

Do you want to have an international experience?

A Blended Intensive Programme (BIP) is for you!

What are BIPs?

- ❑ BIPs are short and intensive training programmes;
- ❑ include on-line lectures, challenge based project work and a short-term physical mobility

Can I have this training credited?

Yes!

How can I get funding for mobility?

Please contact your International Relation Office to get information on Erasmus BIP grants.

BIP on Circular Bioeconomy

Partners:

Hochschule Bremen (HSB) (Germany)
Polytechnic Institute of Bragança (IPB) (Portugal)
Hanze University of Applied Sciences (Hanze) (Netherlands)
Cracow University of Technology (CUT) (Poland)
Silesian University in Opava (Czechia)

BIP scheduling:

Starting 09/04/2024, Ending: 13/06/2024

Short-term physical mobility (1 week):

Starting 13/05/2024, Ending: 17/05/2024

This BIP corresponds to
6.0 ECTS credits

Do you have any questions about the BIP on Circular Bioeconomy?

If YES, contact: Anja Noke (anja.noke@hs-bremen.de) or
Antonia Ley (antonia.ley@hs-bremen.de)

Apply here until 29.2.2024:

<https://hsbremen.moveon4.de/form/64afdeaa20a03236ac098f86/eng>



Part A. Technical sessions (09/04/2024 – 07/05/2024) – 2 ECTS

The students must attend **four compulsory** lectures on **circular bioeconomy topics** (2h/each) and at least **three more elective lectures** (2 x 2 h/each) ministered by specialists of the involved institutions (see contents table).

Part B. Physical Mobility at HSB Germany (13/05/2024 – 17/05/2024) – 2 ECTS

Solving of real case studies addressing circular bioeconomy proposed by companies or applied research projects. The work will be developed in interdisciplinary groups and in a co-creation environment. The work will be monitored by a facilitator. The assessment will comprise a final Pitch to be evaluated by a jury of specialists. For information on how to travel to Bremen (Germany) and arrange accommodation, contact the HSB International Relations Office via email (uta.kadmani@hs-bremen.de).

Part C. Project (20/05/2024 – 06/06/2024) – 2 ECTS

Development of a project addressing one of the United Nations Sustainable Development Goals (SDGs). The work will be developed on-line in interdisciplinary groups and monitored by a facilitator (2 h/week; 23/05/2024; 30/05/2024).

Assessment of the BIP:

90% Attendance at seminars + Final Pitch presented at the end of the Physical Mobility Period (Pass/Fail) + Final Project presented on-line to a jury of specialists on 06/06/2024 and in a written report until 13/06/2024)

Technical sessions contents (Part A.)

COMPULSORY

No.	TOPIC	Lecturer	CONTENTS	Date and Hour (CET)
1 ^o	Introduction to the BIP COMPULSORY	Prof. Noke (HSB) and all other lecturers of the BIP	Welcome Session Information about the organisational aspects and content of the BIP, get to know each other, SDGs and importance for business and society	09/04 14:00-16:00
2 ^o	Bioeconomy COMPULSORY	Luca Gerdes (HSB)	Introduction to bio-based economy, photosynthesis as the basis of primary biomass production on earth, types of biomass and their availability and processing, biomass for human nutrition, feed, bioenergy, biofuels, bioplastics, biorefineries	09/04 16:00-18:00
3 ^o	Road to circularity COMPULSORY	Pavel Adamek (SUO)	The module contains relevant practices, innovative processes, and 'learning from experience' examples. The best-practice approach is presented in subject areas such as design and production, use and consumption, and waste management for promoting the transition from the current business models to a circular economy model.	11/04 14:00-16:00
4 ^o	Sustainable business models and value proposition COMPULSORY	Peter Schiphof (Hanze)	To address sustainability in business, changes and adaptations need to be made to (the way we develop) classical business models and value proposition. We'll explore multiple sustainable perspectives on these 2 concepts and discuss to what extent they could deliver real sustainability in business.	11/04 16:00-18:00

Technical sessions contents (Part A.) (cont.).

ELECTIVE – The students will choose in total at least 3 double lectures from the following list. If students attend more lectures, this will be honored in the final grade.

No.	TOPIC	Lecturer	CONTENTS	Date and Hour (CET)
5.1	Current Issues and Challenges of Circular Economy in Engineering	Luís Frólén (IPB)	The Circular Economy (CE) in engineering faces several challenges: from misconceiving the concept with simple recycling to the need for market creation. In an ever transition world, society's changes towards the CE creates challenges while presenting opportunities for new engineers. This course will address common misconceptions, offer the path to evolution to CE, and deliver examples of circularity in several industrial areas. It will also highlight this transition's caveats while suggesting solutions for several engineering areas.	16/04 14:00-16:00
5.2	Degrowth Economics	Peter Schiphof (Hanze)	The current economic system is not sustainable. We need to reduce energy consumption and energy use by 40-90 percent to make sure to stay within planetary boundaries. What trends and developments do we see, what business models need to be developed and what could the role of the biobased economy be?	16/04 16:00-18:00
6.1	Sustainable Innovation Practises	Katarzyna Matras-Postołek (CUT)	Legal conditions for SOI implementation. Integration of the company's values with the values of external stakeholders and its impact on the investment outcome. Barriers created by limited resources and different systems of values. Methods and practices supporting development of sustainable innovations and their introduction to the market.	18/04 14:00-16:00
6.2	Extended producer responsibility	Julien Bouzenot (Rudologia)	In the 80's, a Swedish Doctor imagined an economic tool to help industrials to anticipate their products end-of-life. Today, this tool is a kind of French passion. Indeed, France widely use it as a public policy to decrease waste quantities and increase recovery. This course will expose the EPR concept and the way French case inspires European legislation.	18/04 16:00-18:00

Technical sessions contents (Part A.) (cont.).

