B-READI

Intellectual Output - 3

DEVELOPMENT OF THE NEW MODULES FOR THE RENOVATION/INTRODUCTION OF THE DEGREES/TRACKS

Final Report

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FINAL REPORT

INTELLECTUAL OUTPUT 3

DEVELOPMENT OF THE NEW MODULES FOR THE RENOVATION/INTRODUCTION OF THE DEGREES/TRACKS

Based on the work carried out in previous stages of the project, the team led by the members of the UoA executed the following tasks of the scope of the IO3:

1. Review and adjustment of the draft document containing the Competencies and the Programme Learning Outcomes (PLOs) for the European Prevention Manager (EPM) and the European Crisis Emergency Manager (ECEM) curricula.
   The resulting list of PLOs, organized according to the system of pre-established competencies, was revised and corrected for clarity, with a code being assigned to each PLO.
2. Identify the existing modules of each partner institution to be included in the EPM and the ECEM curricula.
   A review of the curricular contents of the programs offered at the partner institutions in the four previously identified macro areas of integrated specialist sciences - law, engineering/exact sciences, health, social sciences - (see B-READI IO1 Activities Report, p. 70), made it possible to identify the modules, or parts of them, that could meet the PLOs in the curricula to be developed.
3. Specify the module designation and its content, assessment, and learning outcomes.
   A form was created for each proposed module containing information regarding its identification and implementation, namely the designation, content, teaching method to be used, evaluation and PLOs to be achieved (Appendix).
4. List the PLOs, with their code and description, and the modules in which they are considered, with a description of their topics, for the ECEM and EPM profiles (Tables 2 and 3).
   The list also includes a reference to the partner institution that identified corresponding content in its curricula. The display allows verfying that 51,2% of EPM PLOs and 58,1% of ECEM PLOs are not covered by existing modules in the partner institutions.

The teamwork proceeded throughout ten online meeting sessions (held on Zoom), from September 2022 to February 2023, as presented in the following table (Table 1), and a session during the transnational meeting at the University of Girona, on 20 and 21 February 2023.

Table 1 – Date and Time of IO3 Team Meetings

Date:	Time:
23/09/2022, Friday	09:00 – 10:00 (AZO) / 11:00 – 12:00 (CET)
30/09/2022, Friday	09:00 – 10:00 (AZO) / 11:00 – 12:00 (CET)
06/10/2022, Thursday	10:00 – 11:00 (AZO) / 12:00 – 13:00 (CET)
20/10/2022, Thursday	10:00 – 11:00 (AZO) / 12:00 – 13:00 (CET)

03/11/2022, Thursday	10:00 – 11:00 (AZO) / 12:00 – 13:00 (CET)
17/11/2022, Thursday	10:00 – 11:00 (AZO) / 12:00 – 13:00 (CET)
15/12/2022, Thursday	10:00 – 11:00 (AZO) / 12:00 – 13:00 (CET)
05/01/2023, Thursday	10:00 – 11:00 (AZO) / 12:00 – 13:00 (CET)
20/01/2023, Friday	10:00 – 11:00 AZO) / 12:00 – 13:00 (CET)
09/02/2023, Thursday	10:00 – 11:00 (AZO) / 12:00 – 13:00 (CET)

TABLE 2 – PLOs (with code and description) and Modules (with Topic and Partner) considered for the **EPM Profile.**

PLO #	PLO Description	Partner	Module	Topic
A - DEMONSTRATE AWARENESS OF RELEVANT LEGISLATION, POLICY AND LEGAL CONSTRAINTS				
A1. RULES AND LEGISLATION				
EPM A1.1	Knowledge and understanding of the impact and the range of applicability of local, regional, national and European legislation	MUHEC	Digital Evidence	Law foundations in relation to forensic computing.
EPM A1.2	The policies and legal constraints, related to risks management (*e.g.* labour risks, cyber risk, natural risk, *etc*.)	UNIVAQ	Cyber Security Risks and Data Protection	Most of the modern services and infrastructures (telecommunications, energy, water supply, transportation, *etc*) rely on electronic and computer systems which can be attacked. It is of major importance to maintain these services working properly.
		UdG	Cyber Security Risks and Data Protection	Most of the modern services and infrastructures (telecommunications, energy, water supply, transportation, *etc*) rely on electronic and computer systems which can be attacked. It is of major importance to maintain these services working properly.
		MUHEC	Fin Crime Risks from Emerging Technologies	Relevant regulatory frameworks for financial services, and the practice of regulatory compliance in corporate organizations.
		MUHEC	Open-Source Intelligence Techniques	The application of investigative guidelines, ethical practices, and legislation.
EPM A1.3	The legal framework that determines public policies in terms of civil protection services	UoA	Civil Protection Structures and Agents	The different organizations, structures and civil protection agents are discussed regarding the structure, organization, competences, and duties.
		EDIMAS	National and European Civil Protection	The module provides knowledge about of "European Civil Protection system" and the characteristics that this "public service" has in the Member States. It also provides information on the European civil protection Mechanism to which European and foreign States can request support in case of need. Particular attention is paid to the functioning and "integration of public and private functions in local, territorial, national, and European governance structures.

		MUHEC	Open-Source Intelligence Techniques	The application of investigative guidelines, ethical practices, and legislation.
EPM A1.4	The relevant legislation, public policies to mitigate natural and anthropic risks	UoA	Natural and Technological Risks	Integrated view of natural and technological risks. Objectives of this module: strengthening of notions and principles; and acquiring a better perception of public policies in the field of risk prevention, whether in their construction or implementation.
		EDIMAS	National and European Civil Protection	The module provides knowledge about of "European Civil Protection system" and the characteristics that this "public service" has in the Member States. It also provides information on the European civil protection Mechanism to which European and foreign States can request support in case of need. Particular attention is paid to the functioning and "integration of public and private functions in local, territorial, national and European governance structures.
A2. AWARENESS OF POLICY MAKERS, ENFORCING, ENACTING THESE POLICIES				
EPM A2.1	Capacity to solve possible conflicts or interference among the different level of legislation			
EPM A2.2	Understand the structure and functioning of the crisis, emergency prevention management institutions in the country (public and private), the key actors in charge			
EPM A2.3	Identify the legislation entities and the government departments in charge of the civil protection plans**,** the key Actors in charge			
EPM A2.4	Identify and characterize international civil protection institutions and related organizations and structures, the key Actors in charge	UoA	Civil Protection Structures and Agents	The different organizations, structures and civil protection agents are discussed regarding the structure, organization, competences, and duties.
EPM A2.5	Understand the role of the National Civil Protection Authority and national civil protection structures**,** the key Actors in charge			
EPM A2.6	Know the key actors of civil protection system	UoA	Civil Protection Structures and Agents	The different organizations, structures and civil protection agents are discussed regarding the structure, organization, competences, and duties.

