

Prerequisite status: -	Unit Type: Theoretical	The number of units: 2	Name of the lesson: Natural Environment of City
Type of additional practical training: Has it <input type="checkbox"/> does not have <input checked="" type="checkbox"/> Science travel <input type="checkbox"/> Laboratory <input type="checkbox"/> Workshop <input type="checkbox"/> , Seminar <input type="checkbox"/>		The number of hours: 32	
General goals: Understanding the interactive relationships of the natural-ecological system with other elements of the urban life system and explaining the role of natural-ecological structures and functions, and recognizing the capabilities, opportunities, and threats of the structures as mentioned earlier and functions in city planning and development.			
Behavioral goals: study and analysis of the natural-ecological elements of the city and its surroundings, Learning functional models and related software and its Application in research and urban development plans.			
Headlines 1- Explaining the position of the natural foundations of civilization and urbanization, the philosophy and place of studying the structures and functions of the city's natural environment in research and city development plans; 2- Explaining the city as an ecosystem and the role of natural ecological infrastructure in the production of ecosystem services, regulating the metabolism, and refining urban environments; 3- Explaining the role of mathematical and relative position in the state of natural-ecological characteristics of urban areas and the affected on the pattern and urban structure of these characteristics; 4- Studying geological structure and features (Analysis of sedimentary structural zones, the study of formations, lithology, Earth's fault structure, Earthquake zoning in Iran and introduction of 2800 bylaws, How to read geological maps and extract geological reports for urban development plans and...) 5- The study of the geomorphological structure and unevenness forms (Examining the role of geomorphological structure and forms on cities, Knowledge of landform units and unevenness, Application of the digital height model and its derivatives in urban studies, Investigating the relationship between geomorphology and unevenness and the movement of surface water and..) 6- Studying climate characteristics and factors and elements affecting the climate of urban areas (Investigating local and trans-local factors that determine the climate of the urban area, Climatic zoning methods, the study of climatic elements, especially precipitation, temperature, wind, etc, Investigating the relationship between climate and urban planning, including the impact of climate on the structure and architecture of cities, climate comfort, etc.). 7- Studying the characteristics and capabilities of water resources (Including investigating the role of the geological structure, Geomorphology, and climate on the quantity and quality of water resources, Investigating the status of surface and underground water resources, Checking the status of water consumption and balance; Evaluation of urban drinking quality and...) 8- Studying land capability and soil characteristics (Examining soil texture and depth, Investigating			

the relationship between soil fertility and urban development, Investigating soil resistance and urban development, and...)

9- Studying the characteristics of vegetation (The study of peri-urban vegetation and urban green infrastructure and their role in producing ecosystem services and improving the quality of the urban environment).

10- Studying valuable environmental areas (Including the study of natural heritage and protected areas of peri-urban and inner-city areas and..)

11- Investigating natural hazards, including geodynamic hazards (Earthquakes, hillside instabilities, land subsidence, etc.) Hydroclimatic hazards (Flood, Drought, Anomaly in climatic elements, Complications caused by extremes related to climate change, and.) And biological hazards (Fine dust, air pollution, and...)

12- Natural based solution and urban development.

Reference

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4- Rahmani, Mohammad Taghi (2016). Iran, its natural and environmental capabilities. Mahkame Publications. Second edition.

5- Zomorodian, Mohammad Jaafar (2013). Application of natural geography in urban and rural planning. Payam Noor University Publications. Eighth edition

6- Alberti, M. (2008). Advances in urban ecology include integrating humans and ecological processes into urban ecosystems (No. 574.5268 A4). New York: Springer.

7- Adler, F. R., & Tanner, C. J. (2013). Urban ecosystems: ecological principles for the built environment. Cambridge University Press.

8- Barbosa, Pedro (2020) Urban Ecology: Its Nature and Challenges, Routledge.

9- Benton-Short, L., & Short, J. R. (2013). Cities and nature. Routledge.

10- Cocks, Michelle, and Shackleton, Charlie (2020) Urban Nature: Enriching Belonging, Wellbeing and Bioculture, Routledge.

11- Hostetler, M. (2004). Cities and natural process: A basis for sustainability.

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