Digital Lectures and Seminars

offered at the
Institute for Technology and Resources Management in the Tropics and Subtropics (ITT), TH Köln
Previous experience in implementing digital teaching formats

Master Programs in the ITT offered with partner universities: Double, Joint and Single Master Degrees:

„Integrated Water Resources Management”
focus on the Middle East and Northern Africa in Cologne and Amman (IWRM-MENA)
(offered since 2007 in cooperation with the German Jordanian University)

„Environment and Resources Management”
focus on Latin America and the Caribbean in San Luis Potosí and Cologne (ENREM)
(offered since 2008 in cooperation with the Autonomous University of San Luis Potosi)

Two joint M.Sc. Programs on Environment and Climate Change Adaptation in Vietnam
(offered since 2016 with the Vietnam Academy for Water Resources)

=> ca. 20 new students per year in each master program

Source: ITT
Structure of the international Master Programs at the ITT

- The students study either two semesters in Cologne or two in the partner university and exchange for one semester to the other university. They are enrolled in both universities.

<table>
<thead>
<tr>
<th>Traditional in class-study with lecturers exchange complemented by the following digital elements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional email communication between students and lecturers;</td>
</tr>
<tr>
<td>Online-lectures given by lecturers from the partner university (usually being part of a module</td>
</tr>
<tr>
<td>taking place in the home university and supported by lecturers from the university abroad);</td>
</tr>
<tr>
<td>Online master thesis exams by joint supervision of lectures from both partner universities:</td>
</tr>
<tr>
<td>one of the supervisors participates online;</td>
</tr>
<tr>
<td>=&gt; Tools: skype/ adobe connect in the past, now zoom</td>
</tr>
<tr>
<td>Other exams usually as reports/ exercises: students submit their reports to the ILIAS platform.</td>
</tr>
</tbody>
</table>
New International Master Program: Integrated Water Resources Management with focus on Latin America and the Caribbean (IWRM-LAC)

**Background:**

Joint project of the University Costa Rica, School of Geography and the ITT, TH Köln called: “International Master Program: **Integrated Water Resources Management with focus on Latin America and the Caribbean (IWRM-LAC)ʼ (2019-2023)

The project is supported by the DAAD in the scope of the program: “Transnational Education – Degree Programs offered abroad by German Institutions”.

University of Costa Rica, Photo: Justyna Sycz
Hybrid Learning

One of the project objectives is to:

prepare all modules taught in the master program as fully digitized materials and offer a hybrid learning format of traditional face-to-face classroom lecture accompanied by digital modules with online meetings and materials for self-study.

Irrigation Water Distribution System, Areal Tempisque, Costa Rica
Case study in the curriculum of the Master Program
COVID-19 has accelerated the digitalization of the Master Program

Online Inauguration of the International Master Program IWRM-LAC, 10th of August, 2020; San José, Costa Rica (Zoom and live broadcasting via Facebook)
Realization:

Conceptualization and development of fully digitized modules which include:

- Handbooks for each learning unit of the module consisting of slides with annotations; questions, exercises, and recommendations for further reading => The material is adequate for self-study.

- Regular online meetings with presentations; as questions-discussions sessions dedicated to the content of the learning units and handbooks; or group work using the breakout-session function in zoom;

- The combination of online meetings, self-study, group work and exercises varies depending on the module and its content/format.

- Exams: Reports and questions which are answered by students in written form and submitted via e-mail.
Example:


- Power Point allows printing the materials as handbook and is a living document: The lecturers have to possibility to regular update the material contributing new contents and recent research results.

- The teaching materials are available for lecturers in both universities.
## Preliminary Schedule for Joint Lecture „Water Scarcity and Drought“

Offered at the University Costa Rica for students in the MSc Program: *IWRM-LAC*, Third semester 08.03.2021-04.07.2021

