

# **BIP**

## **BIP Title**

Teaching Environment and Environmental Sustainability in the Third Millennium: Innovation and Artificial Intelligence in a Transnational European Framework

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## **BIP Description**

This Blended Intensive Programme targets university staff and professionals working in earth system (see target group description below) and chemical/biological/climate/environmental sciences, education, and related fields, and explores how to teach environment and environmental sustainability in the third millennium within a transnational European framework. The BIP combines 2 days of synchronous online activities with a 5-day, fully in-presence intensive week hosted alternately in Spain (University of Oviedo), Italy (Università degli Studi “G. d’Annunzio” Chieti-Pescara) and Crete (University of Crete). The programme focuses on new targets and learning outcomes for sustainability education, innovative teaching methodologies, and the critical and responsible use of Artificial Intelligence in teaching and assessment.

Participants will co-design and test teaching units, micro-modules and assessment strategies that can be embedded into existing study programmes, with particular emphasis on applied earth and environmental sciences, biology, and interdisciplinary sustainability curricula. The BIP may also act as a catalyst for the planning and future development of a joint bachelor-level degree in the topics of applied science to nature and environmental sustainability among participating partners, using the BIP outputs (e.g. shared modules, common learning outcomes, digital resources) as building blocks for joint curriculum design.

This BIP not only drives pedagogical innovation but also lays the groundwork for curricular integration within forthcoming Joint Bachelors. The intensive activities and co-created modules will help identify core competencies in environmental geology, geomorphology, hydrogeology, climate and climatic changes, and the sustainable management of landscape, environment, water, mineral resources, etc., fully aligned with the Ingenium objectives. Moreover, the critical and responsible use of artificial intelligence in teaching and assessment will dovetail with the teaching digitalization strategy (including a 50% online delivery and active learning methodologies), ensuring coherence between the pilot and the final design. In this way, the BIP will function as a living laboratory for innovation and a catalyst for the hybrid mobility and transnational cooperation that will characterize possible joint degrees.

During and after the BIP, partners will (a) map existing environmental and earth-science programmes, (b) identify shared core modules and transversal competences, (c) co-develop sample syllabi and joint learning outcomes, and (d) define a roadmap toward aimed joint degrees under the INGENIUM.

More in general, the BIP’s co-created teaching units, AI-supported learning activities, and shared assessment frameworks will directly feed degrees and courses already existing within the Partners’ offer but also support the future joint degrees’ design process.

The general results of the BIP for existing and future teaching activities and degrees will already ensure continuity beyond the first edition in 2026, as well as the possible repetition of the BIP in a rotating model among the partners.

The first edition will be hosted by Oviedo in 2026 and the partners intend to rotate hosting in subsequent editions, as follow, aligning with the call's focus on BIPs as pilots for deeper cooperation.

First edition (2026):

- University of Oviedo (Spain) – Faculty of Geology

Second edition / rotating model:

- Università degli Studi “G. d’Annunzio” Chieti-Pescara (Italy) – Campus of Chieti/Pescara or related venue

Third edition / rotating model:

- University of Crete

Target group description

- Academic staff (lecturers, assistant/associate/full professors) in geology, biology, chemistry, geography, climate, environmental science and engineering, and related fields.

- Professional services staff (educational developers, instructional designers, digital learning specialists, international office staff) directly supporting curriculum innovation and mobility.

- Early-career academics and postdoctoral fellows interested in developments and teaching for sustainability and AI-enhanced teaching.

### **Coordinating Partner Institution**

“G. d’Annunzio” University Chieti-Pescara (Italy), Department of Science

### **Hosting Partner University (can be the same as coordinating partner university) \***

University of Oviedo (Spain) – Department and Faculty of Geology

### **Sending Partner Universities (minimum 2) \***

1) “G. d’Annunzio” University Chieti-Pescara (Italy) – coordinating partner, sending academic staff from environmental sciences, geomorphology, geology, biology, chemistry, pedagogy and educational innovation units, as well as educational developers and support staff involved in innovation in teaching and digital learning

2) University of Oviedo (Spain) – hosting first edition, sending academic staff from the Department of Geology.

3) University of Crete (Greece) – sending staff from the Departments of Biology, Chemistry, Physics.

