Biobased Innovation Student Competition Europe

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# Aim

* 1. The Bio-based Innovation Student Competition Europe (BISC-E) aims to raise awareness and involve students in the transition towards a bio-based economy. The ability to work in a multidisciplinary team is believed to be essential to design viable bio-based solutions, therefore the requirements include technical, environmental and economic elaborations.
	2. BISC-E challenges graduating students at universities of Applied Sciences and at research universities to propose and pitch innovative bio-based solutions to issues regarding the environment, economy, or society. These solutions should realise net-zero (or negative) greenhouse gases emissions, zero pollution, protection and enhancement of biodiversity and environmental sustainability in general to contribute to a sustainable and circular economy.
	3. BISC-E stimulates cooperation between industry, academia, and government to foster innovation and entrepreneurship for a climate-neutral Europe.
	4. BISC-E drives multidisciplinary2 teamwork, working in an interdisciplinary3 fashion to increase opportunities for innovative ideas. Students are hence encouraged to form teams including members enrolled in different disciplines. While STEM disciplines are a must, integrating knowledge and methods from non-technical disciplines are not excluded. BISC-E positions itself as an extracurricular training exposing students to different disciplines, cultures, innovative insights, etc.

# Organisation

* 1. The Bio-based Innovation Student Competition Europe is organized on a national level by the UGent GREEN-CHEM and End-of-Waste networks. After the national finals, a European final is organized where all national winners can compete for the title of European Champion.

# Indicative timeline – Belgium

18 October 2023 Fun registration event to brainstorm ideas, to meet previous winners and other participants and create teams (exact location to be decided)

25 October 2023 Fun registration event to brainstorm ideas, to meet previous winners and other participants and create teams (Green Office Gent)

21 February 2024 Fun registration event to brainstorm ideas, to meet previous winners and other participants and create teams (exact location to be decided)

15 April 2024 Application deadline for recorded presentation and participation file

24 April 2024 Belgian final and ranking of top 3 teams (at Tech Tours Circular)

The European BISC-E2024 final rounds will take place on:

6 September ’24 First round with all national winners.

27 September ’24 Final round with top-5 student teams from the first round

# Participants

* 1. Student teams for the national BISC-E competition must consist of at least 3 students and maximally 6. Participation in BISC-E is free of charge.
	2. All team members should be enrolled in a programme at an institute for higher education in Europe. These include students in their graduating years at universities of Applied Sciences, and at universities for fundamental research.
	3. A university can participate in the national BISC-E with more than one team.
	4. Since national Qualifications Frameworks differ across Europe, the teams can include students in the first 1-2 years PhD curricula, provided their current level is comparable/identical to others within the European Qualification Framework Level 7 (EQF 7), and the overarching framework of qualifications of the European Higher Education Area (QF-EHEA).
	5. Because BISC-E’s character is multidisciplinary teams working in an interdisciplinary way, it is highly advisable that the teams include students enrolled in curricula in different disciplines. STEM (science, technology, engineering, and mathematics) disciplines are a must in any student team, but other disciplines (e.g., education, arts, etc.) are not excluded.
	6. Each team must appoint one student as the team leader. The team leader will be the contact person with the NC and with BIC as needed.
	7. Each team must be supported by a supervisor employed at the host institution, or at one of the host institutions if the team includes students from more than one institution. The supervisor should be employed as e.g., lector, Postdoc, assistant professor, associate professor, or professor. Each student team can seek support from any/more staff member(s) at the institution, but these will have no official role in the national BISC-E.
	8. Students and supervisors can only join one team participating in the national BISC-E.
	9. At least 2 team members should participate in meetings called by the NC, and the national final round(s).

