referencing sources: paraphrasing and citing.

Structure of the final thesis. Guidelines for thesis writing. Regulations on final theses and defense procedures. Preparation and defense of one's own thesis draft (project assignment) and proposal.

General and specific competencies (knowledge and skills):

Knowledge:

- Understanding fundamental scientific concepts and methods, with an emphasis on social sciences.
- Understanding criteria for the relevance of professional and scientific literature.
- Knowledge of citation and paraphrasing rules.
- Understanding the structure of scientific and professional works.
- Familiarity with scientific and professional argumentation.

Skills:

- Ability to explain basic research methods, particularly in the field of social sciences.
- Ability to analyze, search, and select relevant sources.
- Application of academic writing and referencing standards.
- Synthesis of collected information into a structured proposal for a professional or scientific paper.
- Ability to present and defend one's own proposal and viewpoints based on researched information.

Learning outcomes:

Upon successful completion of the course, students will be able to:

1. Explain fundamental scientific concepts, principles, and methods in the context of preparing a final thesis.
2. Select and justify relevant literature for the chosen final thesis topic.

3. Apply citation and referencing standards in writing professional and scientific papers.
4. Develop a proposal for a final thesis that includes a title, structured abstract, and relevant literature list.
5. Defend and justify the chosen thesis proposal using professional and scientific arguments based on literature research in the field.

Required literature:

1. Čendo Metzinger, T.; Toth, M. Research Methodology for Professional Studies. Veleučilište Velika Gorica, 2020.
2. URL: <https://www.vvg.hr/wp-content/uploads/2020/03/METODOLOGIJA-ISTRA%C5%BDIVA%C4%8CKOG-RADA-ZA-STRU%C4%8CNE-STUDIJE.pdf>
3. Veleučilište Velika Gorica. Regulations on Final and Graduate Theses. VVG, 2014.
4. URL: http://www.vvg.hr/wp-content/uploads/2015/07/Pravilnik_Zavrzni_Diplomski_rad_2014.pdf
5. Veleučilište Velika Gorica. Guidelines for Writing and Defending Final and Graduate Theses. VVG, 2014.
6. URL: http://www.vvg.hr/wp-content/uploads/2015/07/Upute_Zavrzni_Diplomski_rad_V1.3_2014.pdf

Course title: Psychology of Crises

Course Code:
KMM112

Semester:
2

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
5

Course objective:

To introduce students to fundamental psychological concepts that are essential for understanding the effects of crisis events on individuals and groups, as well as for improving professional performance during crisis management situations.

Course content:

Definition of basic psychological concepts, subject and areas of psychology, selected chapters from personality psychology. Areas of psychological application in crisis management; definition and classification of crises; major disasters as sources of crises and the importance of statistical monitoring. The role of emotions in coping with crises; stress and its function in crisis situations; psychological defense mechanisms; the grieving process. Similarities and differences between stress and crisis experiences; crisis as a psychological state; development and resolution of crises; common reactions during crises.

Psychological characteristics of large-scale disasters; human behavior and typical reactions during disasters and catastrophes; media portrayal and myths; stages of adaptation after disasters; human behavior in various disaster phases; risk perception and early warning.

Psychological consequences of disasters and catastrophes; factors of psychological vulnerability and protection; psychological resilience and its development.

Psychological first aid for victims of disasters: goals, characteristics, and purpose. Approaches to individuals and groups with specific needs in crisis situations; practical experience and recommendations.

Specific challenges for professional responders; negative and positive effects of occupational stress. Prevention of adverse psychological outcomes in responders; the role of supervisors; psychological crisis intervention systems and their implementation.

Principles of psychosocial support after major disasters: goals, planning, organization, and implementation of crisis interventions. Selected topics from social psychology: groups, teamwork, leadership, and decision-making processes in crises. Psychological aspects of crisis communication: communication among responders, with the public, and with the media.

General and specific competencies (knowledge and skills):

Students will acquire knowledge enabling them to understand individual and group behavior during crisis events, recognize negative psychosocial reactions following crises, and organize psychosocial support in cooperation with competent authorities and trained professionals.

Learning outcomes:

Upon successful completion of the course, students will be able to:

1. Apply psychological knowledge of crisis and stress in professional practice.
2. Critically analyze individual and group experiences and behaviors in crisis situations.
3. Provide psychological first aid to affected individuals.
4. Organize psychological crisis interventions in cooperation with trained professionals.
5. Analyze the impact of occupational stress on a personal level.
6. Apply knowledge of teamwork, cooperation, and leadership in professional settings.