4) “Gheorghe Asachi” Technical University of Iași (Romania) - sending academic staff from the Department of Terrestrial Measurements and Cadastre and Department of Hydrotechnical Engineering and Constructions

## **Academic Coordinators for all involved partners**

“G. D’ANNUNZIO” University Chieti-Pescara (Italy):

- Tommaso Piacentini, Associate Professor of physical geography and geomorphology, Department Sciences (email: [tommaso.piacentini@unich.it](mailto:tommaso.piacentini@unich.it)). Responsible for overall BIP coordination, Italian hosting, link to local environmental science programmes, and liaison with INGENIUM offices.
- Lucia Marinangeli, Associate Professor of stratigraphic geology and sedimentology, Department Sciences (email: [Lucia.marinangeli@unich.it](mailto:Lucia.marinangeli@unich.it)). Responsible for overall BIP coordination, Italian hosting, link to local environmental science programmes, and liaison with Erasmus offices and INGENIUM PhD.
- Eleonora Aruffo, Associate Professor of Atmosphere physics, Department Sciences (email: [eleonora.aruffo@unich.it](mailto:eleonora.aruffo@unich.it)). Responsible for link to local environmental science programmes, and liaison with Internationalization office.
- Gitana Aceto, Researcher of General pathology, Department Sciences (email: [gitana.aceto@unich.it](mailto:gitana.aceto@unich.it)). Responsible for link to local environmental science programmes, and liaison with Internationalization office.

University of OVIEDO:

- Carlos López Fernández, Professor and Dean of the Faculty of Geology. Co-responsible for program design, scientific content, and future hosting in Spain (email: [lopezcarlos@uniovi.es](mailto:lopezcarlos@uniovi.es)).
- Gabriela Fernández Viejo, Professor and head of the Department of Geology (email: [fernandezgabriela@uniovi.es](mailto:fernandezgabriela@uniovi.es)).
- Laura Rodríguez Rodríguez, Professor of the Department of Geology (email: [rodriguezrlaura@uniovi.es](mailto:rodriguezrlaura@uniovi.es)).
- Luis Alberto Pando González, Professor of the Department of Geology (email: [pandoluis@uniovi.es](mailto:pandoluis@uniovi.es)).

University of CRETE

- Konstantinos Neochoritis, Associate Professor, Department of Chemistry (email: [kneochor@uoc.gr](mailto:kneochor@uoc.gr)).

“GHEORGE ASACHI” Technical University of IASI (Romania):

- Marius Telișcă, Lecturer, Department of Hydrotechnical Engineering and Constructions (email: [marius.telisca@academic.tuiasi.ro](mailto:marius.telisca@academic.tuiasi.ro)).
- Loredana-Mariana Crenganis, Lecturer, Department of Terrestrial Measurements and Cadastre (email: [loredana-mariana.crenganis@academic.tuiasi.ro](mailto:loredana-mariana.crenganis@academic.tuiasi.ro))
- Raluca Mitroi-Luncanu, Lecturer, Department of Hydrotechnical Engineering and Constructions (email: [raluca.mitroi@academic.tuiasi.ro](mailto:raluca.mitroi@academic.tuiasi.ro)).
- Ana-Maria Loghin, Lecturer, Department of Terrestrial Measurements and Cadastre (email: [ana-maria.loghin@academic.tuiasi.ro](mailto:ana-maria.loghin@academic.tuiasi.ro)).

**Is the BIP embedded in an existing study programme?**

No.

**Is the BIP's focus on a specific discipline or transversal? Please elaborate and provide details if it is embedded in a curriculum. \***

The BIP focuses on a transversal theme – teaching environment and environmental sustainability – that is anchored in disciplinary expertise from geology, biology, atmosphere, climate, earth system science, and environmental studies but explicitly targets cross-cutting competences for university teaching staff. The programme will be embedded as:

- 1) A recognised staff-training module / staff academy activity within INGENIUM partner institutions, aligned with institutional strategies for educational innovation and sustainability.
- 2) A component feeding into existing bachelor and master programmes (at Oviedo, UdA Chieti-Pescara, Iași and other Ingenium partners) in geology, biology, climate, environmental science, and related fields (e.g. as a structured staff-development activity linked to programme-level course design and quality enhancement).
- 3) The BIP will also act as a catalyst for the future development of a joint bachelor-level degree in the topics of applied science to nature and environmental sustainability among participating partners.

