EnvYJobs Module

Geoinformation technologies for Environmental Changes and Pressures Assessment
SYLLABUS

INSTRUCTORS:

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COURSE DESCRIPTION

Environmental changes are the result of human activities and interferences to the environment, as well as of natural processes. Especially, human production and consumption patterns exert environmental pressures which in turn affect the state of the environment, in terms of healthy conditions provision, resources availability and biodiversity. The above are reflected to assessment frameworks adopted by European Union and the related environmental information is expressed and assessed through special environmental indicators.

Current status on recent environmental trends and policy developments at EU and national level are reported in the Annual Environment Policy Review (EPR). According to the last ERP published in 2009 the DPSIR (Driving forces, Pressures, States, Impacts and Response) framework is used for describing the interactions between society and the environment.

There exist strong geospatial aspect on the environmental indicators and a significant relationship, interaction and overlapping among the disciplines covered by environmental sciences and Geosciences. The above justify employment of Geoinformation technologies for Environmental Changes and Pressures Assessment. These, are proved to serve as extremely significant tools for environmental processing, analysis and dissemination purposes.

COURSE OBJECTIVE

By the end of this course, participants should be able to:

- realize the importance of measuring impacts on the environment through appropriate indicators.
- study major indicators and identify their geospatial dimension
- meet the challenges arising from the utilization of geoinformation technologies for measuring indicators and assessing environmental pressures

- understand the DPSIR framework and identify the appropriate indicators for measuring environmental pressures
- apply Geoinformation related technologies to real environmental cases

The major geoscientific technological areas that will be employed to achieve the course's objectives under DPSIR framework are

a) Geographic Information Systems for analyzing, processing and visualizing geospatial information and

b) Geospatial Semantics & Geospatial Web Services for setting the integration and interoperability dimensions

COURSE ORGANIZATION

The course will be organized in 10 virtual lessons and 4 virtual laboratories, with compulsory attendance.
Virtual lessons and virtual laboratories can be attended by students who enrol to this course.
For the dates of exams see the EnvYJobs learning platform.
The course is "on demand", i.e., attendance is mandatory but days and hours in which to follow the course are free according to the needs of each individual student.
Starting from February 2017 those who have attended the course can take the exam.

The course is organized in the following chapters:

- Environmental Changes
- Environmental Pressures Assessment
- The DPSIR Framework
- Geographic Information Systems
- Geospatial Web Technologies
- Application of Geoinformation Technologies to Real Environmental Cases

PRE-REQUISITES

Basic computer skills and desire to learn

Fundamentals on Environmental Engineering

Basic knowledge on Geographic Information Systems principles would be much helpful

MATERIAL

Teaching materials are available on the EnvYJobs e-learning platform (e-courses, e-labs and video labs).
The students can free download the following software:

- QGIS and Geoserver: *http://www.osgeo.org/*

EVALUATION

Starting from February 2017 those who have attended the course can take the exam.
The exam aims at evaluating the Student's learning progress (competency and achievement of desired learning objectives).
Exams will be computer-based and will consist of a multiple choice questionnaire which has to be successfully completed.
Students can sign up for exams only after successfully attending all web-lessons and web-labs (compulsory attendance, verified through online check).
The students will take the exam in a classroom at their own University, with the supervision and support of the University's personnel.
As a guideline, the exam duration will be up to one hour (the exam specific schedule will be announced at the course Calendar). The exam results will be based on the ratio of correct answers given to the total available questions number.
Exam results are reported as "pass and score" or "fail". Exams are considered successful if the correct answers provided by the student are at least 50% of the total number of questions.
Examination will be graded according to a scale ranging from 0 to 100, with 50 as a pass mark. The final grade of the EnvYJobs module, based on the average of the single courses results, will be converted into the local grading scale of each partner institution.
To students failing the exams, a diagnostic report indicating subject areas of relative strength and weakness will be provided. The diagnostic report can assist them to study for a successful re-examination.

Student registration for participating in the exams will be done over the web.

Regular session of exams will be scheduled at the end of each teaching cycle.

The exam registration is done via the web.

For more information please visit the EnvYJobs web site

RESOURCES

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- FGDC (The Federal Geographic Data Committee), (2010). *National Spatial Data Infrastructure Training Program.* On line at: https://www.fgdc.gov/training/nsdi-training-program/materials/GeoWebservices_Intro_20100604.pdf
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- Stanners, D., Bosch, P., Dom, A., Gabrielsen, P., Gee, D., Martin, J., Rickard, L. and Weber, J.-L., (2007). *'Frameworks for environmental assessment and indicators at the EEA', in: Sustainable Indicators: A scientific assessment,* Scientific Committee on Problems of the Environment, Island Press, London.
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