Course Title	Contemporary technologies in the management/prevention of natural disasters				
Course Code	DLCLIMA516				
Course Type	Elective				
Level	MSc (Level 2)				
Year / Semester	2nd / 3rd				
Teacher's Name	Apostolos Kantartzis				
ECTS	7.5	**Lectures / week**		**Laboratories/week**	
Course Purpose	In the modern era, natural disasters represent natural phenomena with the power to overturn and irreversibly impact the environment and human life. Natural disasters include earthquakes, hurricanes, floods, wildfires, volcanic eruptions, and various other phenomena that threaten human safety and environmental balance. Understanding natural disasters, developing prevention and preparedness systems, and applying technology and science to address them are critical elements for protecting human life, the environment, and society in the contemporary world. Within the context of this course, students will comprehend the challenges faced by modern societies in dealing with natural hazards and engage with technologies applied for their mitigation. They will explore the concepts of vulnerability and risk assessment, examining technologies such as geoinformatics, sensors, Geographic Information Systems (GIS), remote sensing, telecommunications, and artificial intelligence that can be used for collecting, analyzing, and disseminating information related to natural disasters. Students will study various technologies available for monitoring natural disasters, predicting them, managing crises, and facilitating recovery afterward. They will also examine how these technologies can be applied to practical problems and improve the efficiency of natural disaster management. Upon completing the course, students will be able to develop advanced solutions and proposals for addressing natural disasters using modern technologies.				
Learning Outcomes	Upon successful completion of the course, students will be able to:				

	• Recognize the broader context of natural disasters and the role of technology in their prevention and mitigation. • Interpret the policies, international framework, and strategies for addressing natural disasters. • Define various types of natural disasters, such as floods, earthquakes, wildfires, hurricanes, and geological hazards. This enables them to identify challenging factors and their impacts. • Develop skills in risk assessment and crisis management during a natural disaster. • Promote sustainable development and achieve goals of sustainable development. • Communicate and collaborate with other professionals and crisis management authorities. • Conduct research in the field and develop innovative solutions for the management and prevention of natural disasters. • Articulate the social role of specialists in disaster management and how they can contribute to the protection and recovery of communities. • Seek professional opportunities as specialists in disaster management, researchers, consultants, risk assessors, or trainers. • Manage data and information to respond to the contemporary challenges of our society, offering the knowledge and skills required for effective management and prevention of natural disasters.		
Prerequisites		**Corequisites**	
Course Content	• Natural Hazards and Disaster Management: Introduction, Definitions, and Basic Concepts • Risk Analysis and Management • Policies, International Framework, and Strategies for Addressing Natural Disasters • Forest Fires: Prevention, Suppression, and Restoration		

	• Forest Fires: Engineering Projects, Technologies, and Response Systems • Floods: Engineering Projects and Management Plans • Extreme weather and geological hazards • Human caused disasters and pollution • Applications of Geographic Information Systems (GIS) to natural hazards • Spatial analysis and natural hazard mapping • Construction and design of technical projects against natural hazards • Education and public awareness
Teaching Methodology	**Distance Learning.** The course will provide the theoretical background through synchronous and asynchronous communication methods. The set of learning activities is supported by an electronic communication and learning platform. The main learning activities of the course are as follows: 1. Study of the required course literature. 2. Presentations of content or main points or specific studies in various formats (PowerPoint, oral presentations, annotated presentations). 3. Formulation and resolution of questions in a specialized forum. 4. Questions, quizzes, exercises, position papers, and other self-assessments. 5. Preparation of course assignments. 6. Participation in six video conferences.
Bibliography	**Book chapters** • Jha, M.K., 2010. Natural and Anthropogenic Disasters: An Overview, in: Jha, M.K. (Ed.), Natural and Anthropogenic Disasters: Vulnerability, Preparedness and Mitigation. Springer Netherlands, Dordrecht, pp. 1–16. https://doi.org/10.1007/978-90-481-2498-5_1 Chapter 1: Natural and Anthropogenic Disasters: An Overview

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Assessment	• Final exam (50%) • 2 evaluative assignments (30% + 10% = 40%) • 2 interactive online activities (5% + 5% = 10%) All assignments (except for the final examination) are assigned and submitted through the electronic platform, and they undergo plagiarism checks using the turnitin tool. The final examination is developed by the instructor and completed by the students on a special platform exclusively used for examinations. Students have 2 weeks to complete each evaluative online interactive discussion (total duration 4 weeks) and 3 weeks to submit each evaluative assignment (total duration 6 weeks). It is at the discretion of each instructor to decide whether to grant an extension for the assignment submissions.
Language	Greek / English