# Registration

* 1. The registration for BISC-E can be done by sending your form and presentation to endofwaste@ugent.be
	2. For registration for the Belgian challenge you need:
		+ A team name
		+ Team manager (one of the student team members)
		+ A supervisor (as stated under 4.5)
		+ To fill in the [participation form](https://www.ugent.be/eow/en/innovations/bisceparticipationfile2023.docx/%40%40download/file/bisceparticipationfile2023.docx)
		+ Personal details of the team members
		+ A slide deck to be presented in the finals (see 6.1, 6.7)
	3. The teams are checked to ensure they comply with the regulations as stated in this document. In case the team or a team member is not eligible for this challenge, the team manager will be notified within 2 weeks after closing of the registrations.

# Challenge

* 1. In this programme, student teams are challenged to develop an innovative bio-based product or process to help resolve technological, environmental, or societal challenges. The proposed solution will gain in the evaluation if it has been tested in a lab (or beyond lab) to provide an insight into its potential for integration in the current (or near future) bio-based industry and bioeconomy.
	2. Within the scope of this programme, a bio-based product is a product wholly or partly derived from renewable biological. These sources can be plant-, forestry-, animal-, or marine/aquatic-based, and derived from gaseous biogenic carbon, or bio-waste. The bio-based product could be based on a ‘drop-in chemical’, or a ‘dedicated chemical’ resulting from a bio-based process. It can be an intermediate material, a semi-finished or a final product.
	3. Within the scope of this programme, a bio-based process is a process using only bio-based feedstock, applying biotechnology, chemical, mechanical, physical, or any other appropriate technology, or combination of technologies. Bio-based feedstock is defined in Art. 7.2. The process may yield intermediate or final products, preferably with a higher economic value than fossil-based alternatives.
	4. The innovation may, but does not have to, replace a fossil-based product or fossil-based process.
	5. Aspects related to enhancing biodiversity and circularity, and to climate change mitigation will add value to the proposed solutions.
	6. This programme will not negatively affect the food chain. If food and feed residual (or excess) streams are used as a resource for bio-based products, the envisaged process should help increase effectiveness and competitiveness of the food/feed industry. The development of a new food or feed ingredient from these or other sources is allowed in this programme. However, the development and production of a food and/or feed final product as such, are excluded from this programme.
	7. Individual work, done in the framework of a MSc-thesis, is not eligible for this programme. Further development of a subject/theme as part of such a thesis in a participating team is eligible, provided it is a clear team effort.
	8. The student teams document their business case and proposed solution in a dossier that will be sent to the jury members by the NC. In addition, the teams are to make a presentation to pitch their case and proposed solution to the jury.
	9. The student teams can follow two tracks for their solution:

1. For innovations regarding a bio-based product and application.

2. For innovations regarding a bio-based process or improvements of a bio-based process step. Also, services or other innovations that will strongly advance the bio-based economy but not leading to a tangible (prototype) product are included in this track.

* 1. The teams must submit their final dossiers to the NC two weeks before the 1st round of the national competition. Bio-based Innovation Student Challenge – Europe Regulation 2024 – national level 6 The dossier should contain the following sections (with basic calculations to support any claimed benefits):
1. Short description of the innovation.
2. Introduction and explanation of the innovative aspect (supported by illustrations), including its sustainability aspects (of which positive environmental impacts detailed as per point 4 hereunder).

3. Technical explanation of the innovation, e.g.:

 - Production process of a product or process scheme of a process.

 - Mass balances.

 - The bio-based materials used.

 - (Production)process energy use estimation.

4. Elaboration of the positive environmental impact of the innovation, e.g.:

 - Product life cycle / process resource chain.

 - Input, output, and residual streams.

 - Comparison with conventional product or process (if applicable).

5. Economic viability, e.g.:

 - Business model canvas with explanation.

 - SWOT analysis.

 - Quantitative and qualitative market analysis and a cost benefit analysis.

