Environment and Sustainable Development in the Baltic Sea Region
Course code: VidZ 1000

Time and location:
Faculty of Geography and Earth Sciences, Alberta street 10, auditorium No 304;
Fridays, 14.30-16.00 + 16.30-18.00 (13.02.2015 – 05.06.2015)

<table>
<thead>
<tr>
<th>Credit points</th>
<th>4 (6 ECTS)</th>
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<tbody>
<tr>
<td>Total amount of the study hours</td>
<td>64 *</td>
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<tr>
<td>Amount of the lectures hours</td>
<td>48 (24 lectures)</td>
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<tr>
<td>Study level:</td>
<td>1-4 year's bachelor</td>
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<tr>
<td>Science sector or sub-sector</td>
<td>Environment science</td>
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* Total amount of the study hours include: seminars (2 x 2 hours=4 hours), environmental films (2 hours), environmental stimulation games (4 hours), student's presentations (6 hours). Total - 16 hours.
Final aptitude – written exam.

LECTURERS

<table>
<thead>
<tr>
<th>First name</th>
<th>Family name</th>
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<tbody>
<tr>
<td>Māris</td>
<td>Kļaviņš</td>
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<tr>
<td>Jānis</td>
<td>Zaļoksnis</td>
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ANNOTATION OF THE STUDY COURSE

Study course provide knowledge on environmental science and sustainable development on global, regional and local level. Analyse on environmental, social and economic issues and problems are given in interaction, taking in account causal relationship, as well as, possibilities of positive solutions. Study course is orientated to develop understanding all over the world as complicated, but holistic and interactive system. Earth environment is examined at atmosphere, hydrosphere, lithosphere and biosphere levels. Functions and mechanisms of these spheres, but specially, natural resources and pollution, are analysed through material and energy flows. Serious attention is pay for better understanding role and consequences of the man in natural world, building anthropogenic environment.

OUTCOMES

Academic knowledge:
1. Acquired knowledge about basic principles in environmental science and sustainable development.
2. Acquired knowledge about most important global, regional and local environmental problems and possible solutions to do away with these problems.
3. Get to the back of natural resources and environmental pollution life cycles and understanding their significance in economy and community. use this competency

Professional competence:
1. Familiarised with skills to make complicated analyses of natural, environmental, economical and social problems, as well as to analyse state of environment in Latvia and Europe.
2. Acquired skills to identify local and national resources and provide risk analysis in respect of sustainable development.
3. Developed readiness of speech and discussion about main principles, problems and modern solutions concerning sustainable development.
4. Adopted practical acquirement in use and interpretation of national and international legislation.
5. Developed proficiency to use different environmental and sustainable development indicators and data bases.

**THEMATIC PLAN OF THE STUDY COURSE**

<table>
<thead>
<tr>
<th>No</th>
<th>THEME</th>
<th>LECTURE HOURS</th>
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<tbody>
<tr>
<td>1.</td>
<td>INTRODUCTION. What is Development? The energy dilemma and non-renewable resources. The other side - climate change. Solving the energy dilemma. Planetary boundaries. Environmental impacts and ecosystem services. A way to improve industrial production and the economy. Living sustainably. Where are we heading?</td>
<td>L - 2</td>
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<td>2.</td>
<td>ENVIRONMENTAL SCIENCE. Development of the environmental science - historical approach. Interaction between man and nature - substantial element for formation of the environmental science. Main principles and relevant parts of the environmental science. Integrative and interdisciplinary character of the environmental science. Systemic approach.</td>
<td>L - 2</td>
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<td>3.</td>
<td>ECOSYSTEM SERVICES. What do 'Ecosystem Services' mean? Provisioning services (water, food, timber, textile fibers, medications, soil). Regulation of environmental parameters (amount of oxygen in air, carbon and nitrogen cycle, microclimate regulation). Role of ecosystems in runoff regulation. Support services (pollination, decomposition of the remains of organic matter). Non-material services. What is the price of an ecosystem?</td>
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<td>19.</td>
<td><strong>PREVENTION OF THE AIR POLLUTION.</strong> Need for reduction of the air pollution in Latvia and EU. Methods for reduction of the air pollution. Reduction of the emissions of sulphur and nitrogen oxides and participle matter from permanent sources. Purification plants and devices. Climate technologies. CO₂ capture and storage technologies.</td>
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<td>Total</td>
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Study course includes:
- 2 seminars (2 hours each):
  - Environmental stimulation game (4 hours), „Management of the National Park” or „Pyramid” or „Fish game”.
- Demonstration of the documentary film (2 hours)
  1. „An Inconvenient Truth” (Al Gore) or „The Age of Stupid” (British Council).

DEMANDS TO ACQUIRE CREDIT POINTS NEEDED
Necessary appreciation for successful digestion of study course is 4 – 10 grade. Final mark is calculated as average from results of presentation and seminars at semester (30 %) and written exam (70 %) at examination period.

VISUAL MATERIALS AND VIDEOFILM’S SERIES

Environment of the Baltic Sea
8. The Future of the Baltic Sea: Space Bridge Uppsala-Riga-Copenhagen. Duration: 02.00.00.
10. The prospect of a Sustainable society. Duration: 02.00.23.
11. Environmental project ”The Baltic Sea”. Duration: 01.31.15.
13. Save the Sea. Duration: 01.39.35.

The Baltic Sea in danger (Summary of the series "The Baltic Sea Environment"). Duration: 0.32.00.


Peoples of the Baltic
- Introducing the peoples of the Baltic Region. Duration: 02.31.24.
3. Multicultural Baltic: Peoples, languages and ethnic coexistence in the Baltic Region. Duration: 01.32.23.
5. Democracy in the Baltic Region. Duration: 01.39.00.
8. The Future of the Baltic Region: Report from a Baltic University Student Conference. Duration: 01.44.52.
9. Developing democracy in the Baltic Region: Report from a Baltic University Student Conference (Åbo/Turku) Duration: 01.47.56.

Sustainable Baltic region
1. The road towards sustainability – a historical perspective. Duration: 0.48.37.
2. Energy – from fossil fuels to sustainable energy resources. Duration: 0.46.51.
4. Food and fibres – sustainable agriculture, forestry and fishery. Duration: 0.41.44.
5. Sustainable industrial production – waste minimization, cleaner technology and industrial ecology. Duration: 0.49.33.
7. Community development – sustainable cities and habitation. Duration: 0.42.30.
9. The foundations of sustainable development – ethics, law, culture and the physical boundaries. Duration: 0.43.58.
10. From intention to action – implementing sustainable development. Duration: 0.43.58.

**Sustainable Community Development – City 2000**

2. The City and it’s Inhabitants. Duration: 01.24.00.
3. Managing the City. Duration: 01.30.00.
4. Building a Sustainable City. Duration: 00.33.00.

Videofilms by „VIDES FAKTI” are highly recommended.

**LITERATURE**

**Basic literature**


**Additional literature**


**Journals, INTERNET resources, other resources**

1. Ambio [http://www.ambio.kva.se]
3. Environmental Science and technology: [http://pubs.acs.org/journals/esthag]
4. University of Latvia homepage for Environmental education [www.geo.lu.lv/vides_izglitiba]