A3. MULTI RISK SCENARIOS OF WHICH AWARENESS SHOULD BE DEMONSTRATED				
EPM A3.1	Ability to identify and apply the proper regulations to each specific Multi Risk scenario	EDIMAS	Agenda 2030 & Emergency Management	Environment, socioeconomics, and social security (civil defence, public health, social welfare, and civil protection) are the areas of intervention of the European Emergency Management. This module addresses the immersive interconnections between the integrated strategic prevention of the UN 2030 Agenda and the innovative approach to the governance of the complexities related to crises and emergencies. Module topics include: • Introduction to the UN Agenda 2030. • Phases of integrated strategic planning. • information on European Prevention Management and Emergency Management. • Study cases.
EPM A3.2	Identify preventive measures to mitigate risk and recognize the difficulties inherent in their implementation	UoA	Natural and Technological Risks	Integrated view of natural and technological risks. Objectives of this module: strengthening of notions and principles; and acquiring a better perception of public policies in the field of risk prevention, whether in their construction or implementation.
		MUHEC	Blockchain Anatomy and Analytics	Collate evidence from various sources to maintain an audit trail.
		MUHEC	Penetration Testing and Digital Forensic	Information gathering, reconnaissance and the penetration testing process.
		MUHEC	Network Security and Services	Security threats and the available security mechanisms for combating security breaches.
		MUHEC	Cyber Security and Legal Regulations	Risk Assessment Process.
EPM A3.3	Know, understand and adopt the key governance aspects and resources available for an integrated strategic multidisciplinary territorial planning for risk prevention, shared with key Actors of the civil protection system	MUHEC	Risk Management Principles (no module code)	Risk management frameworks and governance concepts (IRGC and ISO guidance).
A4. CRITICAL THINKING AND PROBLEM SOLVING				

EPM A4.1	Critically reflect on the impact of relevant legislation and policies for Integrated Strategic Multidisciplinary Territorial Planning for Risk Prevention	UNIVAQ	Cyber Security Risks and Data Protection	Most of the modern services and infrastructures (telecommunications, energy, water supply, transportation, *etc.*) rely on electronic and computer systems which can be attacked. It is of major importance to maintain these services working properly.
		UdG	Cyber Security Risks and Data Protection	Most of the modern services and infrastructures (telecommunications, energy, water supply, transportation, *etc.*) rely on electronic and computer systems which can be attacked. It is of major importance to maintain these services working properly.
		MUHEC	Digital Evidence	Computer related crime / Sources of legal information.
B - DEMONSTRATE SUFFICIENT AWARENESS OF RELEVANT ENGINEERING APPROACHES AND RELATED PROBLEM-SOLVING SKILLS				
B1. RISK ANALYSIS AND ASSESSMENT				
EPM B1.1	Recognize the importance of timely dissemination of information	UoA	Monitoring and Warning Systems	Monitoring and Early Warning Systems are essential for the mitigation of hazards. The module addresses the implementation of a warning system according to the type of hazards to be monitored and the necessary resources for that purpose. It also explains how the information is generated, transformed into warning messages, and disseminated using resources to the various communication systems.
EPM B1.2	Ability to identify and rank the main crisis events with high occurrence probability in the territory of reference in order to select the most suitable engineering approaches			
EPM B1.3	Capacity to identify the problems and provide the correct solutions through an integrated multidisciplinary prevention plan	MUHEC	Blockchain Anatomy and Analytics	Deploy appropriate tools and techniques to carry out an investigation.
		MUHEC	Digital Forensics & Incident Management	Procedures of examining digital evidence collection and seizure with the possible limitations in the context of constantly changing technologies.
		MUHEC	Fin Crime Risks from Emerging Technologies	Changing financial crime typologies from new emerging technologies.
		MUHEC	Open-Source Intelligence Techniques	Evaluate open-source data gathering intelligence techniques and collection methodologies.
		MUHEC	Penetration Testing and Digital Forensic	Identify and solve problems, both individually and working in groups.

		MUHEC	Network Security and Services	Design and implementation of security mechanisms for a given network.
		MUHEC	Cyber Security and Legal Regulations	Incident response planning.
		MUHEC	Risk Management Principles (no module code)	Social impacts and vulnerability to flooding (western Europe).
EMP B1.4	Knowledge of the risk levels and capacity to describe coherently the scenario in terms of prevention and engineering actions. Knowledge of software risk assessment tools			
B2. PREVENTION FOR RISK REDUCTION/ MITIGATION INTEGRATED STRATEGIC MULTIDISCIPLINARY TERRITORIAL PLANNING				
EPM B2.1	Identify the coordination methodology processes and tools**,** according to the selected prevention plans	UNIVAQ	Cyber Security Risks and Data Protection	Most of the modern services and infrastructures (telecommunications, energy, water supply, transportation, *etc.*) rely on electronic and computer systems which can be attacked. It is of major importance to maintain these services working properly.
		UdG	Cyber Security Risks and Data Protection	Most of the modern services and infrastructures (telecommunications, energy, water supply, transportation, *etc.*) rely on electronic and computer systems which can be attacked. It is of major importance to maintain these services working properly.
		MUHEC	Blockchain Anatomy and Analytics	Techniques to identify suspects.
		MUHEC	Digital Forensics & Incident Management	Procedures and models for establishing and maintaining a physical "chain of custody" and critically evaluate their effectiveness in a variety of digital crime scenarios.
		MUHEC	Fin Crime Risks from Emerging Technologies	New technologies for vulnerability to financial crime and develop prevention strategies.
		MUHEC	Open-Source Intelligence Techniques	Various techniques for advanced searching and data gathering methods.
		MUHEC	Penetration Testing and Digital Forensic	Formulate appropriate methods for troubleshooting.
		MUHEC	Network Security and Services	Security policies, services, and mechanisms.

		MUHEC	Cyber Security and Legal Regulations	Security programs, policies, procedures, standards, and guidelines.
		MUHEC	Risk Management Principles (no module code)	Introducing flood warning and emergency response.
EPM B2.2	Knowledge of and capacity to properly use the main tools	UNIVAQ	Data Acquisition and Visualization (University of L'Aquila)	In emergency prevention and management scenarios there will be received data from sensors, geolocalization of equipment and personnel, *etc*. These could represent huge volumes of information, in some cases raw data that can be incomplete or containing errors. These data must be prepared for its analysis. Also, these data must be adequately presented to help in the decision-making process. The goal of this course is to provide the motivations, definitions and techniques for the acquisition and manipulation of data coming from the systems of smart buildings and facilities in a smart city.
		UdG	Data Acquisition and Visualization (UdG)	In emergency prevention and management scenarios there will be received data from sensors, geolocalization of equipment and personnel, *etc*. These could represent huge volumes of information, in some cases raw data that can be incomplete or containing errors. These data must be prepared for its analysis. Also, these data must be adequately presented to help in the decision-making process. The goal of this course is to provide the motivations, definitions and techniques for the acquisition and manipulation of data coming from the systems of smart buildings and facilities in a smart city.
		MUHEC	Blockchain Anatomy and Analytics	Measures to facilitate seizure.
		MUHEC	Digital Forensics & Incident Management	Appropriate tools to carry out digital forensics search and seizure independently and as part of a team.
		MUHEC	Fin Crime Risks from Emerging Technologies	Reg Tech: the use of technology to address financial crime risk.
		MUHEC	Open-Source Intelligence Techniques	Various techniques for advanced searching and data gathering methods.

