ENV-402

Sanitary engineering in developing countries

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Cursus	Sem.	Type
Energy Management and Sustainability	MA1, MA3	Opt.
Energy Science and Technology	MA1	Opt.
Environmental Sciences and Engineering	MA1, MA3	Opt.

Language	English
Credits	2
Session	Winter
Semester	Fall
Exam	Written
Workload	60h
Weeks	14
Hours	**2 weekly**
Lecture	2 weekly
Number of positions	

Summary

This MSc course deals with the water, sanitation and solid waste challenges in developing countries. You will learn about the current dialogue in these topics, identify key players, know existing options of water & sanitation technologies, and be able to design and evaluate a technical project.

Content

Overview of the health situation, water supply, and liquid, solid waste and faecal sludge disposal in developing countries. International development policy. Technical and scientific fundamentals of water supply, sanitation & solid waste management (collection, haulage, treatment, reuse). Material flows in the water supply, waste disposal and urban agriculture. Connection between excreta disposal and health. New concepts and approaches for a sustainable water supply and sanitation in developing countries.

Keywords

Developing countries, Health impacts of water and sanitation, Sanitation service chain, Water quality, Water supply and treatment, Wastewater management, Faecal sludge management, Solid waste management, Environmental sanitation planning.

Learning Prerequisites

Important concepts to start the course

Students should be familiar with basic concepts of environmental engineering including physical, chemical and biological processes.

Learning Outcomes

By the end of the course, the student must be able to:

- Interpret
- Assemble
- Classify
- Analyze
- Define
- Recognize the effects of inappropriate water, sanitation and solid waste on public and environmental health.
- Define the components of the sanitation service chain.
- Discuss challenges related to water, sanitation and solid waste managment in developing countries.
- Analyze water, sanitation, and solid waste considerations in a real-life example.
- Select appropriately technical options for water and sanitation.

Transversal skills

- Plan and carry out activities in a way which makes optimal use of available time and other resources.

Teaching methods

Reading, videos, exercises, teamwork, guest lecturers

Expected student activities

2 exercises (group work possible).

Assessment methods

100 % written test (120 min) during the exam session

Resources

Bibliography

A bibliography is included in the moodle.