

Information sheet for the course

CLIMATE CHANGE CONSEQUENCES ON HUMAN AND ENVIRONMENT

University:	Technical University in Zvolen
Faculty:	Faculty of Wood Science and Technology
Course unit code:	DKZCO-D
Course unit title:	Climate Change Consequences on Human and Environment

Planned learning activities and teaching methods:

lecture 2 hours weekly / 26 hours per semester of study (on-site method)
26 hours per semester of study (combined method)

Credits allocated:	7
Recommended semester/trimester:	Fire Safety and Fire Protection – doctor (profilový, part-time) Fire Safety and Fire Protection – doctor (profilový, full-time)
Level of study:	3.
Prerequisites for registration:	none

Assesment methods:

Students will be credited with a minimum of 60 points out of a total of 100 points for the course's rating. Rating of the course: 20 points for elaborating the written project, 20 points for elaborating the presentation based on a literary research on the issue solved in connection with the dissertation thesis, and 60 points for an exam – oral answer. To obtain an A rating, it is necessary to obtain at least 95 points, to obtain B rating at least 85 points, C rating at least 75 points, D rating at least 65 points and E rating at least 60 points.

Learning outcomes of the course unit:

By completing the course "Impacts of climate change on humans and the environment", the student will gain the knowledge and skills to analyse and evaluate the impact of a changing climate on the living and working environment. Students will develop a creative understanding of the causal links between climate change and its environmental impacts in the landscape and the urban environment. They will be able to apply the differences between weather and climate in their own creative and research work. They will acquire practical knowledge of the consequences of weather extremes (such as drought – wildfires; torrential rain and snow calamities – floods; storms and cyclones – wind calamities; slope movements, earthquakes, etc.) on the landscape and people, applicable to Integrated Rescue System components and crisis management processes. They apply knowledge of the links between the physics and chemistry of the atmosphere and various environmental disciplines concerning water, soil and organisms, including humans (e.g. in air pollution and precipitation, smog situations, etc.) to the activities of emergency services. They are able to assess or propose optimal mitigation and adaptation measures to the emerging climate change associated with increasing natural and hazard potential.

Course contents:

1. The theoretical basis of climate change.
2. Climate change and its impacts on landscape components at different levels of environmental and social hierarchy. Basic and applied research focusing the adaptation to climate change
3. Examples of adaptation measures at different levels of landscape and society management; analysis, preparation, implementation, revision.
4. Structural and non-structural adaptation measures, their advantages and disadvantages, their positive and potentially adverse impacts on landscape and society functions. Examples from the past and present examples.
5. Optimized decision-making on adaptation measures in conditions of functional and spatial relations of the components of the landscape structure.
6. Approaches and facilitation in enforcing adaptation measures at different levels of public governance.
7. Indicators of climate change in the various economic and landscape sectors.

Indicators of climate change in forestry, nature conservation, agriculture, water management, tourism and other sectors of the economy. Climate change indicators in Slovakia.8. Climate change and humans (impacts of climate change on biometeorological and human-climatic requirements of human environment.

Planned learning activities: full-time/external form

direct teaching:
26 h consultation
presentation of seminar work 2 h
exam 1

Indirect teaching:
Preparation for consultation: 13 h
preparation of presentation: 25 h
exam preparation: 108 h

total: 175 h

Recommended or required reading:

Recommended:

Aktuálne články vo vedeckých časopisoch, napr.: International Journal of Wildland Fire, Atmospheric Environment, Environmental Science and Pollution Research, Global Environmental Change, Meteorological Journal, Journal of hydrology and hydromechanics, Natural Hazards, Environmental Indicators a i.

BURTON, I. – EBI, K. L. – MCGREGOR, G. (2009). Biometeorology for adaptation to climate variability and change. In Biometeorology for Adaptation to Climate Variability and Change. Springer Netherlands.

KELLER, E. A., & DEVECCHIO, D. E. 2016:. Natural hazards: earth's processes as hazards, disasters, and catastrophes. Routledge.

NEJEDLÍK, P. MINĎÁŠ, J. LAPIN, M. ŠKVARENINA J. PÁLENÍK V. et al. (eds.), 2012: Dôsledky klimateckej zmeny a možné adaptačné opatrenia v jednotlivých sektoroch. Projekt OPŽP-PO3-08-5 ITMS 24130120015, Slovenský hydrometeorologický ústav a EFRA, Bratislava, Zvolen.

PARRY, M. L. (Ed.). (2007). Climate change 2007-impacts, adaptation and vulnerability: Working group II contribution to the fourth assessment report of the IPCC (Vol. 4). Cambridge University Press.

SEINFELD, J. H. and PANDIS, S. N.2016:: Atmospheric Chemistry and Physics: From Air Pollution to Climate Change, Publisher: Wiley, ISBN: 9781119221166; 1119221161

STRELCOVA, K. – MATYAS, C. – KLEIDON, A. – LAPIN, M. – MATEJKA, F. – BLAZENEC, M.- SKVARENINA, J. – HOLECY, J. (2009). Bioclimatology and Natural Hazards, Springer Verlag, Publishers, NEW YORK INC , 298 p. ISBN-10 1402088752

ŠKVARENINA, J., VIDO, J., MINĎÁŠ, J., STRELCOVÁ, K., ŠKVARENINOVÁ, J., FLESICHER, P., & BOŠEĽA, M. 2018:. Globálne zmeny klímy a lesné ekosystémy (celoštátna učebnica). Vydavateľstvo Technickej univerzity vo Zvolene: Zvolen, Zvolen: 210 s. ISBN 978-80-228-3049-2

Language of instruction: Slovak, Russian, English

Notes:

Courses evaluation:

Assessed students in total: 0

Name of lecturer(s): prof. Ing. Jaroslav Škvarenina, CSc. (examiner, instructor, lecturer, person responsible for course, tutor) - slovak, english

Last modification: 10. 8. 2022

Supervisor: prof. Ing. Jaroslav Škvarenina, CSc. and programme supervisor