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Topic</th>
<th>Lecturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>08.03.2021</td>
<td>09:00-10:30 Costa Rica 17:00-18:30 Germany</td>
<td>Introduction and Key Concepts</td>
<td>Alexandra Nauditt TH Köln</td>
</tr>
<tr>
<td>10.03.2021</td>
<td>09:00-10:30 Costa Rica 17:00-18:30 Germany</td>
<td>Understanding Drought</td>
<td>Alexandra Nauditt TH Köln</td>
</tr>
<tr>
<td>15.03.2021</td>
<td>09:00-10:30 Costa Rica 17:00-18:30 Germany</td>
<td>Drought Hazard Indices</td>
<td>Alexandra Nauditt TH Köln</td>
</tr>
<tr>
<td>17.03.2021</td>
<td>09:00-10:30 Costa Rica 17:00-18:30 Germany</td>
<td>Exercise: Calculate Selected Drought Indicators</td>
<td>Oscar Baez Villanueva, TH Köln</td>
</tr>
<tr>
<td>22.03.2021</td>
<td>09:00-10:30 Costa Rica 17:00-18:30 Germany</td>
<td>Exercise: Continued and Feedback</td>
<td>Oscar Baez Villanueva, TH Köln</td>
</tr>
<tr>
<td>24.03.2021</td>
<td>09:00-10:30 Costa Rica 17:00-18:30 Germany</td>
<td>Understanding Water Scarcity</td>
<td>Lars Ribbe TH Köln</td>
</tr>
<tr>
<td>29.03.2021</td>
<td>09:00-10:30 Costa Rica 17:00-18:30 Germany</td>
<td>Climate Change and Water Scarcity</td>
<td>Christian Birkel, University Costa Rica</td>
</tr>
<tr>
<td>31.03.2021</td>
<td>09:00-10:30 Costa Rica 17:00-18:30 Germany</td>
<td>Drought Risk Assessment and Exercise</td>
<td>Alexandra Nauditt Oscar Baez Villanueva, TH Köln</td>
</tr>
<tr>
<td>12.04.2021</td>
<td>09:00-10:30 Costa Rica 17:00-18:30 Germany</td>
<td>Coping with Water Scarcity and Drought</td>
<td>Christian Birkel, University Costa Rica</td>
</tr>
<tr>
<td>……</td>
<td>……</td>
<td>……</td>
<td>……</td>
</tr>
</tbody>
</table>
Examples of two other events organized by the ITT as online formats due to the COVID-19

- Online Summer School: “From Data to Decision: Assessment of the Water-Energy-Food (WEF) Security Nexus” for DAAD scholarship holders hosted by the ITT, 31 participants;

- Alumni Innovation Hub 2020 “Green Innovation in the Middle East and Northern Africa: Idea to Application” hosted by the ITT, German-Jordanian University and CEWAS Middle East - the entrepreneurship experts in the water sector;

Both events were developed as traditional face-to-face seminars. Due to COVID-19 both events took place online.
Realization 1:

**Main phase:** Two weeks summer school from 17-26 August, 2020;

Each day the participants studied the material of one Learning Unit:

- **13:00 o'clock:** The materials were uploaded in the slack platform and consisted of a video available in YouTube, a handbook (slides with annotations provided in the PDF format) and exercises.

- **11:00 o'clock:** A zoom-session took place. The session was designed as a questions-discussions session dedicated to the learning unit studied the day before.
Communication with the participants using the slack platform

Summer School Zoom Session
Realization 2:

- Second phase September-December 2020: The main phase ends with a task for the participants: The participants work on a WEF-Nexus case study in own region.
- The work on the case study took place between September-December 2020.
- Every two weeks a feedback session was organized, in which a group of participants presented their progress and received feedback.
- 24-18 December: Presentation of the case study results.

Summary of the tools:

- Slack as communication platform: https://slack.com/intl/de-de/.
- Videos recorded by the lecturers using the software Camtasia, uploaded to YouTube as introduction to each learning unit plus PDF handbooks;
- Zoom sessions.
Alumni Innovation Hub 2020

Format: 10-week online, free seminar: September 29-December 19, 2020;

Online Platform developed for the seminar: https://gimena.creation.camp/the-program/

Objective: to support alumni in the development of their own innovative business and project ideas;

The program consisted of four main stages. The graph shows the main stages and the timeline.

Flexible program structure: During the course of the seminar, the speakers structure was continuously developed and adapted to the requirements and demands of the participants.
Alumni Innovation Hub 2020

Each program stage consisted of different types of activities:

**Workshops:** trainers presented open-source or low-cost tools and platforms for growth hacking, marketing, management, and sales. Support for the participants to lay out the most effective paths to develop their ideas for real world application.

**Plenary sessions:** guest lecturers presented cutting-edge information on inspiring and innovative topics in the areas of energy, water, and natural resource management and development.

**Marketplace:** participants meet various entrepreneurs and experts in digital booths, present own ideas and receive feedback from practitioners to better understand the market demand.

**Coaching sessions:** offered direct input and feedback on how to develop and apply the particular idea of a participant in his work/ study/ market environment.
Thank you for your attention!

**Contact:**
Justyna Sycz  
TH Köln  
Institute for Technology and Resources Management in the Tropics and Subtropics (ITT)  
Justyna.sycz@th-koeln.de

Greta Dekker, Summer School, Greta.dekker@th-koeln.de  
Sudeh Dehnavi, Alumni Hub 2020, Sudeh.dehnavi@th-koeln.de