		MUHEC	Penetration Testing and Digital Forensic	Design and plan a penetration test in accordance with current standards and legal / ethical issues.
		MUHEC	Network Security and Services	Hardware and software security applications.
		MUHEC	Cyber Security and Legal Regulations	Prepare and test plans for contingencies and disasters.
		MUHEC	Risk Management Principles (no module code)	Introducing flood warning and emergency response.
B3. MONITORING AND EWS (EARLY-WARNING SYSTEMS)				
EPM B3.1	Recognize and understand the importance of the role played by monitoring and EWS	UNIVAQ	Data Acquisition and Visualization (University of L'Aquila)	In emergency prevention and management scenarios there will be received data from sensors, geolocalization of equipment and personnel, *etc*. These could represent huge volumes of information, in some cases raw data that can be incomplete or containing errors. These data must be prepared for its analysis. Also, these data must be adequately presented to help in the decision-making process. The goal of this course is to provide the motivations, definitions and techniques for the acquisition and manipulation of data coming from the systems of smart buildings and facilities in a smart city.
		UdG	Data Acquisition and Visualization (UdG)	In emergency prevention and management scenarios there will be received data from sensors, geolocalization of equipment and personnel, *etc*. These could represent huge volumes of information, in some cases raw data that can be incomplete or containing errors. These data must be prepared for its analysis. Also, these data must be adequately presented to help in the decision-making process. The goal of this course is to provide the motivations, definitions and techniques for the acquisition and manipulation of data coming from the systems of smart buildings and facilities in a smart city.
EPM B3.2	Recognize and understand the main elements that govern the design of EWS	UoA	Monitoring and Warning Systems	Monitoring and Early Warning Systems are essential for the mitigation of hazards. The module addresses the implementation of a warning system according to the type of hazards to be monitored and the necessary resources for that purpose. It also

				explains how the information is generated, transformed into warning messages, and disseminated using resources to the various communication systems.
		UNIVAQ	Data Acquisition and Visualization (University of L'Aquila)	In emergency prevention and management scenarios there will be received data from sensors, geolocalization of equipment and personnel, *etc.* These could represent huge volumes of information, in some cases raw data that can be incomplete or containing errors. These data must be prepared for its analysis. Also, these data must be adequately presented to help in the decision-making process. The goal of this course is to provide the motivations, definitions and techniques for the acquisition and manipulation of data coming from the systems of smart buildings and facilities in a smart city.
		UdG	Data Acquisition and Visualization (UdG)	In emergency prevention and management scenarios there will be received data from sensors, geolocalization of equipment and personnel, *etc*. These could represent huge volumes of information, in some cases raw data that can be incomplete or containing errors. These data must be prepared for its analysis. Also, these data must be adequately presented to help in the decision-making process. The goal of this course is to provide the motivations, definitions and techniques for the acquisition and manipulation of data coming from the systems of smart buildings and facilities in a smart city.
EPM B3.3	Know the involvement of intergovernmental organizations in monitoring and alert systems			
EPM B3.4	Know the different types of monitoring systems used in the forecast of natural and technological phenomena			
EPM B3.5	Recognize and understand the variety and complexity of existing monitoring and EWS "Early Warning Systems" and their use in a multi-hazard perspective	UoA	Monitoring and Warning Systems	Monitoring and Early Warning Systems are essential for the mitigation of hazards. The module addresses the implementation of a warning system according to the type of hazards to be monitored and the necessary resources for that purpose. It also explains how the information is generated, transformed into

				warning messages, and disseminated using resources to the various communication systems.
		UNIVAQ	Data Acquisition and Visualization (University of L'Aquila)	In emergency prevention and management scenarios there will be received data from sensors, geolocalization of equipment and personnel, *etc.* These could represent huge volumes of information, in some cases raw data that can be incomplete or containing errors. These data must be prepared for its analysis. Also, these data must be adequately presented to help in the decision-making process. The goal of this course is to provide the motivations, definitions and techniques for the acquisition and manipulation of data coming from the systems of smart buildings and facilities in a smart city.
EPM B3.6	Know and understand the different monitoring and Early Warning Systems applied in order to reduce/mitigate natural, anthropic and modern risks	UoA	Monitoring and Warning Systems	Monitoring and Early Warning Systems are essential for the mitigation of hazards. The module addresses the implementation of a warning system according to the type of hazards to be monitored and the necessary resources for that purpose. It also explains how the information is generated, transformed into warning messages, and disseminated using resources to the various communication systems.
		MUHEC	Risk Management Principles (no module code)	Introducing flood warning and emergency response.
B4. SYSTEMIC AND INTERDISCIPLINARY APPROACH TO REDUCTION/MITIGATION OF RISK				
EPM B4.1	Demonstrate managerial skills of the actor in charge to coordinate multiple professional activities in possible risk scenarios in the Local Managing Authority	MUHEC	Digital Evidence	Investigation techniques.
EPM B4.2	Knowledge and understanding of the required Systemic and interdisciplinary approach in reduction/mitigation of Risk	MUHEC	Blockchain Anatomy and Analytics	Blockchain artefacts in the context of a digital investigation of cryptocurrencies and crime.
		MUHEC	Digital Forensics & Incident Management	Maintain a comprehensive audit trail to produce reports and statements to be used in a court of law.
		MUHEC	Fin Crime Risks from Emerging Technologies	Future readiness strategy development.
		MUHEC	Open-Source Intelligence Techniques	The application of investigative guidelines, ethical practices, and legislation.

		MUHEC	Penetration Testing and Digital Forensic	Evaluate the design of countermeasures for computer and network flaws found as a result of penetration tests.
		MUHEC	Network Security and Services	Security policies, services, and mechanisms.
		MUHEC	Cyber Security and Legal Regulations	Assess and manage risk in enterprise systems and networks.
EPM B4.3	Problem solving skills required in systemic and interdisciplinary approaches for reduction/mitigation of risk	MUHEC	Blockchain Anatomy and Analytics	Application of open-source investigation techniques in cryptocurrency and blockchain investigations.
		MUHEC	Digital Forensics & Incident Management	Investigative guidelines for digital investigations.
		MUHEC	Fin Crime Risks from Emerging Technologies	Impact assessment of new technologies in practice.
		MUHEC	Open-Source Intelligence Techniques	Advanced techniques to gather intelligence and evidence.
		MUHEC	Penetration Testing and Digital Forensic	Evaluate the design of countermeasures for computer and network flaws found as a result of penetration tests.
		MUHEC	Network Security and Services	Solutions for real world current and future security threats, including the implementation of innovative solutions.
		MUHEC	Cyber Security and Legal Regulations	Framework for cyber security and industrial IT.
		MUHEC	Digital Evidence	Investigation techniques.
C - DEMONSTRATE AWARENESS AND APPRECIATION OF THE HEALTH SYSTEM AND PROVIDED SERVICES				
C1. HEALTH ASPECTS IN THE TERRITORIAL MULTIDISCIPLINARY STRATEGIC INTEGRATED PLANNING ACTIVITY FOR RISK PREVENTION (MULTI-RISK)				
EPM C1.1	Knowledge and understanding of the multilevel responsibilities of health systems (including the social services, ambulance services, vets, *etc*.) and their relations with the strategical territorial planning			
EPM C1.2	Capacity to imagine the risk scenarios, to cope with any problem even those with low probability to incur (residual risks) providing a quick response in the framework of a proper integrated strategic plan			
EPM C1.3	Demonstrate the multilevel responsibilities associated with health aspects in Integrated Strategic prevention	UdG	Psychological Intervention in	It is important for the emergency professionals to consider and evaluate the psychological status of the victims to predict their reactions. Basic notions are necessary for stablishing a good

			Emergency Crisis (Universitat de Girona)	communication with the victims and give a first basic psychological intervention in contexts of emergencies or disasters.
C2. HEALTH SYSTEMS – STRUCTURES AND ORGANIZATIONS, KNOWLEDGE AND COORDINATION (EPM)				
EPM C2.1	Identify and coordinate the health services and professionals involved in a specific prevention plan area	UdG	Psychological Intervention in Emergency Crisis (Universitat de Girona)	It is important for the emergency professionals to consider and evaluate the psychological status of the victims to predict their reactions. Basic notions are necessary for stablishing a good communication with the victims and give a first basic psychological intervention in contexts of emergencies or disasters.
EPM C2.2	Demonstrate knowledge and understanding of the medical skills required in Prevention Planning against Risk scenarios.	UdG	Psychological Intervention in Emergency Crisis (Universitat de Girona)	It is important for the emergency professionals to consider and evaluate the psychological status of the victims to predict their reactions. Basic notions are necessary for stablishing a good communication with the victims and give a first basic psychological intervention in contexts of emergencies or disasters.
D - DEMONSTRATE THE ABILITY TO MANAGE MULTIDISCIPLINARY TEAMS IN PREVENTION PLANNING OF RISK SCENARIOS				
D1. EMERGENCY MANAGEMENT CYCLE				
EPM D1.1	Capacity to identify the prevention plan/s referred to Major Events and related Risks	EDIMAS	Agenda 2030 & Emergency Management	Environment, socioeconomics, and social security (civil defence, public health, social welfare, and civil protection) are the areas of intervention of the European Emergency Management. This module addresses the immersive interconnections between the integrated strategic prevention of the UN 2030 Agenda and the innovative approach to the governance of the complexities related to crises and emergencies. Module topics include: • Introduction to the UN Agenda 2030. • Phases of integrated strategic planning. • information on European Prevention Management and Emergency Management. • Study cases.
EPM D1.2	Identification of the rules to improve the plan strategies in future actions	MUHEC	Risk Management Principles (no module code)	Preventative health and safety.
		MUHEC	Risk Management Principles (no module code)	Risk assessment challenges.

