

Contents

1	AIM	1
2	ORGANISATION	1
3	INDICATIVE TIMELINE FOR THE NATIONAL CHALLENGES	2
4	PARTICIPANTS	2
5	REGISTRATION.....	2
6	CHALLENGE	2
7	JURY AND ASSESSMENT AT NATIONAL LEVEL.....	3
8	AWARDS.....	4
9	EUROPEAN FINALS	4
10	INTELLECTUAL PROPERTY.....	4
11	GENERAL	4

1 Aim

- 1.1 The Biobased Innovation Student Challenge 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 essential to design viable bio-based solutions. The elaborations of a team will therefore include among others technical, environmental, and economic considerations and calculations. In addition, participation in the BISC-E will offer opportunities to interact with actors in the bio-based industry throughout Europe. This can be done during the preparation of the business cases and during the evaluation both at the national and the European level. This interaction can possibly lead to further relationship between students/graduates and the industry.
- 1.2 The Bio-based Industries Consortium (BIC) has adopted BISC-E and coordinates the national competitions and the European rounds among the national winners. BIC will finance the European rounds, including the prize packages for the top three finalists.

2 Organisation

- 2.1 BISC-E is organised and run on a national level by (educational) federations in the participating countries. The target countries for this programme are the EU Member States (MS) and the Associated Countries (associated to the European framework programmes). All national winners can compete in the European final for European BISC-E awards.
- 2.2 Each participating country has a **national coordinator** who will select/appoint the entity (higher education institution or federation) to run the national Challenge.
- 2.3 The winner of the European final will become the **European coordinator** for the following year to assist BIC in coordinating the national challenges. To that end, the European coordinator communicates with the national coordinators, and stimulates each country to participate. The European coordinator will receive administrative support from a secretariat for overall European tasks such as updating the BISC-E website and Facebook account, share relevant documents, etc. The European coordinator will receive content support from BIC. BIC will also

stimulate its industry and universities members to participate in the national competitions by providing 'real-time' issues for the challenge and by participating in the judging panel.

- 2.4 The European coordinator collects the results of the national Challenges and is the key contact person for BIC.
- 2.5 In 2022, the European coordinator is Waterskins, the winning team of BISC-E 2021, hosted by the Delft University of Technology (www.tudelft.nl),
- 2.6 In 2022, the secretariat services to the European coordinator will be provided by TKI-BBE in Wageningen, The Netherlands.

3 Indicative timeline for the national Challenges

<u>Ultimate dates</u>	<u>for:</u>
31 March 2022	Registration
15 April 2022	Kick-off with all national participants
15 June 2022	submission of the business cases' presentation and supporting documents
25 June 2022	Presentation and national final

National winners proceed to the EU final rounds. These will take place in Autumn 2022 (timing, location, and details to be announced by BIC).

4 Participants

- 4.1 Teams of 3 to maximally 6 students are welcome to join the challenge.
- 4.2 All team members should be enrolled in a programme at an institute for higher education in Europe. PhD candidates are excluded from this Challenge. (There may be some exceptions, depending on the national curricula.)
- 4.3 The solutions proposed by the teams are judged on innovation and sustainability, specifically on technical, environmental, and economic criteria. **As of 2022, aspects related to enhancing biodiversity and circularity, and to climate change mitigation will add value to the proposed solutions.**
- 4.4 With an eye on the multidisciplinary character of the Challenge, it is highly advised to include students enrolled in curricula in different disciplines in each team.
- 4.5 Each team must appoint one student as the team manager. The team manager coordinates the contact between the Challenge organisers and the other team members.
- 4.6 Each team should be supported by one main supervisor employed at one of the host institutions as e.g., lector, PhD candidate, assistant professor, associate professor, or professor. More staff members can be asked for support or advice of course, but these will have no official role in the Challenge.
- 4.7 Students and supervisors can only join one team participating in the challenge.
- 4.8 At least 2 team members should be present at the kick-off meeting and finals.

5 Registration

- 5.1 The registration for BISC-E can be done through the portal at www.bisc-e.eu
- 5.2 For registration for the challenge, you need:
 - A team name
 - A team manager (one of the student team members)
 - A supervisor (as stated under 4.5)
 - A 150-word description of your bio-based innovative idea
 - Personal details of the team members
- 5.3 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.

6 Challenge

- 6.1 In this programme, student teams are asked to develop an innovative bio-based product or bio-based process that could be integrated in the current (or near future) economy and help resolve societal and environmental challenges.
- 6.2 Within the scope of this programme, a **bio-based product is a product wholly or partly derived from renewable biological sources**, including plant, forestry, animal, or marine/aquatic materials, gaseous biogenic carbon, or bio-waste. The bio-based product could be based on a 'drop-in chemical'¹, or a 'dedicated chemical'² resulting from a bio-based process. It can be an intermediate material, a semi-finished or a final product.
- 6.3 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

¹ Chemically identical to an existing fossil-based chemical that has established markets.

² Produced via a dedicated pathway and does not have an identical fossil-based counterpart.

technologies. Bio-based feedstock is defined in 6.2. The process may yield intermediate or final products, preferably with a higher economic value than fossil-based alternatives.