The BIP will generate jointly agreed learning outcomes for teaching sustainability (e.g. ability to design outcome-based modules on climate change, biodiversity, geo- chem- and bio-hazards; ability to design sustainability reporting) and for the critical use of AI tools in teaching, which can be embedded into:

- 1) UdA Chieti-Pescara: BIP outcomes will be integrated into existing degree on Geological sciences for risks, resources and the environment (LM74), planned Environmental Sciences programmes (L-32 / related degrees), as courses or modules aligned with European standards and Ingenium framework
- 2) OVIEDO: BIP outcomes will be integrated into geology degrees to enrich courses with sustainability and digital components, aligning with European standards and the Ingenium framework.
- 3) CRETE: the outcomes will be integrated in the existing courses and degrees with specific modules and teaching activities on sustainability and digital innovation.
- 4) TUIASI: The outcomes of the BIP will be integrated into existing civil, environmental engineering, geodesy and related degree programmes at TUIASI, strengthening teaching on environmental sustainability through innovative digital methods and artificial intelligence within a transnational European educational framework, in line with European standards and the INGENIUM vision.

The embedding will be documented via internal recognition (e.g. inclusion in institutional staff-training catalogues and programme quality documentation) and used as groundwork for the future joint bachelors' joint degrees.

**Is the BIP linked with an INGENIUM Pathway Programme? If yes, which one(s)?**

The BIP aligns with INGENIUM Pathway Programmes and particularly to:

- horizontal modules that open access to other disciplines,
- transversal modules that develop competences such as communication, teamwork, digital skills, and entrepreneurship
- transversal modules that develop competences such as sustainable development and climate action, digital transformation and AI, and education and pedagogical innovation, by focusing on how environmental sustainability content is taught and assessed in a digitally transformed higher education landscape.

## **Please describe the planned implementation timeline \***

### PLANNED IMPLEMENTATION TIMELINE – First edition July/September 2026

#### Online phase (2 days):

- Period: July/September 2026.

Aligned with the call guidance that the online component should start early and physical mobility take place before the end of the year.

- Activities: introductory keynotes on sustainability education in Europe; virtual fieldtrip; overview of participating institutions' programmes; workshops on defining shared learning outcomes, mapping current courses, and initial exploration of AI tools for teaching (e.g. generative AI, automated feedback, learning analytics).

#### Physical intensive week (5 days, minimum required by the call):

- Period: July/September 2026. In line with the call's implementation timeline.

- Location:

Year 1: host city/campus (Oviedo).

Year 2: host city/campus (Chieti- Pescara).

Year 3: host city/campus (Crete)

- Activities:

1) Design studios where staff work in transnational teams to redesign or create modules on environmental sustainability (earth system, biodiversity, climate, geohazards, ecosystem services, etc.).

2) Parallel tracks on:

(a) innovative teaching methods (active learning, field-based teaching, inquiry-based learning, problem-based learning),

(b) responsible AI in teaching (prompt design, AI-supported assessment, academic integrity, bias and ethics),

(c) aligning module-level learning outcomes with programme-level competences and ESG/SDG goals (the 17 global objectives in the 2030 Agenda).

3) Field-based or lab-based demonstration sessions (e.g. geomorphological field teaching, biodiversity surveys, urban sustainability walks, chem- and bio-tools for environmental pollution evaluation) with embedded discussions on how to translate these activities into blended or online formats.

4) Final day: consolidation of shared outputs (templates for learning outcomes, sample teaching units, assessment rubrics, AI usage guidelines) and planning session for the joint bachelor's degrees.

#### FORMAT and WORKLOAD

1) Total workload designed to correspond to at least 3 ECTS worth of effort for participants, in line with Erasmus+ BIP requirements, even though the primary target group is staff rather than students.

2) Combination of synchronous online sessions, on-site workshops and field activities, and asynchronous preparation and reflection tasks (e.g. short readings, design assignments).

a) Coordination meetings with teaching teams to review programmes and transversal competences.

b) Educational innovation workshops on active methodologies and the responsible use of AI in teaching.

c) Joint field excursions to study geomorphology, natural hazards, and hydrogeological processes.

d) Technical visits to laboratories specializing in mineralogical analysis, hydrogeology, climate, and environmental modelling.

e) Co-creation sessions for teaching units and assessment strategies integrating sustainability, climate, and geohazards policies.

f) Research networking with academic groups to explore joint projects and share best practices.

**Planned number of participants per university (min/max)**

25–40 participants expected. This keeps total group size manageable while allowing a good mix of disciplines and teaching roles. We can indicate a range such as: 6–12 staff participants from “G. d’Annunzio” Chieti-Pescara: 6–12 staff participants. 5-10 staff participants from University of Oviedo. 4–8 staff participants from University of Crete. 4–8 staff participants from “Gheorghe Asachi” Technical University of Iași. 4–8 staff participants from possible additional partners or external participants.