		MUHEC	Risk Management Principles (no module code)	Tolerability of risk including frameworks and concepts such a ALARP/ALARA.
		MUHEC	Risk Management Principles (no module code)	Built environment risk management.
EPM D1.3	Recognize the close link among the different phases of risk prevention management	UoA	Crisis Management and Response Mechanisms	Facts that contribute to the complexity of crisis management in the different phases of disaster management.
		MUHEC	Risk Management Principles (no module code)	Risk communication (perception, world views, values, biases).
D2. SCENARIO-BASED RESPONSE PLANNING				
EPM D2.1	Capacity to describe the prevention activities, in each identified predictable scenario, providing a list of solutions to any foreseen problem			
EPM D2.2	Knowledge and understanding of the factors including approaches and skills that condition the success of crisis/emergency management (Planning)	UoA	Crisis Management and Response Mechanisms	Facts that contribute to the complexity of crisis management in the different phases of disaster management.
		MUHEC	Risk Management Principles (no module code)	Business continuity.
D3. ACTORS AND ROLES IN PREVENTION PLANNING OF CRISIS AND EMERGENCY MANAGEMENT				
EPM D3.1	Knowledge and understanding of the bodies in charge to operate in the territory in case of Crisis/Emergency Scenarios (Planning)	UdG	Psychological Intervention in Emergency Crisis (Universitat de Girona)	It is important for the emergency professionals to consider and evaluate the psychological status of the victims to predict their reactions. Basic notions are necessary for stablishing a good communication with the victims and give a first basic psychological intervention in contexts of emergencies or disasters.
D4. LEADERSHIP STYLE AND CAPACITY IN MANAGING A MULTIDISCIPLINARY TEAM (PUBLIC AND PRIVATE)				
EPM D4.1	Ability to assign the right task to each body avoiding overlapping and time wasting			
EPM D4.2	Knowledge and understanding (in planning) of the involved tools to coordinate the different bodies (public and private)	MUHEC	Digital Evidence	E-Crime detection / Crime interception.
		MUHEC	Risk Management Principles (no module code)	Stakeholder engagement and planning.

TABLE 3 – PLOs (with code and description) and Modules (with Topic and Partner) considered for the **ECEM profile.**

PLO #	PLO Description	Partner	Module	Topic
A - DEMONSTRATE AN EXHAUSTIVE AWARENESS OF LEGISLATION, POLICIES AND LEGAL CONSTRAINTS RELEVANT TO THE GOVERNANCE OF CRISIS AND EMERGENCY MANAGEMENT (SPECIFIC RESPONSIBILITIES OF INDIVIDUAL LOCAL, REGIONAL AND NATIONAL AUTHORITIES)				
A1. RULES AND LEGISLATION. KNOWLEDGE AND ANALYSIS OF EXISTING LEGAL/REGULATORY FRAMEWORKS				
ECEM A1.1	Identify the encountered/possible gaps in the present legislation and suggest the solution and the consequent needed amendments, referring to different governance levels			
ECEM A1.2	Analyse and evaluate the present rules concerning the tasks and roles of each body in charge of crisis governance and emergency management	EDIMAS	National and European Civil Protection	The training module provides knowledge of the "European civil protection system" and of the characteristics that this "public service" has in the Member States. Particular attention is paid to: - the activation processes of the European Civil Protection Mechanism when a European State or a foreign State makes a request for support. - the functioning and activation of the "Operational Modules" of the European Civil Protection Mechanism
ECEM A1.3	Assess the actual legal constraints faced by a crisis/emergency manager	MUHEC	Open-Source Intelligence Techniques	Application of investigative guidelines, ethical practices, and legislation.
ECEM A1.4	Specify knowledge of the current policies and regulations related to risks in crisis management (*e.g.* labour risks, cyber-attacks, natural disasters, *etc*.)			
ECEM A1.5	Know public policies to reduce natural and anthropic risks in crisis management	UoA	Natural and Technological Risks	Integrated view of natural and technological risks. Objectives of this module: strengthening of notions and principles; and acquiring a better perception of public policies in the field of

				risk prevention, whether in their construction or implementation.
		EDIMAS	National and European Civil Protection	The training module provides knowledge of the "European civil protection system" and of the characteristics that this "public service" has in the Member States. Particular attention is paid to: - the activation processes of the European Civil Protection Mechanism when a European State or a foreign State makes a request for support. - the functioning and activation of the "Operational Modules" of the European Civil Protection Mechanism.
ECEM A1.6	Critically reflect on the impact of relevant legislation and policies upon integrated emergency response	MUHEC	Digital Evidence	Law foundations in relation to forensic computing.
ECEM A1.7	Determine and understand the key governance aspects and resources available in an emergency	MUHEC	Digital Evidence	The role of the computer forensic professional.
A2. AWARENESS OF LOCAL, REGIONAL AND NATIONAL STAKEHOLDERS/ACTORS				
ECEM A2.1	Understand the structure and functioning of the emergency management institutions in the country (public and private), stakeholders/actors			
ECEM A2.2	Identify and characterise international civil protection organizations and structures	UoA	Civil Protection Structures and Agents	The different organizations, structures and civil protection agents are discussed regarding the structure, organization, competences, and duties.
A3. RISKS MITIGATION STRATEGIES IN CRISIS MANAGEMENT				
ECEM A3.1	Understand the level of complexity in the risk assessment processes for the best emergency planning	UoA	Natural and Technological Risks	Integrated view of natural and technological risks. Objectives of this module: strengthening of notions and principles; and acquiring a better perception of public policies in the field of

