

Student challenge: Sustainable Smart Cities

Subject area: Other subject area: Sustainability

University:	TUM
Level:	Foundation year (before BA), BA1, BA2, BA3, BA4, BA all years, MA1, MA2, MA all years, PhD
Teaching mode:	completely online, at specific time
Instructor(s):	Prof. Dr. Stefan Wurster

Short description

Focussing on the topic "Sustainable Smart Cities", the course organized as a student challenge across participating EuroTeQ Universities enables students to develop specific project ideas at the interface of sustainable and digital transformation on the city level. In doing so the course will promote engagement with sustainable development issues in conjunction with digital transformation in the home cities of the EuroTeQ universities.

Full description

Sustainable and digital transformation can be considered the core challenges of our time. While both are important issues on their own, we can observe a recent trend and growing voices at the political, economic and societal level to think sustainability and digitalization not side-by-side, but rather together (concept of "digitainability"; Gupta et al. 2020). This applies to cities as incubators for digital and sustainable innovations (e.g. smart city development or mobility concepts) as well as hotspots of sustainability problems (e.g. resource overuse) in a particular way. In light of the ongoing urbanization dynamic, how can we develop cities into incubators of digitally sustainable innovations (Bednarska-Olejniczak 2019, Bingöl 2021) in accordance with Sustainable Development Goal 11, without e.g. violating social or data protection standards?

Focussing on the topic "Sustainable Smart Cities", the course organized as a student challenge across participating EuroTeQ Universities enables students to develop specific project ideas at the interface of sustainable and digital transformation on the city level. In doing so the course will promote engagement with sustainable development issues in conjunction with digital transformation in the home cities of the EuroTeQ universities. Student teams will develop specific project ideas how to promote sustainable digitization at their university town. Besides providing specific micro-credentials (theoretical and practical knowledge regarding sustainable & digital development on city level as well as project development, management, and entrepreneurship skills) for student participants, the course is helping to bring sustainability and digitalization to life as a leitmotif of the EuroTeQ development agenda. To facilitate students developing their project we will provide theoretical as well as practical knowledge regarding the latest scientific findings and trends on sustainability and digitalization at the city level. For this we can draw on extensive online materials and practical experience from the teaching and research project "Digital Sustainability Transformation by, with and of TUM"

(<https://www.hfp.tum.de/en/policy/research-teaching-projects/teaching-projects/digital-sustainability-transformation-of-by-and-for-the-tum/>) as well as the follow up project “Digitainability: Promoting responsibility & implementing innovations through project-based learning” (<https://www.hfp.tum.de/en/policy/research-teaching-projects/teaching-projects/digitainability-promoting-responsibility-implementing-innovations-through-project-based-learning/>).

Learning outcomes

At the end of the course, the learner will be able; to understand and to critically discuss key aspects linked to sustainable and digital transformations, particularly in the context of Sustainable Smart Cities; to put their knowledge into practice for their own (research) project, and to systematically plan and implement their own projects; to analyze how they can actively shape big transformations in their immediate vicinity.

General information

Contact hours per week:	Kick-off-event, two project weeks, student conference
Total workload:	180 (in student hours for the whole course)
ECTS credits:	6
Language:	English
Course start date:	02 September 2022
Course end date:	16 December 2022
Add. info about start date:	Kick-off-event
Weekly teaching day/time:	None.
Time zone:	CET (Denmark, Germany, France, Netherlands, Switzerland, Czech Republic)
Further information:	
Prerequisites:	This module is aimed at all students enrolled in a Bachelor, Master or PHD program at EuroTeQ universities; it is thus designed as an interdisciplinary venue which brings together a range of scientific perspectives. No specific prior knowledge is required; however, its project-based character requires high levels of intrinsic motivation and the willingness to actively participate in a project.
Activities and methods:	Lectures, Seminars, Group work, Self-study
Presence on campus:	No.

Final examination

Form:	project
Date:	16 December 2022
Location/format:	online
Re-sit possibility:	no
Transcript available:	end of academic year
Add. info/requirements:	No specific equipment required.

Registration

To register for this course, follow the registration requirements of your **home university** as specified here: www.euroteq.eu/courses-registration.

Administration

Number of places:	30
Minimum participants:	
Internal course code:	None.
Contact:	euroteq.incoming.zv@tum.de

This course is part of the EuroTeQ Engineering University joint course catalogue 2022/2023. This is a collaborative activity of the partner universities DTU, L'X, TU/e, TalTech, CTU, TUM as well as Technion. Students from these universities can participate in the offered courses. It is the responsibility of the student to check if you fulfil the requirements to participate in a specific course. Students are also advised to check with their home institution how to get recognition of the ECTS credits gained in courses of the EuroTeQ course catalogue. For further information about EuroTeQ Engineering University, visit www.euroteq.eu or get in touch with the above-mentioned point of contact.