University of Natural Resources and Life Sciences, Vienna

Education and Programs

Department of Water, Atmosphere and Environment

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Content

- Study programs and Dept. WAU involvement
- Curriculum development involvement
- SWAT analysis for education
- WAU participation in curriculum development
- Visions and improvement strategies

WAU involvements

General remarks

- Course structure comprises Lectures and Exercises
- Bachelor courses partially exhibit large number of participants
- Master courses include mandatory and elective lectures Structural exercises have high effort in supervision

Programs with WAU responsibility

Environmental Engineering (Kulturtechnik und Wasserwirtschaft)

Bachelor Level

- *Environmental Engineering (Kulturtechnik und Wasserwirtschaft)* 48 %

Master Level

- *Environmental Engineering (Kulturtechnik und Wasserwirtschaft)* 44 %
- Water Management and Environmental Engineering (WMEE) 57 %
- Applied Limnology (MAL) 100 %
- Natural Resources Management and Ecological Engineering (NARMEE) 38 %
- Environmental Sciences – Soil, Water and Biodiversity (ENVEURO) 35 %

Program Description

Environmental Engineering
(Kulturtechnik und Wasserwirtschaft KTWW)

This program is offered both on Bachelor and Master level. It provides the required skills and competences in the field of civil engineering with focus on water- and environmental topics. KTWW is strongly anchored in public institutions (ministries, regional governments) and in the private sector (planning bureaus) and exhibits a pronounced branding. KTWW forms the base for civil engineering accreditation.

Program Description

Water Management and Environmental Engineering (WMEE)

This master program was recently established and addresses an international student audience. All aspects of water and environmental management are covered in the program with special emphasis on international dimensions. The topic risk management and risk mitigation was adopted from the dissolved program mountain risk engineering. The program is totally held in English. A number of 30 to 40 students per year is envisaged.

Program Description

Applied Limnology (AL)

This master program was recently established. It has a strong focus on the fields of aquatic ecology and the management of wetland systems. The program is mainly organized and covered by the Institute of Hydrobiology and Aquatic Ecosystem Management. An International cooperation with the UNESCO-IHE Institute for Water Education – Egerton University Kenia is planned. The expected audience comprises international and Austrian students (approx. 30 / year).

Program Description

Natural Resources Management and Ecological Engineering (NARMEE)

This program is a double degree program with Lincoln University (New Zealand) and Prague University of Life Science (Czech Republic). It covers the topics risk management, ecological engineering, wildlife management and International Business and Sustainability. It has approx. 40 beginners/year. Some overlapping occurs with the master program WMEE. It is envisaged to establish a joint study status.

Program Description

Environmental Sciences – Soil, Water and Biodiversity (ENVEURO)

This program is a double degree program jointly organized with the Euro League for Life Sciences, which is a platform of leading environmental universities in Europe. It provides specialization in the fields of water resources, environmental impact, ecosystems/biodiversity, environmental management and climate change. Students have to gain their specialization at two universities (Kopenhagen, Uppsala, Hohenheim, Prague, Vienna).

WAU involvements

Alternative Programs

Bachelor Level

- Forestry
- Agricultural Sciences
- Landscape architecture and landscape planning
- Environment and bio-resources managment

Master Level

- Forestry
- Environment and bio-resources managment
- Wildlife ecology and wildlife management
- Mountain Forestry
- Mountain Risk Engineering
- Organic Farming

Strengths in education

- Concise concept of Bachelor and Master curricula
- Broad, interdisciplinary range of lectures
- Balanced number of CE-students
- High number of thesis and dissertations
- Provision of state of the art knowledge
- Integration of students into scientific projects (thesis)
- English and international programs
- English lectures strengthen language skills of students
- Involvement in international courses and summer schools
- Educational courses for professionals (post graduate)

Weaknesses in education

- Limited permanent staff with increasing lecture quantities
- External funded research staff involved in education (exercises, thesis supervision, ...)
- Basic courses with high student frequencies (more than 400)
- Limited entrance criteria for students (Master level)
- Technical equipment (laboratory, field exercises) old.
- Lectures of Risk Science Institute not included in curricula.
- Lacking grants for outgoing students (spec. NARMEE)
- Limited (time) resources for E-Learning
- Education evaluation system not mandatory

Opportunities in education

- High societal acceptance of Civil Engineering Branch
- Covered topics exhibit increasing societal/public relevance (e.g. climate change)
- Risk and climate change aspects will increasingly be expanded
- Integration of new didactic methods (E-Learning) enhance outcome
- International students are attracted by new master programs
- Increasing international co-operations with universities and research institutions

Threats in education

- Overload of permanent staff with educational obligations
- Loss of competence and continuity with decreasing research staff
- Internal competing master programs.
- Lack of permanent technical staff for laboratory, measurement systems and field monitoring.
- No standardized entrance requirements for master programs for internal and external students.
- Mass lectures with decreasing personal contacts between students and lecturer
- Limited skills in languages for Austrian students
- International programs and their acceptance not yet evaluated
- Students involvement in research projects decreasing with decreasing number of funding

Curriculum Development

The development and updating of study programs is in the responsibility of the senate. Sub-commissions of the senate (senate study commission, disciplinary study commission) elaborate the curricula according to the guidelines of the university.

Curriculum Development

WAU members are active in the following commissions:

Disciplinary Study commission:

- Kulturtechnik und Wasserwirtschaft: 4 persons (incl. head)
- Landschaftsplanung/Landschaftsarchitektur: 2 pesons
- Umwelt- und Bioressourcenmanagement: 3 persons
- Doktoratsstudienkommission: 1 person

Program Coordinator: 3 persons (WMEE, ENVEURO, NARMEE)

Senate study commission: 2 persons

Senate: 2 persons

Euroleague coordinator board: 2 persons

Post Graduate Training

The Department WAU provides education and training programs for practitoners and post graduates in the field of:

- Sanitary Engineering
- Waste Management
- Flood management and forecasting
- Climate change impact assessment

Improvement strategies

For the improvement of the quality in education the following key features have been identified:

- Avoidance of overlapping contents in lectures by improved communication among responsible lecturers.
- Improvement of didactic qualification of the lecturers by means of BOKU members educational program
- Improvement of the course evaluation by students (obligation)
- Improvement of the availability of lecture rooms and educational equipment.
- Consolidation and streamlining of the existing programs

THANK YOU
FOR YOUR ATTENTION!

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