				risk prevention, whether in their construction or implementation.
		MUHEC	Digital Forensics & Incident Management	Documentation, reporting and analysis of digital e-crimes using case scenarios.
		MUHEC	Fin Crime Risks from Emerging Technologies:	Policy documents and to give advice on matters regarding compliance and crime from new emerging technologies.
		MUHEC	Penetration Testing and Digital Forensic:	Apply relevant theoretical concepts to Identify and solve problems.
		MUHEC	Network Security and Services:	Security threats and the available security mechanisms for combating security breaches.
		MUHEC	Cyber Security and Legal Regulations:	Risk Assessment Process.
ECEM A3.2	Identify measures to reduce/mitigate risk in crisis management and recognize the difficulties inherent in their implementation	UoA	Natural and Technological Risks	Integrated view of natural and technological risks. Objectives of this module: strengthening of notions and principles; and acquiring a better perception of public policies in the field of risk prevention, whether in their construction or implementation.
ECEM A3.3	Understand the range of responsibilities and interdependencies associated with crisis/emergency management	MUHEC	Digital Evidence	Incidence handling.
B - DEMONSTRATE AN EXHAUSTIVE MANAGERIAL COMPETENCE, LEADERSHIP AND PROBLEM-SOLVING SKILLS FOR THE COORDINATION OF THE COMPONENTS AND OPERATIONAL STRUCTURES OF CIVIL DEFENCE (*), CIVIL PROTECTION AND PUBLIC HEALTH BODIES ACCORDING TO THE EVENT SCENARIO (FIREFIGHTERS, LAW ENFORCEMENT AND MILITARY, HEALTH CARE AND CIVIL PROTECTION VOLUNTEERS)				
B1. "THREAT ASSESSMENT" AND "RISK ANALYSIS AND ASSESSMENT" IN "CRISIS EVENT MANAGEMENT"				
ECEM B1.1	Identify and select the suitable tools (such as digital tools and non-digital tools) in crisis event management	MUHEC	Blockchain Anatomy and Analytics	Cryptocurrency / blockchain visualization and analytics.
		MUHEC	Digital Forensics & Incident Management	Appropriate tools to carry out digital forensics search and seizure independently and as part of a team.
		MUHEC	Fin Crime Risks from Emerging Technologies	New technologies for vulnerability to financial crime and develop prevention strategies.

		MUHEC	Open-Source Intelligence Techniques	Open-source data gathering intelligence techniques and collection methodologies.
		MUHEC	Penetration Testing and Digital Forensic	Attack tools, application usage and development, including writing exploits and payloads.
		MUHEC	Network Security and Services	Authentication and authorisation, intrusion detection and information security techniques.
		MUHEC	Cyber Security and Legal Regulations	Disaster recovery planning.
ECEM B1.2	Recognize the importance of timely and competent information to the citizens	UoA	Monitoring and Warning Systems	Monitoring and Early Warning Systems are essential for the mitigation of hazards. The module addresses the implementation of a warning system according to the type of hazards to be monitored and the necessary resources for that purpose. It also explains how the information is generated, transformed into warning messages, and disseminated using resources to the various communication systems.
B2. MONITORING AND WARNING SYSTEMS IN CRISIS EMERGENCY SCENARIO				
ECEM B2.1	Recognize the importance of the role played by "monitoring systems"	MUHEC	Risk Management Principles (no module code)	Flood defence approach, monitoring for maintenance UK.
ECEM B2.2	Know the involvement of governance organizations in monitoring and early warning system	MUHEC	Risk Management Principles (no module code)	Introducing flood warning and emergency response.
B3. THE APPLICATION PROCESS OF THE CRISIS/EMERGENCY MANAGEMENT PLANNING				
ECEM B3.1	Capacity to identify risk levels and to describe and cope with the scenario in terms of crisis/emergency management and multifunctional actions	MUHEC	Blockchain Anatomy and Analytics	Techniques to identify suspects.
		MUHEC	Digital Forensics & Incident Management	Forensic environment requirements.
		MUHEC	Fin Crime Risks from Emerging Technologies	Financial crime concepts and types of crime.
		MUHEC	Open-Source Intelligence Techniques	Various techniques for advanced searching and data gathering methods.

		MUHEC	Penetration Testing and Digital Forensic	Evaluate research and different types of information & evidence arguments critically.
		MUHEC	Network Security and Services	Technical security systems.
		MUHEC	Cyber Security and Legal Regulations	Prepare and test plans for contingencies and disasters.
ECEM B3.2	Evaluate the technical skills and identify the missing ones for a suitable crisis management	MUHEC	Fin Crime Risks from Emerging Technologies	Opportunities and vulnerabilities of adopting emerging technology for business.
		MUHEC	Network Security and Services	Security mechanisms for a given network.
		MUHEC	Cyber Security and Legal Regulations	Design awareness, training, and education programs.
ECEM B3.3	Capacity to describe the scenario and identify risk levels in relation to engineering actions and pertinent prevention measures	MUHEC	Blockchain Anatomy and Analytics	Measures to facilitate seizure.
		MUHEC	Digital Forensics & Incident Management	Incident response methodology.
		MUHEC	Open-Source Intelligence Techniques	Appropriate tools (open source and specialist tools) to carry out open-source intelligence gathering.
		MUHEC	Penetration Testing and Digital Forensic	Apply relevant theoretical concepts to Identify and solve problems.
		MUHEC	Network Security and Services	Security policies, services, and mechanisms.
		MUHEC	Cyber Security and Legal Regulations	Identify common threats to applications, systems, and networks.
ECEM B3.4	Develop “emergency management plans” for the coordination of different operational structures required for a range of event scenarios	MUHEC	Blockchain Anatomy and Analytics	Appraise the developments in criminal techniques within domain.
		MUHEC	Digital Forensics & Incident Management	Information hiding techniques, detection, and solutions.
		MUHEC	FinCrime Risks from Emerging Technologies	Understanding regulation of financial services.
		MUHEC	Open-Source Intelligence Techniques	Evaluate data sources and understand their limitations.
		MUHEC	Penetration Testing and Digital Forensic	Design and plan a penetration test in accordance with current standards.

		MUHEC	Network Security and Services	Solutions for real world current and future security threats, including the implementation of innovative solutions.
		MUHEC	Cyber Security and Legal Regulations	Assess and manage risk in enterprise systems and networks.
B4. AWARENESS OF BODIES, SKILLS, COMPETENCIES AND COORDINATION INVOLVED				
ECEM B4.1	Demonstrate understanding of the range of approaches and skills required for different event scenarios.			
C - DEMONSTRATE EXHAUSTIVE AWARENESS AND KNOWLEDGE OF HEALTH SYSTEM, SPECIALTIES AND RESPONSIBILITIES IN ORDER TO ENSURE A PROPER PUBLIC HEALTH INTERVENTION IN CRITICAL SCENARIOS				
C1. ROLES AND COMPETENCES IN PUBLIC HEALTH SERVICES IN CRISIS/EMERGENCY SITUATIONS MANAGEMENT				
ECEM C1.1	Clear knowledge of the needed direct intervention as well as of the indirect effects on the crisis scenario management			
ECEM C1.2	Demonstrate knowledge of the health skills required in critical scenarios	UNIVAQ	Integrated Health Emergencies	TOPICS OF THE MODULE INCLUDE: a) Emergency Medicine, Disaster Medicine, and Public Health; b) Definition of emergency and disaster medicine; c) Modeling medical disaster management d) Disaster epidemiology; e) General Medical Disaster Management; f) Specific Medical Disaster Management.
ECEM C1.3	Demonstrate in depth understanding of the role of each health system unit in crisis scenario	UNIVAQ	Integrated Health Emergencies	TOPICS OF THE MODULE INCLUDE: a) Emergency Medicine, Disaster Medicine, and Public Health; b) Definition of emergency and disaster medicine; c) Modeling medical disaster management d) Disaster epidemiology; e) General Medical Disaster Management; f) Specific Medical Disaster Management.
C2. TEAM COORDINATION AND MANAGEMENT IN AN EMERGENCY SITUATION ASSOCIATED WITH HEALTH ASPECTS				

