

Title of the course: Ecology	NEPTUN-code: RKXOK1ABNE	Weekly teaching hours: <i>l+cw+lb</i> 2+1+0	Credit: 4 Exam type: e
Course leader: Hosam Bayoumi, Dr.	Position: university private professor, associate professor	Required preliminary knowledge: RKXBI2EBNE	
Curriculum:			
<p>The ecological concepts and principles (environmental tolerance, and indications limitation, examples of the general principle indicator principle, the principle of general indication, the complementation principle;. Multiplurális the environmental principle). Ecology, biology subject of continually, the organization above the individual units and scales: the organization over individual units); levels of biological organization, particularly with regard to the supra-organizational levels, definitions and characterizations. The interaction between man and nature, biological and cultural coevolution of biological complementarity of capacity and mediation systems. The population of the association and community life, the biome and biosphere. The concepts behind and plant populations; properties and structures; Ecology of clonal herbs. Uniformity of globalization, identifying global problems, search for solutions; the need for sustainable livelihoods and opportunities, diversifying globalization. The competition and Herbivorian, their role in the regulation of communities; intra- and interspecific competition, competitive exclusion and stable coexistence; a niche subdivision and segregation plant associations. Theories Association: Clements - Gleason core hypotheses. Plant community structure (the space-time structure, the main reasons for their formation); and textures (floral elements, cönotype, etc.); diversity, diversity indices; diversity maintenance mechanisms. The interpretation of the environment and nature protection; the environment and tolerance: the relationship between population and environment; based on the turnover. The concept of primary production, distribution of the earth; primary productivity and energy utilization producers, the primary level; the trophic structure of food chains and webs; material and energy flows, on biogeochemical cycles; limiting the production of primary environmental factors: light, heat, water, CO₂, nutrients. Communities change in time, the main succession types: a secular, primary, secondary, biotic, ecogenetic and plant cover; a niche subdivision changes during succession; Basics of the island biogeography, ecological isolates; stability. The main indicator of ecosystem status, the system is interpreted as characteristics of organisms communities. The biosphere and its history; The concept of biodiversity, importance, need for protection; Gaia Hypothesis; Change the associations and global biogeochemical cycles and their consequences; The history of human nature conversion activities; the world food problem; fresh water shortages; the growth of the world population problem; world economic growth, economic globalization; environmental technologies, environmental protection.</p>			
Professional competencies:			
<p>Knowledge of general and specific mathematical, natural and social scientific principles, rules, relations, and procedures as required to pursue activities in the special field of environment protection</p> <p>Knowledge of the learning, knowledge acquisition, and data collection methods of the special fields of environment protection, their ethical limitations and problem solving techniques.</p> <p>Comprehensive knowledge of the basic features and interrelations of environmental elements and systems, as well as of the environmentally harmful substances affecting them.</p>			

Able to cooperate with engineers involved in the development and application of production and other technologies to develop the given technology in terms of environment protection.

Able to participate creatively in engineering work based on their multidisciplinary skills, as well as to adapt to continuously changing circumstances.

Collaboration with civil organizations engaged in environment protection, but willing to argue in order to develop optimal solutions.

Constantly upgrading their knowledge of environment protection by attending organized professional development training courses.

Sharing experiences with colleagues, thus promoting their development.

Taking responsibility towards society for their decisions made in the scope of environment protection.

Literature:

Lectures PPT

Townsend, C.R., Begon, M., Harper, J.L. (2006). Essentials of Ecology (2nd Edition). Blackwell Publishing. (Highly recommended).

Begon, M., Townsend, C. R., Harper, J. L. (2006). Ecology (4th edn).

Towsend, C.R., Begon, M., Harper, J. (2003): Essentials of Ecology. 2nd ed. Blackwell Science, Oxford.

Press, M.C., Huntly, N.J., Levin, S. (2001): Ecology: Achievement and challenge. Blackwell Science, Oxford.

Crawley, M. J. (1997): Plant ecology. 2nd ed. Blackwell Science, Oxford.

Begon M., Harper J.L., Townsend C.R. (1996): Ecology. Blackwell Science

Krebs, C. J. (1994 & 2001). Ecology. (4th & 5th edns). Harper Collins, New York.

Comment: Attendance of lectures is compulsory! Examination requirements: It is not allowed to be absence more than 4 lectures. 2 midterms with at least a pass grade (50-64 = 2%). Requirements to pass the course: Two written exams. Solve the Homework and write an essay and to pass the oral examination.