Environmental Education at the Faculty of Informatics, Masaryk University in Brno

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Abstract
This paper gives a short overview about the goals, structure and perspectives of environmental education at the Faculty of Informatics, Masaryk University in Brno.

1. Introduction
Masaryk University in Brno, the second largest university in the Czech Republic, comprises nine faculties with more than 140 departments, institutes and clinics, embracing a broad spectrum of academic disciplines and fields of research. More than 14,000 students study at the University. As demands for increased access to higher education continue to grow, the University is preparing to develop its programs to accommodate more students to meet that need. One of these demands was also to introduce environmental education program. Since 1989, Masaryk University has been working to build links with universities in Europe and elsewhere. The university plays an active role in supporting the European Union TEMPUS and SOCRATES programmes and other European networks and consortia.

The University strategy of environmental education is based on European strategy of environmental education and activities as defined by the Association of University Departments of Environmental Sciences in Europe (AUDES) and presented at the AUDES annual conferences.

2. Actual Goals of Environmental Education at Masaryk University
In the framework of negotiations with the European Union, on June 1, 2001, the Czech Republic completed one of the most difficult and financially most demanding chapters – Chapter 22: Environment. The Ministry of the Environment (ME) completed and the Czech Government accepted The Decision No. 1048/2000, On State Programme of Environmental Education and Public Awareness that focuses on the following priorities:

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• Training and information activities, education and public awareness,
• Integration of training relating to Act No 123/1998 Code (Free Access to Environmental Information Act) for personnel of institutions where environmental information is processed,
• Updating the relevant information on the web of the ME,
• Methodical management for environmental education and public awareness both for environmental units of district offices and regional departments of the ME.

This Government Decision represents a foundation for current goals of environmental education also at the university level. However, since the universities have full independence in preparing their study programmes, the government has no direct means how to influence the structure of environmental education in university study programmes. On the other hand, the Ministry can motivate the universities through special grant programmes.

Faculty of Informatics at Masaryk University belongs among the academic institutes of “university” type – it can profit from university interdisciplinary character (from natural science to technical orientation).

Moreover, currently all study programmes at the university are converted to Bologna model (Bachelor – Master – Doctoral studies), it is assumed that students of informatics will continue their Master studies at a different faculty, different Czech university or even abroad.

So, the goals of environmental informatics are defined primarily to give a common background in environmental issues and, secondly, to prepare experts in environmental informatics.

3. Structure of Environmental Education at the Faculty of Informatics

Faculty of Informatics offers currently following study programmes:
• Bachelor study programmes in Informatics,
• Master study programmes for Secondary School Teacher Training in Informatics, Geography, Mathematics, Physics,
• Doctoral study programmes in Informatics.

This orientation gives the framework for environmental education on the faculty. There are two basic courses offered in both bachelor and master programmes, with the following syllabi:

3.1 Environmentalistics

Consisting of 14 lectures devoted to the following topics:
- Environment and the environment protection (basic concepts), Components of
  the environment: water, air, ground, nature and landscape, raw materials,
  wastes,
- Global environmental problems (climate changes, population explosion, reduc-
  tion of biodiversity), sustainable development, Agenda 21,
- The private and state sector roles in environmental protection,
- Economic aspects of the environmental protection, globalization of the world
  economics, economic stimuli for environmental protection, systems for envi-
  ronmental management (ISO 14000, EMAS), environmental accounting and
  taxes,
- Ecology of households and workplaces, agreements of good neighbourship,
- Environmental information, freedom of access to environmental information (in
  CZ and abroad), public participation in environmental issues,
- Environmental impact of information and communication technology

The learning process is supported by electronically available training materials, ac-
cessible not only via web browser but also as WAP/WML pages and for PDA (via
AvantGo) – see http://www.fi.muni.cz/~tomp/envi. On this website, also an archive
of students’ papers can be found.

3.2 Environmental information systems

which consists of 14 lectures devoted to:
- Definition of environmental information and their IT implementation,
- Freedom access to environmental information in the Czech Republic (CR),
  European union (EU) and the world,
- Definition of environmental information systems (EIS) and their specification in
  environment protection, Metadata and metainformation systems,
- Main principles of the development of EIS in the public administration of the
  CR and EU, Standards of ICT in public administration, structure and hierarchy
  EIS of public administration,
- The role of the Czech legislation in EIS and their harmonisation with EU,
  OECD and UN ones,
- Database structures and user functions of EIS for waste, water, hazardous
  chemicals and air protection management and national, international environ-
  mental reporting data flows, Special ICT and the methodology of development
  web EIS and the role of GIS,
- International and national EIS used by the Ministry of Environment Protection
  (EEA, EIONET, examples of EIS, etc.),

Students of this course have to develop the annual project of analysis and re-
engineering of chosen web EIS.
3.3 Systems of Integrated Management

There is further course of environmental education for master and doctoral study programmes of the faculty, which is devoted to Systems of Integrated Management (systems of environmental, quality and health and safety management). To get a more detailed overview, see http://wwwdata.muni.cz/to/en/study/teaching.asp?Subjekt=fi.

4. Integration of Environmental Education within the University

Students of these study programmes can also attend to courses of environmental education on further three faculties of Masaryk University at the following departments:

- Department of Environmental Law and Land Law at the Faculty of Law,
- Department of Environmental Studies at the Faculty of Social Studies,
- Research Centre for Environmental Chemistry and Ecotoxicology at the Faculty of Sciences.

5. Conclusion

Since the Faculty of Informatics was founded in 1994, more than two hundred students visited the courses devoted to environmental issues and sustainable development.

New experts in environmental informatics were educated, many of them are now working in public administration and commercial sector. They developed many environmental information systems in the Czech Republic and abroad.

Bibliography