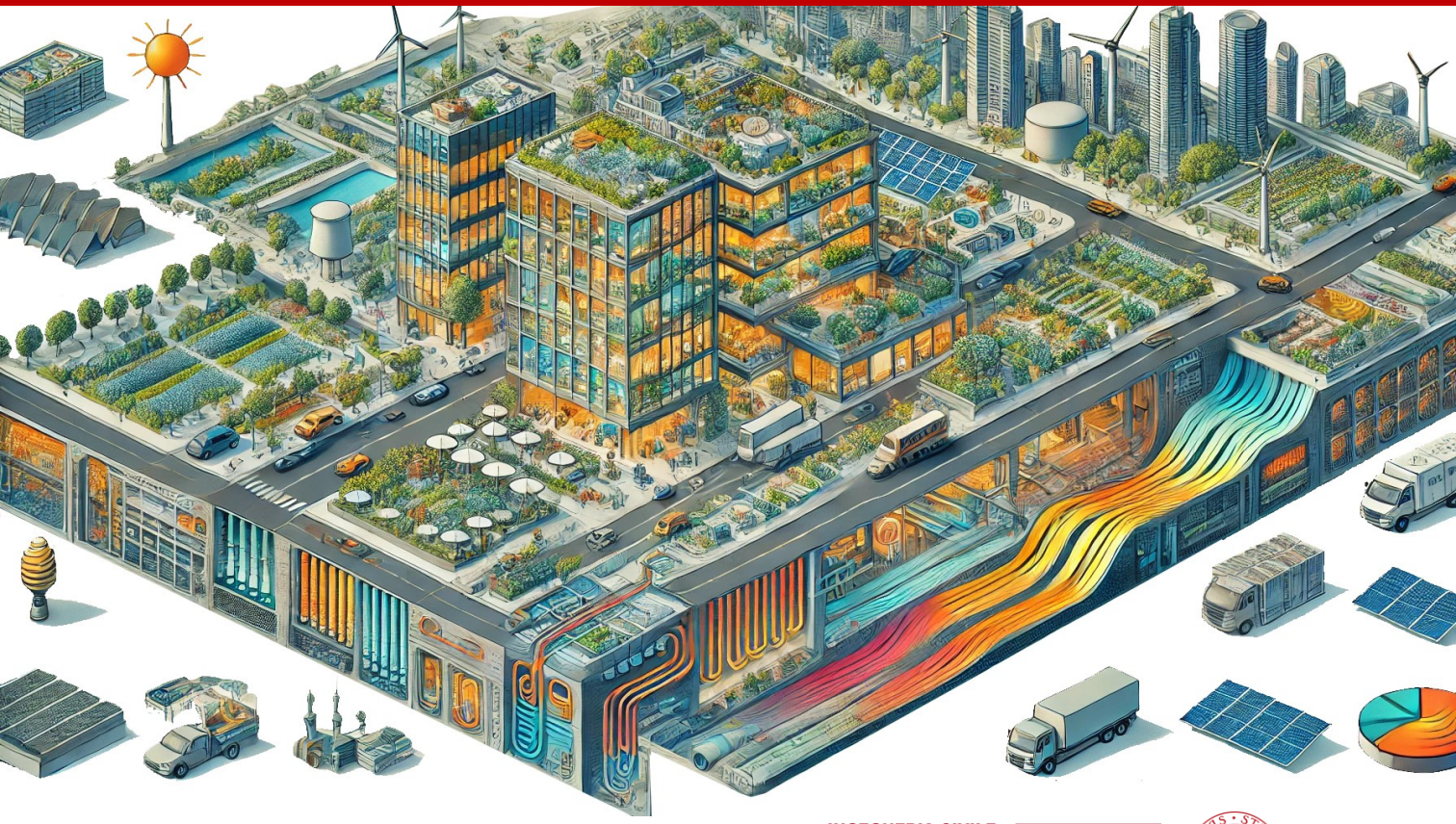
Blended Intensive Program (BIP) consists of short-term physical mobility abroad with a compulsory virtual component before the mobility. Blended Intensive Program needs to be composed of international jointly designed learning activities set by a minimum of 3 higher education institutions (HEIs) from 3 European countries.