Required reading:

1. Ajduković, D., Bakić, H., Ajduković, M. (2017). Psychosocial Support in Large-Scale Crisis Situations. Zagreb: Croatian Red Cross.
2. Ajduković, D. (2014). Psychological First Aid in Disasters and Major Accidents. Zagreb: Society for Psychological Assistance and Office for Emergency Management.
3. Arambašić, L. (Ed.) (2000). Psychological Crisis Interventions: Psychological First Aid after Crisis Events. Zagreb: Society for Psychological Assistance.

Course title: Psychology of Stress

Course Code:
ZAJ132

Semester:
1

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
3

Course objective:

To introduce students to the causes and effects of stress on human perception, behavior, and health, as well as to possible methods for preventing, reducing, and managing stress.

Course content:

Introduction to the course: historical development of the concept of stress; overview and definitions of key terms: stressor, stress, and stress response; types and forms of stressors, stress, and stress reactions.

Biological basis of stress reactions: the role of the nervous and endocrine systems in regulating stress responses; stress and immune functioning; the relationship between stress and disease, psychosomatic disorders associated with stress.

Theoretical approaches to stress: psychodynamic theory, fight-or-flight theory, general adaptation syndrome, life events theory, transactional model of stress, and diathesis-stress model.

Mediators and moderators of stress: situational characteristics (intensity and frequency of stress, controllability of events and outcomes, developmental aspects of stress) and individual characteristics (demographic factors, personality traits).

Coping with stress.

Specific sources and consequences of stress: occupational stress, burnout, workplace mobbing, traumatic stress, and post-traumatic stress disorder.

Communication as a source of stress and prevention of stress through adequate communication; technostress – negative effects of technology use.

Stress management and prevention of harmful stress consequences: organizational climate, approaches to stress treatment, lifestyle and habits, physical activity, nutrition, and leisure time use.

General and specific competencies (knowledge and skills):

Knowledge:

- Understanding fundamental concepts and classifications of stress.
- Understanding the effects of stress on an individual's psychophysiological condition.
- Knowledge of different theoretical approaches to stress.
- Understanding coping strategies.
- Knowledge of stress prevention principles in workplace environments.

Skills:

- Ability to explain core concepts related to stress.
- Ability to link causes and consequences of stress.
- Critical evaluation of various models and approaches to stress.
- Analysis and differentiation of coping strategies.
- Designing specific measures and interventions for stress prevention and reduction in organizational contexts.

Learning outcomes:

Upon successful completion of the course, students will be able to:

1. Explain key concepts related to stress, including stressors, stress, and stress reactions, and describe their interrelations and classifications.

2. Explain how different causes of stress affect individual health, emotions, and behavior.
3. Evaluate various theoretical approaches to stress, including psychophysiological, social, cognitive, and integrative models.
4. Analyze coping strategies and distinguish between adaptive and maladaptive coping in maintaining physical and mental health.
5. Propose activities for stress reduction or prevention, with a special focus on interventions in organizational and work environments typical for engineering professions.

Required literature:

1. Havelka Meštrović, A., & Havelka, M. (2020). Health Psychology: Psychosocial Foundations of Health. Jastrebarsko: Naklada Slap – chapters related to stress.

Course title: Medical Care in Crisis Conditions

Course Code:
KMM129

Semester:
5

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
6

Course objective:

To provide students with fundamental knowledge of the functioning of health and veterinary care systems in crisis situations and disasters. The course enables understanding of the principles of organizing medical care for the injured and the importance of implementing national programs for training the population in first aid.

Course content:

Concept and classification of crisis situations, accidents, and disasters from medical and veterinary perspectives; relevant legislation; characteristics of healthcare services during disasters and emergencies.

Specific approaches depending on the type of disaster: protection, rescue, and care of endangered, injured, or ill persons; provision of first aid; ensuring essential conditions and supplies for victims and evacuees; handling of deceased persons.

Principles of healthcare and support services operations in disasters. Components of healthcare response in crisis situations: strategic (laws, regulations, plans, standardization), resource-based (personnel, medical equipment, transport and logistics), and tactical (activation plans, deployment of medical and rescue teams, transport, and evacuation).

Roles of professional medical staff and institutions, as well as volunteer and non-medical organizations (Civil Protection, Firefighting Services, Mountain Rescue Service, Red Cross, etc.).