ECEM C2.1	Knowledge and ability to coordinate the medical entities (public and private) in an emergency scenario	UNIVAQ	INTEGRATED HEALTH EMERGENCIES	TOPICS OF THE MODULE INCLUDE: a) Emergency Medicine, Disaster Medicine, and Public Health; b) Definition of emergency and disaster medicine; c) Modeling medical disaster management; d) Disaster epidemiology; e) General Medical Disaster Management; f) Specific Medical Disaster Management.
D - DEMONSTRATE PRACTICAL SKILLS FOR A CONCRETE INTERVENTION DIRECTLY ON THE FIELD BY USING PROPER TECHNOLOGIES AND METHODOLOGIES				
D1. PHASES OF THE EUROPEAN EMERGENCY MANAGEMENT CYCLE				
ECEM D1.1	Capacity to execute an emergency management plan			
ECEM D1.2	Recognize the close link among the different phases of emergency management	UoA	Crisis Management and Response Mechanisms	Facts that contribute to the complexity of crisis management in the different phases of disaster management.
ECEM D1.3	Understand the factors that condition the success of crisis/emergency management	UoA	Crisis Management and Response Mechanisms	Facts that contribute to the complexity of crisis management in the different phases of disaster management.
D2. UNDERSTANDING, ASSESSING AND ASSIGNING ACTORS, ROLES AND SKILLS TO FORESEEN TASKS				
ECEM D2.1	Describe the structure and roles of a multi-disciplinary team that is formed to manage crisis/emergencies	EDIMAS	The Communication	The module offers the ability to differentiate the tools and methods of communication strategies according to the different targets: - recipients affected by the event; - average; - experts; - institutions.
ECEM D2.2	Identify the roles and responsibilities of the different crisis management teams			
ECEM D2.3	Identify the different skills needed for managing a multi-disciplinary team according to the specific crisis scenario	MUHEC	Digital Evidence	Incidence handling.

D3. SELECTING APPROPRIATE CRITERIA, METHODS, PROCEDURES, TOOLS, RESOURCES MULTIDISCIPLINARY AND TECHNOLOGIES IN AN EMERGENCY/CRISIS COMPLEX SCENARIOS, TAKING INTO THE DUE ACCOUNT OF OTHER RESOURCES AND METHODS THAT ARE ALSO OF DIFFERENT NATURE				
ECEM D3.1	Critically evaluate the importance of different methods and technologies available for the management of critical scenarios	MUHEC	Blockchain Anatomy and Analytics	Deploy appropriate tools and techniques to carry out an investigation.
		MUHEC	Digital Forensics & Incident Management	Techniques and valid procedures to carry out digital forensic investigations on current and emerging technologies.
		MUHEC	Fin Crime Risks from Emerging Technologies	Assessment of new technologies.
		MUHEC	Open-Source Intelligence Techniques	Apply advanced techniques to gather intelligence and evidence.
		MUHEC	Penetration Testing and Digital Forensic	Systematically and critically evaluate the design of countermeasures for computer and network flaws found as a result of penetration tests.
		MUHEC	Network Security and Services	Security policies, services and mechanisms.
		MUHEC	Cyber Security and Legal Regulations	Develop security programs, policies, procedures, standards, and guidelines appropriate for corporate environments.
		MUHEC	Digital Evidence	Evidence presentation.

APPENDIX

Modules designed and created by the B-READI partners for transdisciplinary training in the European academic environment in the track of "Prevention Manager" (European Prevention Manager - EPM) and the "Emergency Manager" (European Crisis Emergency Manager - ECEM).

Integrated Health Emergencies (University of L'Aquila)

Pre-requisites
Knowledge of Medicine, First Aid, and Intensive Care.
Description & Contents
The course aims to train participants to deal with medical-assistance problems relating to health emergencies in the intra and extra-hospital environment. The didactic and training plan is aimed at qualifying: • in the knowledge of the problems related to the environment and natural disasters; • in the knowledge of the physiological and pathophysiological problems of the organism in difficult; • in the management of health emergencies in a hostile environment; • in the use of monitoring and therapy systems already at the accident site; • in the management of the patient; • in the communication with the patient and with the media; • in the new technologies and techniques at the service of emergencies; • in the knowledge of the new technologies applicable to the emergency / max emergency.
Activities & Methodology
Expositive sessions. Presentation of class works (e.g. poster session, slide show, …) Practices
Evaluation / Assessment
Class works 45% Practices 55%.
Learning outputs (Competences)
ECEM C1.2 Demonstrate knowledge of the health skills required in critical scenarios. **ECEM C1.3** Demonstrate in depth understanding of the role of each health system unit in crisis scenario. **ECEM C2.1** Knowledge and ability to coordinate the medical entities (public and private) in an emergency scenario.

Data Acquisition and Visualization (Universitat de Girona/University of L'Aquila))

Pre-requisites
Basic knowledge of computer programming.
Description & Contents
In emergency prevention and management scenarios there will be received data from sensors, geolocalization of equipment and personnel, *etc*. These could represent huge volumes of information, in some cases raw data that can be incomplete or containing errors. These data must be prepared for its analysis. Also, these data must be adequately presented to help in the decision-making process. • Sources of Data in emergencies and its acquisition. • Data Quality Evaluation. • Data cleansing. • Data preparation for their use in Data Science. • Introduction to the visualization of information. • Types of graphics and visualization strategies. • Advanced and interactive visualization.
Activities & Methodology
Expositive sessions. Presentation of class works (*e.g.* poster session, slide show, …). Practices (development of a small project).
Evaluation / Assessment
Class works 35% Practices 65%.
Learning outputs (Competences)
EPM B2.2 - Knowledge of and capacity to properly use the main tools. **EPM B3.1 -** Recognize and understand the importance of the role played by monitoring and EWS. **EPM B3.2 -** Recognize and understand the main elements that govern the design of EWS. **EPM B3.5 -** Recognize and understand the variety and complexity of existing monitoring and EWS "Early Warning Systems" and their use in a multi-hazard perspective.

Cyber Security Risks and Data Protection (Universitat de Girona)

Pre-requisites
Basic knowledge of computer programming, and computer networks.
Description & Contents
Most of the modern services and infrastructures (telecommunications, energy, water supply, transportation, *etc.*) rely on electronic and computer systems which can be attacked. It is of major importance to maintain these services working properly. • Introduction to cryptography. • Security in Data Bases and Operating Systems. • Security in Networks and Internet Services. • Security in Sensors and Data Acquisition. • Application of Blockchain solutions and Smart Contracts.
Activities & Methodology
Expositive sessions. Presentation of class works (*e.g.* poster sessions, slide show, *etc.).* Practices (programming, analyzing, *etc.*).
Evaluation / Assessment
Class works 40% Practices 60%.
Learning outputs (Competences)
EPM B2.1 - Identify the coordination methodology processes and tools**,** according to the selected prevention plans (UdG). **EPM A1.2 -** The policies and legal constrains, related to risks management (e.g. labour risks, cyber risk, natural risk, *etc*.). **EPM A4.1 -** Critically reflect on the impact of relevant legislation and policies for Integrated Strategic Multidisciplinary Territorial Planning for Risk Prevention.

Monitoring and Warning Systems (University of the Azores)

Pre-requisites
None.
Description & Contents
Monitoring and Early Warning Systems are essential for the mitigation of hazards. The module addresses the implementation of a warning system according to the type of hazards to be monitored and the necessary resources for that purpose. It also explains how the information is generated, transformed into warning messages, and disseminated using resources to the various communication systems. Topics of the module include: • Identification of natural hazards; • Introduction to monitoring and warning systems; • Monitoring methods and strategies; • Data acquisition and transmission; • Monitoring systems (*i.e.*, Gas emissions – CO_2 (discrete and continuous measurements) and radon (^{222}Rn); Water analysis – Physical and chemical parameters measured in situ and in the laboratory; Seismic monitoring; (*) Visit to seismic stations and epicenter calculations. Geodetic landslide monitoring – using a total station method.); • Warning systems. (*i.e.,* (*)Visit to the landslide early warning system array of meteorological stations.); • Communication of information warning systems to authorities, organizations, and the population.
Activities & Methodology
Expositive sessions (oral presentation of topics using slides, illustrative diagrams, photographs, videos, *etc.*). Practices (development of a small project and (*)observation of data acquisition centers and transmission systems. (*) Activities to be held in São Miguel Island, Azores.
Evaluation / Assessment
Class works 40% Practices 60%.
Learning outputs (Competences)
EPM B1.1 - Recognize the importance of timely dissemination of information. **ECEM B1.2** - Recognize the importance of timely and competent information to the citizens. **EPM B3.2** - Understand the main elements that govern the design of an early warning system. **EPM B3.5** - Recognize and understand the variety and complexity of existing monitoring and early warning systems and their use in a multi-hazard perspective. **EPM B3.6** - Know and understand the different monitoring and early warning systems applied to reduce / mitigate natural, anthropic and modern risks.