* 1. Each country is free to decide on the language used during the teams’ presentations, i.e., it may be the national language. However, the student teams are strongly advised to make their presentation’s visuals and their dossier in English to enable their use (or improved versions thereof) in the European final rounds should the team become the national BISC-E winner. Dossiers for the European final rounds and pitching to the juries in these rounds must be in English.
	2. The presentation and the submitted dossier should contain work of the team members only. Included work by others should be properly referenced

# Jury and assessment at national level

* 1. The jury will consist of a number of experts in the field of bio-based economy / process technology / agriculture / environmental impact assessment, from academia or industry.
	2. Jury members cannot be involved in any way with any of the participating teams.
	3. The jury members will not be announced before the submission deadline.
	4. The presentation, including the Q&A session, during the preselection is considered by the jury. The innovations are evaluated by the jury on the following points:
* Innovation:

How creative and novel is the concept? Does it solve an existing problem or does it replace a petroleum-based product?

* Sustainability impact:

First of all, is the innovation truly bio-based. Is it also environmentally friendly, i.e. does it have a better environmental performance / more environmentally friendly production process compared to the product it replaces or does it enhance the sustainability of a process throughout the total life cycle? And how big is the positive impact for the environment if the product or process would be widely applied.

* Technical feasibility:

In case of a product, the technical feasibility of the proposed production process is considered. In case of a process / process innovation the feasibility of the claimed advantages are considered.

* Economic viability:

Is there a market for the proposed product? Is there economic incentive to apply the proposed product or process innovation? Economic viability of the product or process.

* Presentation and prototype product / process animation:

The presentation is judged on content and presentation skills together with the quality of the answers offered to the jury's questions. Also the appearance and professionality of the prototype product / process animation is considered under this point.

* 1. No detailed communication about the jury's decisions is possible.
	2. The jury’s decision is final and cannot be contested.

# Award

* 1. The monetary award is provided 'as is' (any taxation should be paid by the receiving party) and is divided equally over the team members. The first team will receive 1000€ + coaching and free tickets and travel to the EU finals, the second 500€ and the third 250€.
	2. In case the winning team rejects the price or does in any way not comply with these regulations the organization has the right to select another winner.

# European finals

* 1. The aim is to have multiple European countries organizing a national competition similar to the Belgian competition. The winning teams of all national competitions will present their innovations to win the European award. At the moment of start of the Belgian competition it is still unclear how many other countries will organize a national competition.
	2. The team winning the first prize in the Belgian competition can go to the European final.
	3. Reasonable travel expenses, accommodation costs and entrance to the event are reimbursed to a maximum of € 1500 per team and a maximum of € 500 per team member.
	4. In case the winning team rejects the offer to join the European final, the organization has the right to let another team represent the country at the European finals.

# Intellectual property

* 1. Only the jury and the organization has access to the presentation and submitted dossier – in case of the European Final - and personal information for matters related to the competition only.
	2. All IP and know-how in the submitted materials of teams remain the property of the original owners, submission will not result in any transfer of ownership to the organizers, jury and sponsors of the competition. Foreground IP and know-how generated by the students during the competition rests with the students and can be protected or published in close consultation with the supervisor at the host institution.

# General

* 1. All deadlines mentioned with a date only are before 23:59 CET that day.
	2. The NC can exclude a team member, or a full student team when not complying with this Regulation, acting against existing laws, or otherwise acting immorally.
	3. The NC team reserves the right to amend, postpone or cancel the national BISC-E or to change the dates and conditions without incurring liability if circumstances beyond his/her control require to do so.
	4. All participants (student team members and supervisors) grant permission to the NC to use submitted information for promotional purposes. This excludes private and proprietary information. The useable information can include the designed innovative solution targeting a Bio-based Innovation Student Challenge – Europe Regulation 2024 – national level 8 specified challenge. It can also include the awarded prizes and sponsors. Also, pictures and other contributions provided in the context of BISC-E can be used free of charge for promotion via different communication channels.
	5. In all situations not foreseen in this Regulation or in case of a dispute, the NC shall decide how to resolve the issue