Core components of healthcare response plans and standard procedures.

Organization of field medical units (triage, reception center, mobile hospital, transport preparation, casualty care, temporary morgue).

Principles of basic first aid. Psychological assistance for victims.

Specific features of healthcare in wartime conditions. Medical support in rescue operations.

Implementation of the National First Aid Training Program: education, training, and practice in first aid procedures.

General and specific competencies (knowledge and skills):

Through lectures and exercises, students acquire fundamental knowledge of the organization and functioning of healthcare services in crises, accidents, and disasters, with an emphasis on the role and operation of professional medical and volunteer field teams. Students gain practical knowledge of first aid provision and are trained to plan and organize emergency medical assistance and casualty care at the lowest tactical level.

Learning outcomes:

Upon successful completion of the course, students will be able to:

1. Analyze and assess necessary resources for implementing medical care plans.
2. Design a field medical reception center.
3. Participate in the organization and setup of field medical care centers.
4. Differentiate and assess casualties according to triage categories.
5. Administer immediate basic first aid to injured persons.

Required literature:

1. Kratochvil, M., Kratochvil, A., & Peternel, R. (2016). Medical Care in Crisis Conditions. Velika Gorica University of Applied Sciences, Velika Gorica.

Course title: Statistics

Course Code:
OPT109

Semester:	Lectures + Exercises + Seminar:	Total Hours:	ECTS Credits:
6	2 + 1 + 0	45	5

Course objective:

To acquire basic statistical concepts and methods, and to develop skills for applying statistical techniques in the field of optics.

Course content:

Introduction: Population, random sample, and random phenomena.

Probability models: Random events and probability.

Variables: Concept and classification. Discrete variables – binomial variable. Continuous variables – normal variable.

Two categorical variables: Joint, marginal, and conditional distributions.

Two quantitative variables: Linear model, correlation, and regression.

Random sample: Point estimation and plug-in models.

Inferential statistics: Interval estimation of the expected value. Hypothesis testing – expected value, distribution, and independence of two variables.

Testing differences between means of two quantitative variables.

Linear model – model testing and interval estimation of predictions.

General and specific competencies (knowledge and skills):

Ability to understand and apply statistical concepts and methods in practice.

Learning outcomes:

Upon successful completion of this course, students will be able to:

1. Identify population, sample, and random phenomena in a given situation.
2. Process and visualize data about population and sample using Excel.
3. Identify variables in a given situation and recognize binomial and normal variables.
4. Perform interval estimation of the expected value of a variable.
5. Test hypotheses about the expected value of a variable.
6. Test hypotheses about the distribution of a variable.
7. Test hypotheses about the independence of two variables.
8. Test hypotheses about the difference between means of two quantitative variables.
9. Formulate, test, and apply a linear model of dependence between two quantitative variables.
10. Use Excel for statistical data processing.

Required literature:

1. Čulina, B., & Čulina, D. (2010). Elementary Probability and Statistics Using Excel. Velika Gorica University of Applied Sciences, Velika Gorica.

Course title: Professional Practice

Course Code:
SP-KMM

Semester:
6

Lectures + Exercises + Seminar:
0 + 8 + 0

Total Hours:
120

ECTS Credits:
8

Course objective:

The aim of the professional practice is to enable students in the final year of study to acquire new knowledge, skills, and competencies in the field of crisis management, to adapt to the specific requirements of the labor market, and to promote cooperation between the University and leading institutions, organizations, and business entities.

Course content:

Professional practice is carried out during the 6th semester or during the summer months after the completion of the 6th semester. The content of the practice is defined through specific assignments given to students.

Upon completion, each student is required to prepare a professional report describing the activities performed during the internship.

The professional practice takes place in institutions, organizations, companies, and associations relevant to the field of crisis management.

General and specific competencies (knowledge and skills):

Acquisition of necessary practical knowledge and professional skills related to crisis management.

Learning outcomes:

Upon successful completion of this course, students will be able to:

1. Organize and maintain the required documentation.
2. Identify problems related to crisis management.
3. Prepare for work in emergency situations.
4. Explain the organizational structure of institutions, organizations, associations, and business entities.
5. Compare different approaches and procedures in crisis management.

Course title: Terrorism

Course Code:
KMM108

Semester:	Lectures + Exercises + Seminar:	Total Hours:	ECTS Credits:
2	2 + 1 + 0	45	4

Course objective:

To enable students to understand the nature, scope, and consequences of terrorism and similar forms of violence threatening modern society.

