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14277.5002

Information Systems and Environmental Sustainability

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Goals of this Course

On completion of this unit, students should be able to...

- ... define and critically apply sustainability as characteristic of activities (e.g., business processes or individual behaviors).
- ... understand relevance and requirements of sustainability in organizations.
- ... distinguish and evaluate different sustainability metrics and measures.
- ... understand the difference between green information technology and green information systems.
- ... understand and apply different approaches to sustainable information systems development, use, and management.
- ... differentiate and critically evaluate various sustainability requirements for information systems.
- ... understand how information systems can enable digital solutions for sustainability.

Contents of this Course

The following list of topic exemplifies the contents covered:

- Definition of sustainability
- Sustainable development and sustainability challenges
- Sustainability metrics and measures
- The transformative potential of information systems for sustainability
- Green IT
- Green IS
- IS as a sustainability problem
- IS as a sustainability solution

Assessment

Written individual exam (100%) of 60 minutes length. The exam will be completed as a pen-and-paper exam. The exam options are scheduled for 9 February 2022, 15:00-16:00 (1st option) and 25 March 2022, 15:00-16:00 (2nd option). More details will be provided on ILIAS once available.

Literature

Relevant papers, videos, lecture slides and other learning materials will be made available via ILIAS.

Location: ZOOM and ILIAS

This course will be taught entirely online, using digital formats for teaching and learning. This allows maximum flexibility in learning the contents and progressing your learning at your own leisure and pace.

We will use the Zoom software for live online sessions. Details are provided on ILIAS. The standing link to our live online sessions is:

<https://uni-koeln.zoom.us/j/98609111717?pwd=ekZ4QS9qUzh4V0h5ZHI5VXhJbGt2UT09>

Preliminary Schedule and Topics

On selected topics for the contents listed below, we will have external scientists as guest speakers.

Thematic block	Week	Date	Topic	Lecturer
Introduction	1	11.10.2021	Introduction: Why, What, Who, When, and How?	Friedrich Chasin & Roman Zeiss
Sustainability Challenges	2	18.10.2021	Sustainability	Friedrich Chasin
	3	25.10.2021	Sustainable Development Goals and Information Systems	Roman Zeiss
	4	02.11.2021*	Sustainability Transformations of Organizations & Households	Roman Zeiss
	5	08.11.2021	e-Waste	Roman Zeiss
Digital Solutions for Sustainability Challenges	6	15.11.2021	Green IT versus Green IS Solutions	Roman Zeiss
	7	22.11.2021	Digital Solutions for Sustainability in the Energy Domain	Guest lecture
	8	29.11.2021	Digital Solutions for Sustainable Production & Consumption	Roman Zeiss
	9	06.12.2021	Digital Solutions for Sustainability in Transportation	Friedrich Chasin
	10	13.12.2021	Sharing Economy Solutions	Friedrich Chasin
	11	20.12.2021	Digital Community Currency Solutions	Friedrich Chasin
Building Digital Solutions for Sustainability Challenges	12	10.01.2022	Green IS Design	Friedrich Chasin
	13	17.01.2022	Measuring Sustainability Impact of IS Artifacts	Friedrich Chasin
Review	14	24.01.2022	Recap and Mock Exam	Friedrich Chasin
Assessment		09.02.2022	Exam (1 st option)	n/a
		25.03.2022	Exam (2 nd option)	n/a

Table 1: Schedule. *) Because 01.11.2021 is a holiday, we need to find an alternative slot in this week.

Course Conduct

The course consist of three thematic blocks, each of which has multiple topics. For each topic, we will provide you with three types of learning materials:

1. **Knowledge content** in the form of readings, web pages, and video lectures
2. **Group exercises** that you can complete in groups on your own
3. **Live online sessions** where we discuss questions around the knowledge content and the outcomes from the group exercises of the prior week.

The **knowledge content** will be made available online in advance so you can study the materials wherever and whenever, at your own pace and leisure. The **live online sessions** will be held via Zoom every Monday, 10:00-12:00. Logon details are provided on ILIAS. The **group exercises** will be announced one week in advance (e.g., in week 2, to be completed by and discussed in week 3).