Co-funded by the European Union

Novel Biotechnological Solutions in Climate Change Mitigation

2024-1-EL01-KA220-HED-000251373

PILOT TRAINING REPORT

BIOSHIELD PILOT COURSES

1. General Information

Partner Institution	*University of Maribor*
Department/Faculty	*Faculty of Agriculture and Life Sciences (Module 3, Course 1)* *Faculty of Arts (Module 3, Course 2)*
Country	*Slovenia*
Work Package	*WP4 — Pilot Course*
Date of Report Submission	*September 2026*
Pilot Training Dates	*Module 3, Course 1: April–September 2026* *Module 3, Course 2: 1. 4. 2026 – 9. 6. 2026*
Responsible Person(s)	*Course 1: Silva Grobelnik Mlakar* *Course 2: Danijel Davidović*
Associated Partner(s) Involved	*Module 3, Course 1: Chamber of Agriculture and Forestry of Slovenia (KGZS) – Institute of Agriculture and Forestry Maribor* *Module 3, Course 2: Regional Development Agency for Podravje - Maribor*
Target Number of Participants	*Module 3, Course 1: 8* *Module 3, Course 2: 10*
Actual Number of Participants	*Module 3, Course 1: 7* *Module 3, Course 2: 23*

2. Overview of the Pilot Training

Provide a concise narrative (max. 1-2 pages) describing how the pilot training was organised and delivered at your institution. This narrative should give readers who were not present a clear understanding of what took place. Please address the points below.

2.1 Organisation and Preparation

Describe how the pilot training was planned and organised (e.g., recruitment of students, coordination with associated partners/industry, scheduling, allocation of trainers/facilitators, use of project materials such as the curriculum, video tutorials and the student handbook).

At the University of Maribor (UM), the two courses within Module 3 – "From Micro to Macro: Soil Microbiome for Climate-Smart Farming" were implemented separately, both in terms of timing and institutional setting. Course 1 – Harnessing Microbiome for Sustainable Plant Production" was delivered at the Faculty of Agriculture and Life Sciences (UM FKBV), while Course 2 was implemented at the Faculty of Arts (UM FF).

Course 1:

Organisation and timing were strongly influenced by its practical component. In accordance with the curriculum, the course included experiment carried out under controlled conditions to investigate microbiome-based applications in plant production and their potential under abiotic stress. As such experiments require sufficient time for planning, establishment, treatment application and evaluation, students were invited to participate in November, shortly before the BIOSHIELD LTTA.

Students were recruited from the undergraduate study programmes Agronomy and Organic Farming. Second-year students were invited to participate through a course attended by students from both programmes and closely related to the pilot topic. The invitation was also extended to third-year students who had attended the same course in the previous academic year, as well as to postgraduate students. Eight students initially volunteered and subsequently also participated in the LTTA. They formed two working groups; one student withdrew relatively early due to other commitments.

The pilot was led by one academic instructor, supported by a teaching assistant, particularly in establishing and maintaining the experiment, data collection and statistical evaluation. Students were involved in defining the experimental question and selecting the plant material, drought as the abiotic stress factor, and suitable biostimulant treatments.

The BIOSHIELD Student Handbook, animated educational video and other project materials were made available through the UM Moodle platform, together with lecture presentations, selected scientific articles and additional video/MOOC material. Students received additional guidance in searching scientific literature using UM:NIK – the UM searching tool, including the use of strong keywords, Boolean operators and search refinement.

Course 2:

The pilot training was planned as part of the regular delivery of the undergraduate course Soil Protection. This approach made it possible to connect the BIOSHIELD topics with the existing course content, particularly with themes related to soil degradation, soil properties, environmental pressures, climate change and sustainable soil management.

Students participating in the course were introduced to the aims of the BIOSHIELD project and the main requirements of the pilot activities. They were informed that they would work in groups and develop solutions to selected environmental problems.

The training was coordinated by UM partner, who was responsible for presenting the project and learning content, facilitating workshops, supporting student groups and monitoring their progress. Additional external expert from Regional development agency Maribor – Podravje was involved during the final presentations, because they deal with projects implementation, environmental protection, innovations and rural development.

The pilot was delivered from 1. 4. 2026 to 9. 6. 2026 and included 5 course sessions and workshops. BIOSHIELD project materials were used to support the learning process, including webpage, curriculum materials, student handbook, video tutorials and presentation templates. These materials complemented the existing course content and provided students with examples of biotechnology-based responses to climate change and environmental problems.

2.2 Methodology and Learning Activities

Describe the methodology followed (e.g., flipped/blended learning, Design Thinking process; Empathize, Define, Ideate, Prototype, Test), and the specific learning activities implemented (lectures, workshops, hands-on laboratory work, group work, use of digital tools, interactions with industry representatives and academic experts).