ELECTIVE – The students will choose in total at least 3 double lectures from the following list. If students attend more lectures, this will be honored in the final grade.

ORDE R	TOPIC	Lecturer	CONTENTS	Date and Hour (CET)
7.1	Life Cycle Analysis	Artur Gonçalves (IPB)	Brief course on Life Cycle Assessment (ISO 14040 and 14044). The course starts with a short theoretical presentation on the Life cycle approach, followed by an introduction to the LCA process and its methodological framework.	23/04 14:00-16:00
7.2	Bioenergy	Paulo Brito (IPB)	Biomass as a resource for the production of bioenergy: chemical, biochemical and thermochemical principles. Biomass characterization and availability. Biological and chemical processes for the production of biofuels. Thermochemical processes for the production of materials, fuels and/or bioenergy: combustion, pyrolysis, liquefaction and gasification. The biorefinery concept. Case studies.	23/04 16:00-18:00
8.1	Biotechnology in Bioeconomy	Anja Noke (HSB)	Microorganisms and enzymes are the main biocatalysts used in biotechnological production systems. Biotechnological processes are performed in different types of bioreactors. Various biotechnological production processes relevant for bioeconomy are presented as examples: citric acid and yeast production	25/04 14:00-16:00
8.2	Microalgae in Bioeconomy	Jan Kuhnholz (HSB)	Microalgae are fast growing micro-organisms with a huge potential for future applications in food, feed, cosmetic and pharmaceutical applications. Different species of microalgae, production systems as well as applications of micro-algal biomass and derived products will be presented.	25/04 16:00-18:00

Technical sessions contents (Part A.) (cont.).

ELECTIVE – The students will choose in total at least 3 double lectures from the following list. If students attend more lectures, this will be valued in the final grade.

ORDE R	TOPIC	Lecturer	CONTENTS	Date and Hour (CET)
9.1	Sustainable Chemistry and Strategies on Encapsulation	Filomena Barreiro & Arantzazu Santamaria (IPB)	Encapsulation processes are being increasingly applied in different industrial fields, contributing to attain product differentiation and enhance commercial value. Within the context of circularity design, it is important to develop and adopt sustainable practices and green strategies. Among others, this topic will address emulsion-based processes, particulate systems, and other relevant techniques directed at solving any constraint related to the direct use of several formulation ingredients (e.g., loss of bioactivity in natural ingredients, solubility problems, mask odour and taste, solve incompatibility problems, etc.). Several in-house examples will be described and discussed.	30/04 14:00-16:00
9.2	Production and recycling of porous polymer materials based on renewable raw materials	Aleksander Prociak (CUT)	Current trends in the development of porous polymeric materials. Biomass as a source of raw materials for the synthesis of components used in the production of porous plastics. Bio-based and biodegradable porous plastics. Influence of renewable raw materials on selected properties of porous polymeric materials in various applications. Methods of recycling porous polymeric materials.	30/04 16:00-18:00
10.1	Quality, Innovation and Data Analytics in Food Businesses	Úrsula Barron & Vasco Cadavez (IPB)	Food industries, either large or SMEs, should have in place processes, products, and manufacturing activities that adequately address current environmental concerns while maintaining a profit. Sustainable development within a food business can create value for customers and clients, and can strengthen local economies. This seminar focuses in depth on three pillars for sustainability: innovation in food processes and products, quality and safety of food products, and data analytics.	02/05/ 14:00-16:00
10.2	Valorization of food waste and importance of autochthonous products	Elsa Ramalhosa (IPB)	Food waste versus Food loss. Food waste statistics. How can we reduce food waste?. Autochthonous products: definition and importance. Quality schemes - Geographical indications, Traditional speciality guaranteed, Other schemes. eAmbrosia - the EU geographical indications register. Examples of autochthonous products.	02/05/ 16:00-18:00

Technical sessions contents (Part A.) (cont.).

ELECTIVE – The students will choose in total at least 3 double lectures from the following list. If students attend more lectures, this will be valued in the final grade.

ORDE R	TOPIC	Lecturer	CONTENTS	Date and Hour (CET)
11.1	Material Use of Renewable Resources	Maria Kurańska (CUT)	Justification of the need to use renewable raw materials in the synthesis of plastics. Review of renewable raw materials used in the synthesis of polymeric materials. Examples of polymeric materials obtained from renewable raw materials.	07/05/ 14:00-16:00
11.2	Biobased plastic composite materials	Jörg Müssig (HSB)	(To be defined soon)	07/05/ 16:00-18:00