University of Padova (Italy - coordinator and hosting institution of the physical mobility), VSB - Technical University of Ostrava (Czech Republic - partner), Mendel University in Brno (Czech Republic - partner), and University of Vaasa (Finland - partner).

Energy harvesting smart applications for carbon-neutral cities

BLENDED INTENSIVE PROGRAM
A.Y. 2024.25



For further information, please contact the involved Partners:

University of Padova (giovanni.giacomello@unipd.it)

VSB - Technical University of Ostrava (jiri.koziorek@vsb.cz)

Mendel University in Brno (xslany@mendelu.cz)

University of Vaasa (birgitta.martinkauppi@uwasa.fi)

INGEGNERIA CIVILE, EDILE E AMBIENTALE
CIVIL, ENVIRONMENTAL AND ARCHITECTURAL ENGINEERING
ICEA

UNIVERSITÀ DEGLI STUDI DI PADOVA

VSB TECHNICAL UNIVERSITY OF OSTRAVA

UNIVERSITY OF VAASA

Mendelova univerzita v Brně

Main topics

Module 1
Introduction to energy harvesting and urban sustainability (1 ECTS)

Module 2
Thermal energy accumulation and reuse techniques from road pavements, buildings, and underground structures (1.5 ECTS)

Module 2.1 Thermal energy accumulation and reuse
Module 2.2 Smart building facades and transport infrastructure energy systems
Module 2.3 Geothermal and subsurface energy storage solutions

Module 3
Reuse of heat from green infrastructures and agriculture (1 ECTS)

Module 4
Digital twins and monitoring systems for energy management (0.5 ECTS)

Module 5
Group projects (2 ECTS). This activity will consist of collaborative group projects focused on designing an energy harvesting solution for a specific urban application; analysis of potential energy output, cost-benefit assessment, and carbon impact. The outcome will be a practical experience in conceptualizing and presenting energy solutions with a focus on implementation feasibility.

Periods

Period 1: on-line part, from March to April 2025
Period 2: face-to-face part - 10 days in June 2025

Teachers

Professors, researchers and technicians from partner universities and organizations active in the field of urban energy management.

Target skills and knowledge

This teaching activity intend to provide students with multidisciplinary notions that can contribute to the European objectives of reducing emissions, improving energy management, reducing the phenomenon of urban heat islands, and improving the quality of life in European cities. This activity is motivated by the serious lack in Europe of qualified technicians with interdisciplinary skills in the fields of energy harvesting for carbon neutrality. The students will be able to play a fundamental and growing role in various sectors, to increase their competitiveness and continue the active implementation of the European Green Deal directives. To this purpose, the course includes lectures (also in on-line mode), practical case studies, Q&A sessions, seminars, visits of sites and exercises/group projects. Site visits to experimental and operational sites to observe real-life applications of energy harvesting technologies.

Participants

Participants need to be learners from HEIs in the partnerships, learners from HEIs outside the partnerships, zero-grant learners. Participants can be also learners of the hosting HEI, learners from non-European countries (KA171 mobility), learners who are already on mobility at the hosting HEI (Erasmus mobility for study/traineeship, Erasmus Mundus, etc.).

The students that participate in the BIP must be enrolled at University of Padova (Italy) for the entire BIP period (virtual and face-to-face activities). If they receive another EU scholarship in the same period (Erasmus mobility for study / traineeship, Erasmus Mundus, etc.) they have zero grant. PhDs are considered students (not staff).

At the end of the BIP activities the University of Padova awards 6 credits (ETCS) to all the students officially enrolled in BIP.

Periods

Many accommodations (residences, colleges, apartments and establishments holding agreements) in Padova are reserved for international students enrolled in University of Padova, for which there is also an International Housing Office (housing@unipd.it). For further information, visits the “Housing” web page of University of Padova (www.unipd.it/en/studying-padua/arriving-and-living/housing).

Organizational Support

University of Padova can support the students enrolled in BIP face-to-face activities (e.g., rent of rooms, meals, purchase of materials / services for activities, educational trips, attendance fees, etc.). Each international student participating in BIP face-to-face activities will be enrolled in the University of Padova and will be covered by insurance (accident and civil liability). No fees are requested for these enrollment and insurance.