Course 1:

The course combined flipped/blended learning, problem-based learning and Design Thinking, as foreseen in the BIOSHIELD curriculum. The learning process combined independent study, classroom activities, group work and discussion with a practical plant experiment.

Students first developed their theoretical understanding of the plant holobiont, plant–microbiome interactions, beneficial microorganisms and microbiome-based agricultural applications. Classroom sessions included interactive discussions, group activities and the development of visual learning posters. Students also searched scientific and online sources and critically examined commercial microbial products and the claims made by their manufacturers. These activities reflected the curriculum's emphasis on understanding why microbial biostimulants and biofertilisers may not always produce the expected effects under different environmental and management conditions.

The Design Thinking process was integrated into the practical work. During the *Empathize* stage, one student group interviewed a farmer to better understand practical expectations and constraints related to the use of microbial products. The groups then identified relevant problems, explored possible solutions and contributed to the design of a pot experiment investigating whether selected biostimulants could support plants exposed to drought stress. In addition to commercial products, a home-produced compost extract, previously used with positive results by one of the students, was included as an accessible, low-cost alternative.

The experiment required students to consider practical and biological constraints when selecting test plants. Species with a short growth cycle were needed, while Brassicaceae were excluded because mycorrhizal fungi formed part of the experimental treatments. The final experiment was conducted with lettuce and spinach. Students participated in establishing and maintaining the experiment, applying treatments and evaluating plant responses. Measurements included conventional plant parameters as well as measurements using FluorPen and PolyPen instruments. Students also participated in statistical data analysis, supported by the teaching assistant and additional instructional material, and subsequently interpreted the results.

Both groups presented the experimental concept and initial implementation at the BIOSHIELD Conference and Biotechnology Fair, where they interacted with representatives of companies supplying biostimulant products on the Slovenian market. The discussion provided useful external feedback. Industry representatives considered the experimental approach relevant but pointed out that field trials would provide more realistic growing conditions and referred to their own positive field experience. This enabled students to critically discuss the advantages and limitations of controlled pot experiments and the challenges of transferring experimental findings into agricultural practice.

The pilot concluded with group presentations in which students presented and discussed their experimental results and reflected on the overall learning process. Their work was evaluated by a four-member expert panel consisting of the course instructor, two agricultural PhD students who also serve as teaching assistants, and an external evaluator from the associated partner – the Institute of Agriculture and Forestry Maribor – who heads the Institute's project office and also teaches at university.

Course 2:

The pilot combined blended and flipped learning with the Design Thinking approach. Theoretical content was introduced through short lectures, course materials and independent research, while contact sessions focused on discussion, group work, GIS tutorials and the development of practical project ideas.

The learning process broadly followed the five Design Thinking stages: Empathize, Define, Ideate, Prototype and Test. Students first explored environmental and soil-related challenges and considered their effects on ecosystems and different stakeholder groups. Each group then selected a specific problem, defined its scope and formulated a research question.

During the ideation stage, students reviewed relevant literature and data, discussed possible solutions and considered how biotechnology and GIS could contribute to addressing the selected problem. The groups subsequently developed conceptual prototypes:

- GIS and IoT Support for Microalgae Wastewater Bioremediation,
- LiDAR and Digital Twin for Plant-Based Urban Stormwater Management,
- Real-Time GIS Platform for Microbial Community Composting,
- GeoAI and GeoVR Platform for Climate-Resilient Small Farming,
- 3D GIS and Geotagged Data for Bio-Based Urban Pollinator Support.

The proposed solutions were presented and discussed with other students, piloting coordinator and external expert. Feedback was provided to evaluate their feasibility, usefulness and environmental relevance.

2.3 Participant Profile

Describe the profile of participating students (year of study, field/programme, prior knowledge or experience, group composition/working groups formed).

Course 1:

Course initially involved eight volunteer students from study programmes Agronomy and Organic farming, one student later withdrew due to other commitments. The participants were mainly students who had already completed or were attending relevant courses in plant production and related agricultural sciences and therefore had basic prior knowledge appropriate to the topic.

The same students participated in the BIOSHIELD LTTA, providing continuity between the international learning activity and the subsequent local pilot implementation. They worked in two groups, combining independent information searching and group assignments with joint classroom and experimental activities.

Although the students had relevant agricultural background knowledge, several elements of the pilot provided new experience, particularly systematic scientific literature searching, critical assessment of commercial microbiome-based products, experimental planning, work with specialised plant-measurement instruments, statistical evaluation and interpretation of experimental data. The pilot also contributed to the development of soft skills, particularly teamwork, communication, critical thinking, problem-solving, adaptability, decision-making, and the presentation and defence of their ideas and results.

