International Conference

DOCTORAL STUDY PROGRAM
“ENVIRONMENTAL PROTECTION”

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Slavonski Brod, 4-5th of December 2014
In the year 2009 started at the University of Ljubljana interdisciplinary doctoral study program "Environmental Protection".

The program links together experts from various faculties and departments with the common interest of protecting the environment.

As to the content, the program has been harmonized with similar programs of other universities in particular in the EU and in the USA.
Faculties - partners

- Biotechnical Faculty
- Faculty of Economics
- Faculty of Social Sciences
- Faculty of Civil Engineering and Geodesy
- Faculty of Chemistry and Chemical Technology
- Faculty of Mathematics and Physics
- Faculty of Maritime Studies and Transport
- Faculty of Mechanical Engineering
- Faculty of Arts
- Faculty of Medicine
- Faculty of Natural Sciences and Engineering
- Faculty of Law
- Veterinary Faculty
Interdisciplinary doctoral program “Environmental protection” is evaluated according to the European Credit Transfer System (ECTS), thus allowing students and lecturers to participate in international exchange schemes in the countries where ECTS or some other comparable system is implemented.

The doctoral program results in the degree of “Doctor of Science” including five different study orientations:

- Natural sciences,
- Technical sciences,
- Biotechnical sciences,
- Medicine, and
- Social sciences and humanities.

The program is comparable with other similar programmes of foreign universities.
The interdisciplinary doctoral program “Environmental protection” consists of:

- methodological course,
- basic (core) courses, and
- elective courses.
# Content and structure of the program (by year)

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Credits</th>
<th>Year 2</th>
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<th>Year 3</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Obligatory methodological Course</td>
<td>10</td>
<td>Elective Course</td>
<td>10</td>
<td>IRW</td>
<td>55</td>
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<td>Core Courses</td>
<td>20</td>
<td>Doctoral seminar with presentation of the doctoral dissertation topic</td>
<td>5</td>
<td>Doctoral seminar with presentation of the doctoral dissertation prior to the public defence and the public defence</td>
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<tr>
<td>Elective Course</td>
<td>10</td>
<td>IRW</td>
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<td>IRW</td>
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*IRW = Individual Research Work*
In the frame of the program content is between the study topics presented and discussed in detail life cycle assessment (LCA) method, especially its advantages and disadvantages, and through the seminar works and individual student work application of LCA.

The students can find the base knowledge about Life Cycle Assessment in the elective course Designing Environmentally-Friendly Products and Technologies.
Case studies and applications of LCA give them 4 elective courses: Information Approaches in Science and Technology, Recycling of Metal Materials, Renewable Energy Sources, and Designing Environmentally-Friendly Products and Technologies.
Environmental-energetic analysis of the process which is the base for Life Cycle Assessment (LCA) is the same for the bank, production organisation, ...., and steelwork.
Case Study 1: LCA in steelwork

We analysed potential application of LCA for the Slovenian steel producer ACRONI d.o.o., the biggest steel producer in Slovenia.

In years 2012 and 2014 heavy plates of two typical stainless steel grades 304 and 316, and of steel PROTAC 500 from ACRONI production program were analysed during two pilot student projects.

For the projects has been used the standard software for LCA analysis GaBi.
Case Study 2: LCA in banking

In the study was used the LCA method to identify the sources of the environmental impact of a part of one of the biggest Central and Eastern European banks.
CASE LCA Network

CASE-LCA
CASE-LCA represents a network of Scientific and Research institutes and LCA centers from Central and Southeast Europe. CASE-LCA network is open for cooperation with individuals, companies and organizations who are willing to accept life cycle approaches.

MISSION
The mission of CASE-LCA is to establish a platform for knowledge and expertise exchange within the members countries. This mission is supported by the following goals,

1. promotion of life cycle thinking at all levels in society within the members countries,
2. to increase awareness of and to promote the adoption of Environmental LCA among industry, government, and NGOs,
3. to promote networking among LCA practitioners and researchers.

ACTIVITIES
A main activity of the CASE-LCA Network is the annual multidisciplinary, and interactive, symposium, where professionals within the field meet to discuss, listen, learn and be inspired by each other.

The annual symposia address designers, product developers, architects, economists, lca-specialists and others with an interest in life cycle thinking.

SETAC EUROPE 20th LCA CASE STUDY SYMPOSIUM
LCA IN PROMOTING ECO-INNOVATION AND SUSTAINABILITY
- EDUCATION, RESEARCH AND APPLICATION
Novi Sad, Serbia 24-26 November 2014

Partners
- University of Novi Sad
- Technical University of Vienna
- University of Poznań
- University of Miškolc
- University of Ljubljana
- University of J. E. Purkyně Ústí nad Labem
- University of Josipa J. Strossmayera Osijek
CONCLUSIONS

In the year 2009 started at the University of Ljubljana interdisciplinary doctoral study program "Environmental Protection". The program links together experts from various faculties and departments with the common interest of protecting the environment.

In the frame of the program content is in the elective course Designing Environmentally-Friendly Products and Technologies presented and discussed in detail LCA method, especially its advantages and disadvantages. Through the individual student work, seminar works and case studies is confirmed its applicability.
Thank you!