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ARS ARCHITECTURE REURBANIZATION SUSTAINABILITY

Studiere Stadt der Zukunft!

BEUTH HOCHSCHULE
FÜR TECHNIK
BERLIN
University of Applied Sciences

FACHBEREICH IV ARCHITEKTUR
UND GEBÄUDETECHNIK
Department IV Architecture
and Building Services Engineering

FERNSTUDIENINSTITUT
Institute of Distance Learning

A VIRTUAL SUMMER SCHOOL ON

SUSTAINABLE DESIGN FOR LOW CARBON BUILDINGS & CITIES

ACADEMIC PROGRAM 2021

PROGRAM

Buildings play a key role for climate change mitigation. They account for approximately 30% of global energy consumption, and in turn generate around 20% of all energy-related greenhouse gas (GHG) emissions. However, considerable opportunities exist to realize significant gains in energy efficiency and implement low-carbon strategies in urban areas.

At the summer school, academic scholars and industry leaders will share emerging ideas and solutions on transforming our urban areas into low-carbon cities for the next generation.

Session 1 "Post-Carbon cities of tomorrow": Making cities sustainable and climate resilient goes far beyond simply reducing CO2 emissions. A holistic approach to environmental and energy issues has to be adopted.

Session 2 "Renewable energy in cities": The transition to renewables means integrating energy supply and demand between different sectors, through smart technologies, rigorous planning and holistic decision-making.

Session 3 "Low-carbon architecture": By following sustainable architecture techniques it is possible to minimize the negative impacts of buildings on the environment.

During 4 workshops you will gain hands on experience on designing and sizing Building Integrated Photovoltaic systems as well as novel systems for technical building services. You will be introduced to the basics of thermal simulation and life cycle analysis (LCA).

A virtual lab tour will provide insights on the operation of solar thermal systems.

Last but not least, the student project is a great opportunity to work in international and interdisciplinary teams on a small, yet complex environmental building design project. Teams are encouraged to find holistic solutions for realizing a near-zero carbon building.

Week 1	Mon, August 30 2 - 6 pm	Opening event and keynote speeches: *1. European energy transition* *2. Roadmap to a climate-neutral city*
	Tue, August 31 2 - 5.30 pm	Post-carbon cities of tomorrow
	Wed, September 1 2 - 6 pm	Shaping an integrated renewable energy system
	Thu, September 2 2 - 6.30 pm	Integration of renewable energies into buildings
	Fri, September 3 2 - 5.30 pm	Sustainable design for low carbon architecture
Week 2	Mon, Sept. 6 2 - 5.30 pm	Sustainable design for low carbon architecture
	Tue, Sept. 7 2 - 6 pm	Circular economy / Life cycle Workshops: *1. Design of building integrated PV* *2. Design of technical building service* *3. Basics of thermal simulation* *4. Basics of life cycle analysis*
	Wed, Sept. 8	Student project
	Thu, Sept. 9	Student project
	Fri, Sept. 10	Student project
Week 3	Monday, Sept. 13 2 - 5.30 pm	Closing event and award ceremony for the top 3 projects

The academic program is preliminary and might be subject to change.

STUDENT PROJECT

Campus Information Pavilion

During our summer school, interdisciplinary teams of students get together to work on a design of a Campus Information Pavilion for demonstrating sustainable and energy efficient buildings.

The Campus Information Pavilion will be an integrated infrastructure established on the campus of the Universities involved. Designs should represent a high performance building so energy efficient that a decentralized renewable energy system can be expected to offset all the building's annual energy consumption.

Teams are encouraged to find solutions that make use of new or existing technologies as well as other creative features to improve building operations and desirability. Effective designs for building systems incorporate careful considerations of structural performance, occupant comfort, environmental conditions, and regulatory constraints.

The teams attend the closing event, where they present their designs to a panel of expert jurors, compare their projects to those of other teams, and learn from presentations by thought leaders and collegiate peers. Designs are evaluated on how well they meet the nation's rapidly evolving demand for buildings that are innovative, cost-effective, quick to build, high quality, resilient, grid interactive, efficient, and locally responsive.

The top 3 projects will be rewarded with prize money.

More information at
https://projekt.beuth-hochschule.de/summerschool-ars/

QUICK FACTS

Duration: 2 weeks (August 30 - September 13)

Course Fee: None

Language: English

Credits: The workload of the summer school will be 150 hrs which is equivalent to 5 ECTS credit points. This can be certified for the participants. The individual credit must be clarified independently with the home university by the participants.

Admission Requirements: University degree (210 ECTS, CP) in the field of engineering or architecture, good command of English (B2 Level), cover letter (max. 200 words or 1 Page DIN A4) with expression of intent and research interests, being registered in a graduate program. The number of participants is limited.

Registration deadline: 1 August 2021. Confirmation of participation will be made no later than 15 August 2021.

Target Group: Students and professionals involved in fields relating to the built environment: architecture, technical building service, civil and energy engineering, urban planning, facility management and property development.

Course Aim: Facing climate change and diminishing fossil resources, the building sector is going to receive substantial changes in the coming years. Energy efficiency must remain a main effort alongside reusing and recycling of materials, renewable energies and materials, as well as functionally adoptable architecture with long lasting building constructions.
Participants will get insights into current state-of-the art design strategies and mechanical innovations. New experiences will be gained in the collaborative student project that follows the theoretical part. So, the summer academy shall act as a market place for learning, exchange and contribution to shaping a better built environment.

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The virtual summer school on SUSTAINABLE DESIGN FOR LOW CARBON BUILDINGS & CITIES

invites undergraduate and graduate students, postgraduates, and scientific scholars of the fields of architecture, constructional engineering, urban development and planning, as well as energy and building technology to discuss and elaborate technical, scientific, economic, legal and political aspects of providing the built environment with sustainable architectural designs and with heating, cooling, ventilation, lighting and power systems in the most efficient way possible.

CONTACT

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https://projekt.beuth-hochschule.de/summerschool-ars/