

6-10 July 2026 (in-person) + 13-14 July 2026 (online)

Department of Civil Engineering, University of Beira Interior, Covilhã, Portugal



FORMAT
Hybrid



CREDITS
3 ECTS



PLACES
30



Why this BIP matters

The CE&E; UNITA Blended Intensive Programme (BIP) "Water and Wastewater Reuse Solutions for Small Communities (ReUseWater)" addresses one of the main environmental and societal challenges of the coming decades: how to provide safe, affordable and sustainable water and sanitation services in small, rural, peri-urban and isolated communities. The programme focuses on decentralised and nature-based solutions for drinking water treatment, wastewater treatment, stormwater management and water reuse, with particular attention to resilience, circular economy and climate adaptation. Through lectures, case studies, technical sessions and collaborative group work, participants will explore how to select, design and evaluate context-appropriate solutions for small communities. The BIP combines an international and interdisciplinary perspective with practical problem solving, enabling students to engage with real-world challenges and exchange experiences across different countries and institutional contexts.



What you will explore

1. Water challenges in small communities.
2. Drinking water solutions for small communities.
3. Decentralised wastewater treatment.
4. Nature-based solutions and reuse.
5. Sludge and residuals management.
6. Case studies and integrated design.

4. Nature-based solutions and reuse

Constructed wetlands, soil-based systems, evapotranspiration basins, ponds, green filters, reuse for irrigation and non-potable uses, health and environmental safety.



Why join ?

- Learn from an international network UNITA universities.
- Explore decentralised and nature-based solutions with real-world relevance.
- Work in mixed international teams on case-study-based challenges.
- Develop practical, sustainability-oriented skills in water reuse.



Learning experience

The BIP combines expert lectures, real case studies, technical visits and laboratory demonstrations, collaborative teamwork in international groups, and a final challenge in which participants develop and present a reuse solution for a small community.

Assessment will be based on participation in group work, contribution to the case study, and the final presentation or poster.



Target participants

- Advanced undergraduate students, master's and doctoral students in environmental engineering, civil engineering, water engineering, sanitary engineering, environmental sciences, environmental chemistry, economy and related areas.
- Intermediate level of English (B1/B2 CEFR).



How to reach the event venue at UBI

40°16'42.5" N, 7°30'42.2" W

Contacts:

+351 275 329138

mobilidade.unita@ubi.pt; antonio.albuquerque@ubi.pt



Key Takeaways

- International teamwork and intercultural exchange.
- Case-study proposal for a small-community reuse solution.
- Final presentation of the proposed solution.
- Certificate and 3 ECTS upon successful completion.

Organising universities



West University
of Timișoara



UNIVERSITÀ
DEGLI STUDI
DI BRESCIA



Universidad
Zaragoza



UNIVERSITÉ
SAVOIE
MONT BLANC

Organising committee

- Antonio Albuquerque (UBI, GeoBioTec@UBI, Portugal, Coordinator)
- Laurent Duclaux (USMB, France)
- Sabrina Sorlini (UNIBS, Italy)
- Stefana Maria Dima (UVT, Romania)
- Rosa Mosteo Abad (UNIZAR, Spain)

Sustainable Development Goals

The BIP contributes mainly to SDG 6 (Clean Water and Sanitation), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action), by promoting decentralised, resource-efficient and resilient water and wastewater reuse solutions for small communities

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Course information

Title: Water and Wastewater Reuse Solutions for Small Communities (ReUseWater)

Credits: 3 ECTS

Format: Hybrid course, with in-person sessions (5 days, 40 hours of activities), and online sessions (2 days, 16 hours of activities).

- Contact hours: 56
- Independent study and group work: 28
- Total workload: 84 hours
- Number of places: 30
- Online delivery: The online sessions will be delivered live via streaming.
- Dates: 6–10 July 2026 (in-person) + 13–14 July 2026 (online)

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Requirements

- Advanced undergraduate students, master's and doctoral students in environmental engineering, civil engineering, water engineering, sanitary engineering, environmental sciences, environmental chemistry, economy and related areas.
- Intermediate level of English (B1/B2 CEFR).

International training on decentralised, nature-based and resilient water solutions



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(in-person)



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(online)



Universitas Montium
Building the University
of the Future

General presentation

The CE3E UNITA Blended Intensive Programme (BIP) “Water and Wastewater Reuse Solutions for Small Communities (ReUseWater)” addresses one of the main environmental and societal challenges of the coming decades: how to provide safe, affordable and sustainable water and sanitation services in small, rural, peri-urban and isolated communities. The programme focuses on decentralised and nature-based solutions for drinking water treatment, wastewater treatment, stormwater management and water reuse, with particular attention to resilience, circular economy and climate adaptation. Through lectures, case studies, technical sessions and collaborative group work, participants will explore how to select, design and evaluate context-appropriate solutions for small communities. The BIP combines an international and interdisciplinary perspective with practical problem solving, enabling students to engage with real-world challenges and exchange experiences across different countries and institutional contexts.

Objectives

This BIP aims to provide participants with theoretical and practical knowledge on decentralised solutions for drinking water supply, wastewater treatment and water reuse in small communities. It also aims to develop participants’ ability to analyse local challenges, compare technical alternatives, and propose sustainable, resilient and context-appropriate solutions, with particular emphasis on nature-based and low-energy systems.

Thematic contents

1. Water challenges in small communities

Water scarcity, dispersed settlements, governance, affordability, resilience and public health.

2. Drinking water solutions for small communities

Source protection, small-scale treatment technologies, storage and distribution, operation and monitoring.

3. Decentralised wastewater treatment

Treatment options; compact systems; modular systems; low-cost and low-energy solutions.

4. Nature-based solutions and water reuse

Constructed wetlands, biofilters, infiltration systems, retention ponds, green infrastructure and their applications in small communities.

5. Sludge and resource management

Small-scale sludge treatment and valorisation, nutrient recovery, appropriate disposal and circular approaches.

6. Case studies and contextual solutions

Real examples from different regions; analysis of technical and socio-economic alternatives; community participation and scenarios for implementation.

Teaching and assessment

The BIP combines expert lectures, reel case studies, technical visits and laboratory demonstrations, collaborative teamwork in international groups, and a final challenge in which participants develop and present a reuse solution for a small community.

Assessment will be based on participation in group work, contribution to the case study, and the final presentation or poster.

Learning Outcomes

- Explain the main water and sanitation challenges faced by small drinking water supply, wastewater treatment and reuse systems in small communities.
- Compare decentralised and nature-based technologies, including their advantages, limitations and suitability for environmental and socio-economic contexts.
- Assess the feasibility and sustainability of different solutions for specific communities.
- Apply tools and criteria for the design and evaluation of reuse water systems.
- Propose innovative, resilient and context-appropriate reuse solutions.
- Work effectively in international and interdisciplinary teams to solve real-world problems.

Expected outcomes

- Internationally oriented and socially responsible environmental engineers.
- Developed skills in research, innovation and problem solving in small communities.
- Oral and written communication skills in multicultural contexts.
- Strengthened ability to design, implement and manage sustainable water and sanitation systems.
- Certification of participation and achievement of learning goals.