To familiarize students with the main characteristics of terrorism as one of the greatest threats to global peace and security.

To introduce them to terrorist organizations and their methods of operation, present examples of terrorist attacks, and explain effective strategies, resources, and management approaches for combating terrorism and mitigating the consequences of terrorist incidents.

Course content:

The concept and historical development of terrorism.

Modern terrorism – asymmetric threats.

Forms and methods of modern terrorism.

Terrorist weapons and equipment.

Nuclear, chemical, and biological terrorism.

Terrorist organizations and operational principles.

Globalization of terrorism and organized crime.

Techniques and methods of counterterrorism.

Crisis management and terrorist threats.

The Republic of Croatia and terrorism-related risks.

General and specific competencies (knowledge and skills):

Students will acquire fundamental knowledge necessary for understanding the nature of terrorism, sabotage, and diversionary activities.

They will be trained to participate in the processes of prevention and protection against terrorist actions.

Learning outcomes:

Upon successful completion of this course, students will be able to:

1. Analyze scientific and professional findings in the field of terrorism and counterterrorism.
2. Identify potential sources of terrorist threats.
3. Categorize potential perpetrators of terrorist attacks.
4. Formulate counterterrorism activities and measures.
5. Integrate elements of terrorist threats with counterterrorism activities.
6. Evaluate factors influencing the effectiveness of counterterrorism efforts.
7. Assess the principles and application of counterterrorism operations.
8. Distinguish between factors involved in terrorist and counterterrorist activities.

Required reading:

1. Orehovec, Z., Stipetić, D. (2011). Terrorism and Counterterrorism Defense. Velika Gorica: VVG.

Course title: Topography and GIS

Course Code:
KMM118

Semester:
3

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
5

Course objective:

To provide students with theoretical and practical knowledge of topography as a foundation for a wide range of practical activities, and of Geographic Information Systems (GIS) as tools for representing and processing geoinformation data needed for crisis management.

Course content:

Basic concepts of topography and GIS. Overview of the development of topography and GIS.
Field orientation. Simple methods for measuring and determining distances on the terrain.
Introduction to the compass and the connection between the map and compass for orientation and map measurements.
Coordinate systems and cartographic projection systems.
Geographical characteristics of Croatia.
Overview and use of web-based cartographic and topographic materials of Croatia and the world (Google Earth, ZEOS, ARKOD, etc.).
Data collection for the creation of a GIS database.
Aerial imagery (use of unmanned aerial systems for terrain mapping), remote sensing, and satellite imagery.
Satellite missions: Landsat, SPOT, Ikonos, QuickBird.
Satellite radio navigation systems (GPS, GLONASS, Galileo).
Digital terrain models.
Spatial data standards.
CROTIS – Topographic Information System of the Republic of Croatia.
Data visualization and linking visual templates with databases.
GIS operators and data processing.
Application of QGIS software.
Use of unmanned aerial systems for creating operational maps in crisis situations.
Application of NICS (Next-Generation Incident Command System) in crisis management.

General and specific competencies (knowledge and skills):

Application of maps, aerial and satellite imagery for field orientation and their use as a basis for crisis management.
Development of GIS databases, processing and presentation of GIS data using QGIS software.

Learning outcomes:

Upon successful completion of this course, students will be able to:

1. Calculate coordinates in geographic, rectangular, and MGRS coordinate systems.
2. Sketch, on a topographic map, an area affected by an incident and the deployment of protection and rescue forces.
3. Plan the layout of logistical capacities based on terrain assessment using topographic maps.
4. Analyze field situations by collecting information from the terrain.
5. Interpret terrain configuration using topographic maps.
6. Calculate areas from known coordinates enclosing a shape and determine intersection points of two lines.

7. Use digital maps and web-based mapping applications for crisis management purposes.
8. Prepare and present an orthophoto image of a disaster-affected area.
9. Differentiate between GIS tools and their applications in spatial data analysis.
10. Use QGIS software for crisis management applications.
11. Distinguish between ellipsoids and methods of creating topographic maps.
12. Orient themselves in unfamiliar terrain.
13. Integrate topographic maps with GPS and unmanned aerial systems.

Required literature:

1. Cigrovski-Detelić, B. (2010). Topography. Faculty of Geodesy, University of Zagreb.

Course title: Leadership and Command

Course Code:
KMM123

Semester:
4

Lectures + Exercises + Seminar:
2 + 2 + 0

Total Hours:
60

ECTS Credits:
5

Course objective:

To introduce students to scientific and professional knowledge from leadership theory, methods and techniques of operational research suitable for decision support, elements of cryptographic protection, and staff procedures in the decision-making process.