Civil Protection Structures and Agents (University of the Azores)

Pre-requisites
None.
Description & Contents
The different organizations, structures and civil protection agents are discussed regarding the structure, organization, competences, and duties. Topics of the module include: • Public Civil Protection policies; • International organizations and structures; • National Civil Protection authority; • Civil Protection structure; • Civil Protection agents.
Activities & Methodology
The module operates with the collaboration of leaders from different organizations, structures, and entities.
Evaluation / Assessment
Class works 40% Practices 60%.
Learning outputs (Competences)
EPM A1.3 - The legal framework that determines public policies in terms of civil protection services. **EPM A2.4 -** Identify and characterize international civil protection institutions and related organizations and structures, the key actors in charge. **ECEM A2.2** - Identify and characterize international civil protection organizations and structures. **EPM A2.6** - Know the key actors of the civil protection system.

Natural and Technological Risks (University of the Azores)

Pre-requisites
None.
Description & Contents
The module aims to provide an integrated view of natural and technological risks, so the learning objectives of this module are situated, fundamentally, both around the strengthening of notions and principles, and of a better perception of public policies in the field of risk prevention, whether in their construction or implementation. Topics of the module include: • Hazard, vulnerability, value, and risk; • Multiple hazards and risks; • Risk assessment (natural hazards, and environmental and technological risks); • Public policies.
Activities & Methodology
The module operates on a seminar basis with the collaboration of experts, from the public and the private sector, on risk management.
Evaluation / Assessment
A written paper (60%) and its oral presentation (40%) on a topic of the module.
Learning outputs (Competences)
EPM A1.4 - The relevant legislation, public policies to mitigate natural and anthropic risks. **ECEM A1.5** - Know public policies to reduce natural and anthropic risks in crisis management. **EPM A3.2 -** Identify preventive measures to mitigate risk and recognize the difficulties inherent in their implementation. **ECEM A3.2** - Identify measures to reduce/mitigate risk in crisis management and recognize the difficulties inherent in their implementation. **ECEM A3.1** - Understand the level of complexity of risk assessment processes for the best emergency planning.

Crisis Management And Response Mechanisms (University of the Azores)

Pre-requisites
None.
Description & Contents
Throughout history, there have been several successful and failed examples related to crisis management. This module addresses facts that contribute to complex problems to solve in the different phases of disaster management during a crisis. Topics of the module include: • Introduction to crisis management; • Disaster management phases; • Dissemination of information; • Case study.
Activities & Methodology
Theoretical activities: Presentation of illustrative diagrams/photographs of the objects, concepts and processes targeted for analysis. Practical activity: Design an exercise.
Evaluation / Assessment
A written paper (60%) and its oral presentation (40%).
Learning outputs (Competences)
EPM D1.3 - Recognize the close link among the different phases of risk prevention management. **ECEM D1.2** - Recognize the close link among the different phases of emergency management. **EPM D2.2 -** Knowledge and understanding of the factors including approaches and skills that condition the success of crisis/emergency management (planning). **ECEM D1.3** - Understand the factors that condition the success of crisis/emergency management.

Agenda 2030 and Emergency Management - EPM (EDIMAS)

Pre-requisites
None.
Description & Contents
Environment, socioeconomics, and social security (civil defence, public health, social welfare, and civil protection) are the areas of intervention of the European Emergency Management. This module addresses the immersive interconnections between the integrated strategic prevention of the UN 2030 Agenda and the innovative approach to the governance of the complexities related to crises and emergencies. Module topics include: • Introduction to the UN Agenda 2030. • Phases of integrated strategic planning. • information on European Prevention Management and Emergency Management. • Study cases.
Activities & Methodology
Theoretical activities: Presentation of the projects, concepts, and process cycles object of the analysis. Practical activity: Design an exercise.
Evaluation / Assessment
A written paper (60%) and its oral presentation (40%).
Learning outputs (Competences)
EPM A3.1 Ability to identify and apply the proper regulations to each specific Multi Risk scenario.
EPM D1.1 Capacity to identify the prevention plan/s referred to Major Events and related Risks.

National and European Civil Protection - EPM (EDIMAS)

Pre-requisites
None.
Description & Contents
The module provides knowledge about of "European Civil Protection system" and the characteristics that this "public service" has in the Member States. It also provides information on the European civil protection Mechanism to which European and foreign States can request support in case of need. Particular attention is paid to the functioning and "integration of public and private functions in local, territorial, national, and European governance structures.
Activities & Methodology
Theoretical activities: Presentation of the public and private bodies that contribute to the European civil protection system, of their functioning within the Member States. Practical activity: Design an exercise.
Evaluation / Assessment
A written paper (60%) and its oral presentation (40%).
Learning outputs (Competences)
EPM A1.3 The legal framework that determines public policies in terms of civil protection services.
EPM A1.4 The relevant legislation, public policies to mitigate natural and anthropic risks.

National and European Civil Protection - ECEM (EDIMAS)

Pre-requisites
None.
Description & Contents
The training module provides knowledge of the "European civil protection system" and of the characteristics that this "public service" has in the Member States. Particular attention is paid to: - the activation processes of the European Civil Protection Mechanism when a European State or a foreign State makes a request for support. - the functioning and activation of the "Operational Modules" of the European Civil Protection Mechanism.
Activities & Methodology
Theoretical activities: Presentation of functional and process cycles within the European civil protection system. Practical activity: Design an emergency context exercise.
Evaluation / Assessment
A written paper (60%) and its oral presentation (40%).
Learning outputs (Competences)
ECEM A1.2 Analyses and evaluate the present rules concerning the tasks and roles of each body in charge of crisis governance and emergency management.
ECEM A1.5 Know public policies to reduce natural and anthropic risks in crisis management.

The Communication - ECEM (EDIMAS)

Pre-requisites
None.
Description & Contents
The module offers the ability to differentiate the tools and methods of communication strategies according to the different targets: - recipients affected by the event / average / experts / institutions.
Activities & Methodology
Theoretical activities: Presentation of communication strategies and methodologies. Practical activity: Design an exercise.
Evaluation / Assessment
A written paper (60%) and its oral presentation (40%).
Learning outputs (Competences)
ECEM D2.1 Describe the structure and roles of a multi-disciplinary team that is formed to manage crisis/emergencies.