- 6.4 The innovation may, but does not have to, replace a fossil-based product or fossil-based process.
- 6.5 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.
- 6.6 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.
- 6.7 The programme invites student teams to meet the challenges as described above, including a presentation of their findings with supporting information, on either of the two tracks mentioned in 6.8.
- 6.8 Two tracks can be followed:
1. For innovations regarding a bio-based product.
 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.
- 6.9 The teams will provide the business cases' presentation and supporting documents two weeks before the national final. The supporting documents consist of a description of the process or product (½ A4) and its contribution to sustainability, a description of the technical aspects (½ A4) and the outline of the business case (½A4). The claims in the business case and / or production process should be supported with basic calculations (additional). The presentation should contain the following elements:
- 6.9.1 Short description of the innovation.
- 6.9.2 Introduction and explanation of the innovative aspect (supported by illustrations), including its sustainability aspects (of which positive environmental impacts detailed as per 6.9.4).
- 6.9.3 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.
- 6.9.4 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).
- 6.9.5 Economic viability, e.g.:
- Business model canvas with explanation.
 - SWOT analysis.
 - Quantitative and qualitative market analysis and a cost benefit analysis.
- 6.10 For the European Final a complete dossier must be submitted by each national winner. A format is provided on the website. Limited appendices (e.g., references, additional figures, tables) are allowed but are not part of the material for evaluation. The language for all submitted material for the European final is English.
- 6.11 The presentation and the submitted dossier should contain work of the team members only. Included work by others should be properly referenced.
- 6.12 Details for the national Challenges will be provided by the national coordinators.

7 Jury and assessment at national level

- 7.1 The jury will consist of several experts in the fields of bio-based economy / process technology / primary sectors / environmental impact assessment, from academia and/or industry.
- 7.2 Jury members cannot be involved in any way with any of the participating teams.
- 7.3 The jury members will not be announced before the submission deadline.
- 7.4 The jury will evaluate the presented cases using the following criteria (see added-value aspects mentioned in 4.3):
- Innovation
How creative and novel is the concept? Does it solve an existing problem, or does it replace a fossil-based product?
 - Sustainability impact
First, 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 on total life cycle basis? And how big is the estimated 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 is considered.
- Economic viability
Is there a market for the proposed product? Is there an economic incentive to apply the proposed product or process innovation? Is the product or process economically viable?
- 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 professionalism of the prototype product / process animation are considered under this point.

7.5 The jury's decision is final and cannot be contested.

8 Awards

At national level:

- 8.1 The monetary award is provided 'as is' (any taxation should be paid by the receiving party) and is divided equally over the team members.
- 8.2 In case the winning team rejects the prize, the organisation will select another winner.
- 8.3 The national organisation covers the costs of the prizes.

At European level:

- 8.4 BIC offers monetary prizes for the top-three finalists, and an additional extensive package for the 1st prize winner.
- 8.5 BIC covers the costs of the EU final rounds.

9 European finals

- 9.1 The aim is to have multiple European countries organising a national Challenge on the basis as described in these regulations. The winning teams of the national Challenges will compete in the European final for the European awards. BIC has set as a target of **at least 20 national winners participating in the 2022 BISC-E** programme by having a national BISC-E Challenge. Alternatively, as a transition step, the national coordinator can appoint a student team to represent the country in the European final. If this target is met, BIC will proceed with the European final rounds.
- 9.2 The European final will consist of two rounds. In the first round, an expert jury (academia and industry) will evaluate all submitted national winning innovations and select the top 5 – 6 for the final round. In the final round, the selected top 5 – 6 national teams will compete in front of BIC industry members, including a Q&A part. Details of the European final, including the process, full evaluation, and eligible costs for reimbursement, will be provided to the national winners in due time.
- 9.3 If a national winning team rejects the offer to participate in the European final, the national organisation can have another team represent the country at the European finals.

10 Intellectual property

- 10.1 Only the jury and the organisation have access to the presentation and submitted dossier – in case of the European Final - and personal information for matters related to the Challenge only.
- 10.2 All IP and know-how in the submitted materials of the teams remain the property of the original owners. Information submitted in the dossiers will not result in any transfer of ownership to the organisers, jury nor sponsors of the Challenge. Foreground IP and know-how generated by the students during the Challenge rest with the students and can be protected or published in close consultation with the supervisor at the host institution.

11 General

- 11.1 All deadlines mentioned in these regulations are 23:59 CET that day.
- 11.2 The national organisation can exclude a participant or a team when not complying to these regulations, acting against the law, or otherwise acting immorally.
- 11.3 The BISC-E national organisation team reserves the right to amend, postpone or cancel the Challenge or to change the dates and conditions without incurring liability if circumstances beyond its control require to do so. This also applies for the BISC-E European organisation team if this may be the case for the European final.
- 11.4 All participants permit the organisation (national and European), free of charge, to use personal information and team information including information on the designed innovation and awarded prizes for promotional purposes, and, with entering the contest, waiving all constraints imposed by national privacy legislation. Also, pictures and

other contributions provided in the context of the challenge can be used free of charge for promotion via different media channels.

11.5 In all situations not foreseen in this regulation or in case of a dispute, the national organisation shall decide how to resolve the problem. At the European level this will be done by the European organisation team.

BIC, June 2022.