Students will be trained through practical exercises to optimize decision-making and will be introduced to the sociological, psychological, and professional profile of a leader.

Course content:

Historical development of management and leadership systems.

Fundamentals of management and leadership theory.

Process functions of management, leadership, and command.

Auxiliary methods and techniques in management, leadership, and command processes.

Working documents and cryptographic protection.

Organization and structure of staff work.

Leadership characteristics.

Organization of work in management, leadership, and command systems.

Organization of meetings and negotiation processes.

General and specific competencies (knowledge and skills):

Students will acquire knowledge necessary for decision preparation, participation in management processes, and performing decision-making and command functions.

Learning outcomes:

Upon successful completion of this course, students will be able to:

1. Make independent decisions within the crisis management system.
2. Evaluate the functioning of a command staff within leadership and command structures.
3. Critically assess scientific and professional findings in leadership and command theory.
4. Participate effectively in teamwork, both as a member and as a leader.
5. Select appropriate negotiation and meeting management methods and apply them in practice.
6. Categorize documentation according to its level of confidentiality and urgency, and handle each classified document accordingly.
7. Evaluate the skills and habits required for modern leadership and management within crisis management structures.
8. Reassess the sociological, psychological, and professional characteristics of leaders.

Required literature:

1. Ogorec, M. (2017). Management, Leadership, Command. Velika Gorica: VVG.

Course title: Protection of Persons and Property

Course Code:
KMM126

Semester:
4

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
4

Course objective:

The main objective of this course is to introduce students, both normatively and practically, to the general concept and professional practice of private security.

Throughout the course, students will gain insight into the fundamentals of private protection – from its origins and development to its legal and normative framework, scope, and range of services. Students will acquire knowledge necessary to understand all normative, legal, and operational aspects of the private security market, including models of service provision and consumption.

Course content:

Development of private security in Croatia and other countries.

Overview of private protection and detective activities.

Legal framework of private security and detective work in Croatia and selected other countries.

Measures, actions, duties, and powers of private security personnel under the Private Security Act.

Analysis of the authority of operational security staff, including the use of physical force and firearms.

Rights and duties of private detectives; ethics and deontology in private security.

Distinction between the roles and responsibilities of the police and private security entities in modern states.

Privatization of security services and the role of private protection in national security systems.

Risk management in private security.

Analysis of specific private security sectors: physical protection of facilities, technical security systems, control and dispatch centers (CDS), security interventions, and transport of cash and valuables.

Security at public gatherings and peaceful protests.

Protection models for critical infrastructure and financial institutions.

General and specific competencies (knowledge and skills):

Students acquire fundamental knowledge of the protection of persons and property.

Learning outcomes:

Upon successful completion of this course, students will be able to:

1. Explain models and methods of using private protection services for persons and property in various social contexts.
2. Analyze threats to persons and property in private security.
3. Evaluate preventive and repressive protection measures for persons and property.
4. Assess the effectiveness of technical and physical protection measures in private security.
5. Develop a risk assessment and protection plan for persons and property in a private security context.
6. Present various models of protection of persons and property within the private security sector.

Required reading:

1. Ahić, J., Nađ, I. (2017). Risk Management in Private Security. Faculty of Criminalistics, Criminology and Security Studies, Sarajevo.

2. Nađ, I., Mihaljević, B., Vasilj, P. (2013). Fundamentals of Criminalistics and Security Guard Procedures. Velika Gorica University of Applied Sciences, Kolumna d.o.o., Zagreb.
3. Mihaljević, B., Nađ, I. (2018). Fundamentals of Corporate Security. Croatian Association of Security Managers, Zagreb.

Course title: Data Protection

Course Code:
KMM119

Semester:
3

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
6

Course objective:

To enable students to acquire fundamental knowledge in the field of data confidentiality protection, including personal and classified information, obligations and measures for safeguarding secret data, cybersecurity threats, and criminal provisions related to data protection violations.

