BIP
From Waste to Byproducts: New Paradigms to Construction Engineering

Proposing HEI:

Polytechnic University of Coimbra

BIP reference:

2024-1-PT01-KA131-HED-000235790-42

ERASMUS+ Blended mobility (KA131)

Blended mobility was introduced as an innovation in the higher education mobility action of the Erasmus+ 2021-2027 programme KA131. It provides opportunities for new learning, teaching, and training approaches that can foster the development of new types of skills. Within Erasmus+, blended mobility merges physical mobility with a virtual learning component before, during and/or after the in-person experience. BIP-style courses mandate a minimum of 5 days for students and staff during the physical week, while the virtual component should enhance the student's study program and encourage online collaboration and teamwork. A minimum of 15 mobility students are required, and the students from the host institution don't count. The whole programme awards **3 ECTS** credits.

Based on the previous information, host and partner institutions should:

- Recommend students whose areas of study align with the BIP proposal. They will participate in both virtual and in-person components. Their performance will be assessed based on their assigned work to receive the 3 ECTS.
- Invite teachers to engage in the physical week. They will be responsible for lectures, workshops, field trips, and more.
- All teachers will participate in meetings aimed at fostering future collaboration and mobility.

BIP brief description

Urban areas have a significant ecological footprint. The building value chain is responsible for 37% of global emissions. According to several organisations, including the World Economic Forum and the United Nations, construction is a key sector for addressing global warming. Several solutions are being implemented, such as precast concrete, modular construction, rehabilitation and reconstruction, 3D printers, bio-based construction materials (wood, timber, bamboo), and the introduction of industrial wastes in the sector.

Several industrial wastes have been upcycled into byproducts in recent decades, enhancing circularity. Examples include slags, demolition and construction wastes, ashes, dregs and grits, plastics, recycled crushed cement, rubber, and mine tailings.

This BIP is intended to give students a general overview of the current state of the art in several fields of Civil Engineering (geotechnics, hydraulics, construction materials, road construction, structures…, etc.), respecting the best environmental practices and the European health and environmental standards, during the theoretical lectures (online) and the physical week. The lectures will also address manufacturing and ecological perspectives. During the physical week, hands-on workshops will take place in the Department of Civil Engineering laboratories and aim to engage students in a new paradigm for construction activities.

Scientific areas

Although the BIP will mainly focus on Civil Engineering applications, the knowledge, expertise, and points of view of other scientific areas are fundamental to a comprehensive understanding of waste valorisation. Thus, the BIP aims to gather students and faculty from the following scientific areas: Environmental Sciences, Chemistry, Architecture, Industrial Engineering, Civil Engineering, Mechanical Engineering, and Economics, among many others.

Activities calendar

Physical week: 13th to 17th of October 2025

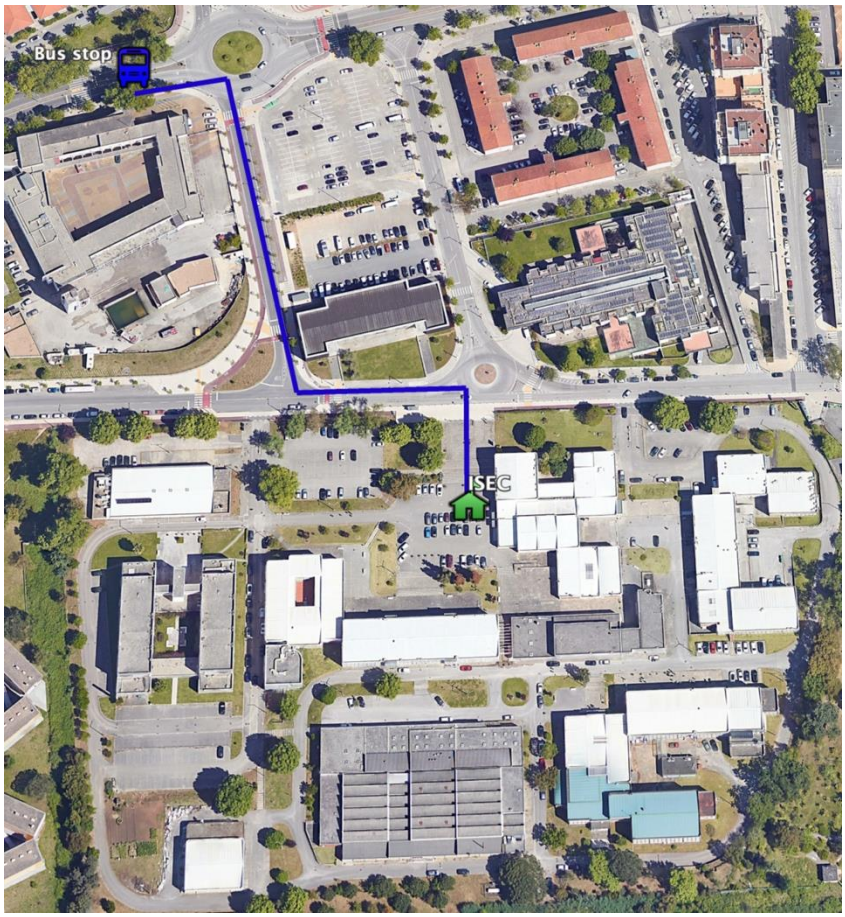
Virtual sessions: This BIP includes three virtual sessions (two before and one after the physical week). All the partners will decide on the dates of the sessions.

Evaluation methodology: All the partners will decide based on a proposal provided by the proposing HEI.

Venue :

Instituto Superior de Engenharia de Coimbra, Rua Pedro Nunes, Quinta da Nora, 3030-199 Coimbra

Buses: 24, 24T, 33



Accommodation

For your stay during the event, here are some accommodation options in Coimbra:

- Youth Hostels: HI Coimbra - Pousada de Juventude. Choose “HI Coimbra - Pousada de Juventude” in the search.
- Uniplaces: Uniplaces Accommodation in Coimbra. Use discount code **UP30ISEC** for a special offer.
- Airbnb: Explore Airbnb in Coimbra.
- Be Coimbra Hostel: Be Coimbra Hostel.
- Zero Box Lodge: https://coimbra.thezerohotels.com

Before booking accommodation, we recommend using any location or map application to check the distance from ISEC – Instituto Superior de Engenharia de Coimbra (Coimbra Institute of Engineering) to the address of the accommodation you are considering. This will help you better understand its location relative to the event venue. However, Coimbra is a small and quiet city, being easy to walk around. The ISEC area is also well-served by public transport (bus), making it easy to reach.

Travelling to Portugal – Coimbra city

Travelling by Plane to Coimbra – Airport Options:

Two main options for arriving in Coimbra by plane are Oporto Airport or Lisbon Airport.

Oporto Airport (Francisco Sá Carneiro Airport) is located in Oporto, about 120 km from Coimbra, a 1.5-hour drive. You can reach the city by taxi, rental car, or public transportation, such as a train or bus (FlixBus).

Lisbon Airport (Humberto Delgado Airport): Located in Lisbon, about 200 km from Coimbra, with a driving time of approximately two hours. Similarly to Oporto, you can rent a car, take a taxi, or use public transportation, such as a train or bus (FlixBus).
Both airports have good transport connections to Coimbra, so the choice depends on your flight options and travel time preference.

Connections details: travelling to Portugal

Contacts

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