MIDDLESEX UNIVERSITY

CST4220: Blockchain Anatomy and Analytics	Sukhvinder Hara
EPM A3.2	Collate evidence from various sources to maintain an audit trail
EPM B1.3	Deploy appropriate tools and techniques to carry out an investigation
EPM B2.1	Techniques to identify suspects
EPM B2.2	Measures to facilitate seizure
EPM B4.2	Blockchain artefacts in the context of a digital investigation of cryptocurrencies and crime
EPM B4.3	Application of open-source investigation techniques in cryptocurrency and blockchain investigations
ECEM B1.1	Cryptocurrency / blockchain visualization and analytics
ECEM B3.1	Techniques to identify suspects
ECEM B3.3	Measures to facilitate seizure
ECEM B3.4	Appraise the developments in criminal techniques within domain
ECEM D3.1	Deploy appropriate tools and techniques to carry out an investigation
CST4230: Digital Forensics & Incident Management	Sukhvinder Hara
EPM B1.3	Procedures of examining digital evidence collection and seizure with the possible limitations in the context of constantly changing technologies
EPM B2.1	Procedures and models for establishing and maintaining a physical "chain of custody" and critically evaluate their effectiveness in a variety of digital crime scenarios
EPM B2.2	Appropriate tools to carry out digital forensics search and seizure independently and as part of a team
EPM B4.2	Maintain a comprehensive audit trail for the production of reports and statements to be used in a court of law
EPM B4.3	Investigative guidelines for digital investigations
ECEM A3.1	Documentation, reporting and analysis of digital e-crimes using case scenarios
ECEM B1.1	Appropriate tools to carry out digital forensics search and seizure independently and as part of a team
ECEM B3.1	Forensic environment requirements
ECEM B3.3	Incident response methodology
ECEM B3.4	Information hiding techniques, detection and solutions
ECEM D3.1	Techniques and valid procedures to carry out digital forensic investigations on current and emerging technologies
CST4240: FinCrime Risks from Emerging Technologies	Sukhvinder Hara
EPM A1.2	Relevant regulatory frameworks for financial services, and the practice of regulatory compliance in corporate organisations
EPM B1.3	Changing financial crime typologies from new emerging technologies
EPM B2.1	New technologies for vulnerability to financial crime and develop prevention strategies
EPM B2.2	RegTech: the use of technology to address financial crime risk

EPM B4.2	Future readiness strategy development
EPM B4.3	Impact assessment of new technologies in practice
ECEM A3.1	Policy documents and to give advice on matters regarding compliance and crime from new emerging technologies
ECEM B1.1	New technologies for vulnerability to financial crime and develop prevention strategies
ECEM B3.1	Financial crime concepts and types of crime
ECEM B3.2	Opportunities and vulnerabilities of adopting emerging technology for business
ECEM B3.4	Understanding regulation of financial services
ECEM D3.1	Assessment of new technologies
CST4250: Open-Source Intelligence Techniques	Sukhvinder Hara
EPM A1.2	The application of investigative guidelines, ethical practices and legislation
EPM A1.3	The application of investigative guidelines, ethical practices and legislation
EPM B1.3	Evaluate open-source data gathering intelligence techniques and collection methodologies
EPM B2.1	Various techniques for advanced searching and data gathering methods
EPM B2.2	Various techniques for advanced searching and data gathering methods
EPM B4.2	The application of investigative guidelines, ethical practices and legislation
EPM B4.3	Advanced techniques to gather intelligence and evidence
ECEM A1.3	Application of investigative guidelines, ethical practices and legislation
ECEM B1.1	Open-source data gathering intelligence techniques and collection methodologies
ECEM B3.1	Various techniques for advanced searching and data gathering methods
ECEM B3.3	Appropriate tools (open source and specialist tools) to carry out open-source intelligence gathering
ECEM B3.4	Evaluate data sources and understand their limitations
ECEM D3.1	Apply advanced techniques to gather intelligence and evidence
CST4550: Penetration Testing and Digital Forensic	**Mahdi Aiash**
EPM A3.2	Information gathering, reconnaissance and the penetration testing process
EPM B1.3	Identify and solve problems, both individually and working in groups
EPM B2.1	Formulate appropriate methods for troubleshooting
EPM B2.2	Design and plan a penetration test in accordance with current standards and legal / ethical issues
EPM B4.2	Evaluate the design of countermeasures for computer and network flaws found as a result of penetration tests
EPM B4.3	Evaluate the design of countermeasures for computer and network flaws found as a result of penetration tests

ECEM A3.1	Apply relevant theoretical concepts to Identify and solve problems
ECEM B1.1	Attack tools, application usage and development, including writing exploits and payloads
ECEM B3.1	Evaluate research and different types of information & evidence arguments critically
ECEM B3.3	Apply relevant theoretical concepts to Identify and solve problems
ECEM B3.4	Design and plan a penetration test in accordance with current standards
ECEM D3.1	Systematically and critically evaluate the design of countermeasures for computer and network flaws found as a result of penetration tests
CST 4560: Network Security and Services	**Mahdi Aiash**
EPM A3.2	Security threats and the available security mechanisms for combating security breaches
EPM B1.3	Design and implementation of security mechanisms for a given network
EPM B2.1	Security policies, services and mechanisms
EPM B2.2	Hardware and software security applications
EPM B4.2	Security policies, services and mechanisms
EPM B4.3	Solutions for real world current and future security threats, including the implementation of innovative solutions
ECEM A3.1	Security threats and the available security mechanisms for combating security breaches
ECEM B1.1	Authentication and authorisation, intrusion detection and information security techniques
ECEM B3.1	Technical security systems
ECEM B3.2	Security mechanisms for a given network
ECEM B3.3	Security policies, services and mechanisms
ECEM B3.4	Solutions for real world current and future security threats, including the implementation of innovative solutions
ECEM D3.1	Security policies, services and mechanisms
CST 4590: Cyber Security and Legal Regulations	**Mahdi Aiash**
EPM A3.2	Risk Assessment Process
EPM B1.3	Incident response planning
EPM B2.1	Security programs, policies, procedures, standards and guidelines
EPM B2.2	Prepare and test plans for contingencies and disasters
EPM B4.2	Assess and manage risk in enterprise systems and networks
EPM B4.3	Framework for cyber security and industrial IT
ECEM A3.1	Risk Assessment Process
ECEM B1.1	Disaster recovery planning
ECEM B3.1	Prepare and test plans for contingencies and disasters
ECEM B3.2	Design awareness, training and education programs
ECEM B3.3	Identify common threats to applications, systems and networks
ECEM B3.4	Assess and manage risk in enterprise systems and networks

ECEM D3.1	Develop security programs, policies, procedures, standards and guidelines appropriate for corporate environments
BIS3228: Digital Evidence	**George Dafoulas**
EPM A1.1	Law foundations in relation to forensic computing
EPM A4.1	Computer related crime / Sources of legal information
EPM B4.1	Investigation techniques
EPM B4.3	Investigation techniques
EPM D4.2	E-Crime detection / Crime interception
ECEM A1.6	Law foundations in relation to forensic computing
ECEM A1.7	The role of the computer forensic professional
ECEM A3.3	Incidence handling
ECEM D2.3	Incidence handling
ECEM D3.1	Evidence presentation
Risk Management Principles (no module code)	**Simon McCarthy (SM), John Watt (JW), David Thomas (DT)**
EPM A3.3	Risk management frameworks and governance concepts (IRGC and ISO guidance)
EPM B1.3	Social impacts and vulnerability to flooding (western Europe)
EPM B2.1	Introducing flood warning and emergency response
EPM B2.2	Introducing flood warning and emergency response
EPM B3.6	Introducing flood warning and emergency response
EPM D1.2	Preventative health and safety
EPM D1.2	Risk assessment challenges
EPM D1.2	Tolerability of risk including frameworks and concepts such a ALARP/ALARA
EPM D1.2	Built environment risk management
EPM D1.3	Risk communication (perception, world views, values, biases)
EPM D2.2	Business continuity
EPM D4.2	Stakeholder engagement and planning
ECEM B2.1	Flood defence approach, monitoring for maintenance UK
ECEM B2.2	Introducing flood warning and emergency response