Course content:

Conceptual definition of personal and classified data protection.
Legal framework for data confidentiality and protection of professional and business secrets according to international and national legislation.
Sources, objectives, key threats, and consequences of data breaches.
Risk assessment of data exposure and loss.
Approaches to data protection and data confidentiality principles.
Accountability for data security.
Data protection during storage, processing, transmission, and presentation.
Privacy and personal data protection in the digital environment.
Office management practices in the context of data protection.
Self-protection and professional protection mechanisms.
Cybersecurity and cybercrime.
The dark web and online security.
Data protection in crisis situations.
Case studies and practical examples.

General and specific competencies (knowledge and skills):

Students acquire knowledge necessary to understand data and information management, potential threats, and protective mechanisms in organizational processes.
Special emphasis is placed on data protection challenges in crisis conditions.
Students will be trained to assess potential data threats, propose appropriate protection measures, and implement data protection procedures.

Learning outcomes:

Upon successful completion of this course, students will be able to:

1. Explain the importance of data protection by individuals, business entities, and government institutions.
2. Analyze threats, vulnerabilities, and consequences related to data protection within an organization and develop a data protection plan.
3. Critically assess the organization and functioning of data protection systems, including methods of classifying confidential information.
4. Develop a data protection policy for personal and other types of data within a specific organization.
5. Present the obligations of data controllers regarding personal data impact assessments.
6. Evaluate the effectiveness of personal and organizational data protection measures.

Required literature:

1. Pavišić, B., Modly, D., Veić, P. (2012). Criminalistics, Vol. 2: Investigation of Criminal Offences Related to Breach of Confidentiality and Personal Data Protection. Dušević & Kršovnik d.o.o., Rijeka, pp. 179–186.
2. Lebeda, N. (2009). Data Security and Utilization. Velika Gorica University of Applied Sciences, Velika Gorica.
3. Ivandić Vidović, D., Karlović, L., Ostojić, A. (2011). Corporate Security. Croatian Association of Security Managers (UHMS), Zagreb.

Course title: Air Protection

Course Code:
KMM143

Semester:	Lectures + Exercises + Seminar:	Total Hours:	ECTS Credits:
2	2 + 1 + 0	45	3

Course Objectives:

To familiarize students with the sources and types of air pollution, global problems arising from air pollution, the impacts of pollution on human health, and existing control programs.

Course Content:

Composition and structure of the atmosphere; sources and types of pollution; types of pollutants; historical overview of air pollution with emphasis on major global pollution episodes; influence of meteorological parameters on pollutants; mechanisms of pollutant formation; variations in pollutant concentrations and their spatial distribution; measurement and analytical methods; allergenic particles in the air (pollen and spores); sampling and analysis; automatic monitoring stations; data analysis and database development; air quality monitoring networks (national, regional, and special-purpose measurements); health effects of air pollutants, exposure time, risk concentrations; public information systems; legislation, conventions, protocols, declarations, emission limits, air quality standards, pollution control programs; international cooperation; global problems resulting from air pollution (greenhouse effect, ozone depletion, acid rain).

General and Specific Competencies (Knowledge and Skills):

Students will be able to identify air pollution issues and monitoring methods, as well as assess their effects on human health and their significance in protection and rescue procedures.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Analyze the composition of the atmosphere, sources and types of pollution, and the legal framework of air protection.
2. Correlate meteorological conditions and atmospheric processes with spatial and temporal distribution of pollutants and explain their impact on air quality.
3. Analyze the causes and consequences of global warming, acid rain, and ozone layer depletion.
4. Apply air quality measurement and monitoring methods and interpret the obtained data.
5. Investigate a selected air pollution issue and present findings using relevant sources and professional terminology.

Required literature:

1. Peternel, R., Hercog, P.: Air Protection, VVG, Velika Gorica, 2010.
2. Environmental Protection Act
3. Air Protection Act
4. Regulation on Air Quality Monitoring

Course title: Final Thesis

Course Code:
ZR-KMM

Semester:
6

Lectures + Exercises + Seminar:
0 + 3 + 0

Total Hours:
45

ECTS Credits:
15

Course Objectives:

Through the final thesis, the student demonstrates professional knowledge and the ability to work independently.

Course Content:

1. Lecture on the process of preparing and writing the final thesis.
2. Preparation for the final thesis.
3. Writing the final thesis.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Define a professional problem.
2. Design and independently conduct research.
3. Apply acquired knowledge and competencies gained during the study program.
4. Apply the methodology for writing professional and scientific papers.
5. Present research results using multimedia tools.
6. Use presentation skills to interpret research findings.

Required literature:

1. Regulations on the Final and Graduate Thesis
2. Guidelines for the Preparation and Defense of the Final and Graduate Thesis