Course 2:

The pilot involved 23 undergraduate students enrolled in the Geography study programme and attending the course Soil Protection. The students had prior basic knowledge of geography, environmental processes, soil-related issues and spatial analysis, while their previous experience with biotechnology was generally limited.

During the pilot, students worked in groups to connect their geographical knowledge with biotechnology-based approaches to climate change mitigation and sustainable soil management. Group work supported peer learning, task sharing and the joint development of research questions, proposed solutions and project outputs. In total, 23 students were organised into 5 working groups of approximately 3-6 members. Each group worked on a problem related to soil protection, environmental change, biotechnology and the application of GIS.

2.4 Additional Organisational Information

Include any other relevant organisational information (e.g., facilities/laboratories used, role of associated partners, deviations from the planned methodology and the reasons for them, support provided to students).

Course 1:

A major organisational characteristic was that the plant experiment determined the overall pace of the pilot. The first experiment was established in January using a short-cycle wheat genotype and was conducted in pots in a laboratory used for acclimatisation of plants originating from tissue culture. However, problems with lighting and an aphid infestation that could not be successfully controlled compromised the plants, and the experiment had to be discontinued.

A new experiment therefore had to be planned. Its establishment was additionally affected by the availability of greenhouse space. The faculty greenhouse also supports commercial production of seedlings and ornamental plants and is heavily occupied in early spring. Consequently, the replacement experiment could only be established later in the spring (April) and was evaluated in July, after the end of the regular semester. Classroom and blended-learning activities were completed within the semester.

These deviations from the planned timeline became an additional learning experience, demonstrating to students that experiments with living plants are influenced by biological, environmental and infrastructural constraints and that experimental designs often need to be adapted accordingly. Continuous support was therefore provided by the instructor and teaching assistant throughout the extended experimental period.

At the end of the pilot, students also contributed to dissemination, preparing a post for the Faculty's social media channel describing their BIOSHIELD experience and directing readers to project outputs and interactive educational resources.

Course 2:

The pilot was delivered using the regular teaching facilities available at the faculty. As the participants were Geography students, the activities were adapted to emphasise environmental problem analysis, spatial thinking and conceptual GIS-based solutions rather than laboratory prototyping.

Students received continuous support in defining their problems, formulating research questions, identifying suitable data and developing feasible solutions. This adaptation enabled the BIOSHIELD methodology to be applied in line with the students' disciplinary background and the learning objectives of the course.

3. Pilot Training Indicators

The table below shows the quantitative results of the pilot training implemented at your institution. These indicators correspond to the quantitative (QN) indicators for WP4-O4 defined in the project application.

Indicator	Reported Value (Including data from two separate pilot activities)
Number of students participating in the pilot training	30 (7 + 23)
Number of students completing the satisfaction survey	17 (7 + 10)
Number of working groups formed	7 (2 + 5)
Number of research ideas and/or prototypes developed by the groups	7 (2 + 5)
Number of students successfully completing the pilot training	30 (7 + 23)
Number of students receiving certificates	30 (7 + 23)
Overall attendance rate	100 %
Completion rate	100 %
Number of academicians confirming effectiveness of course delivery methodology	6 (4 + 2)
Number of industry representatives confirming effectiveness of course delivery methodology	2 (1 + 1)
Number of student video testimonials collected	7 (2 + 5)

4. Satisfaction Survey Results

The table below reports the aggregated results of the post-training satisfaction survey administered to pilot participants, using a five-point Likert scale (1 = Strongly Disagree, 2= Disagree, 3= Neither Agree Nor Disagree, 4= Agree, 5 = Strongly Agree).

Of the 30 students who participated in the pilot implementation at the University of Maribor, 17 completed the satisfaction survey, corresponding to a response rate of 56.7%. The respondents included 10 students from the Faculty of Arts and all 7 students from the Faculty of Agriculture and Life Sciences.

No	Survey Statement – All combined (5-point Likert Scale: 1 = Strongly Disagree, 5 = Strongly Agree)	1	2	3	4	5	4+5
1	I am highly satisfied with the overall quality and delivery of the BIOSHIELD training program.	0.0%	0.0%	0.0%	29.4%	70.6%	**100.0%**
2	The program effectively improved my transversal skills, such as teamwork, communication, and creative problem-solving.	0.0%	0.0%	5.9%	29.4%	64.7%	**94.1%**
3	I feel that my research skills in biotechnology (particularly related to climate change mitigation) have significantly improved.	0.0%	0.0%	0.0%	47.1%	52.9%	**100.0%**
4	I feel better prepared to enter the labour market as a result of this training.	0.0%	0.0%	5.9%	58.8%	35.3%	**94.1%**
5	The animated video tutorials effectively helped me understand the key concepts and prepare for hands-on activities.	0.0%	0.0%	0.0%	52.9%	47.1%	**100.0%**
6	The Design Thinking process enhanced my ability to generate innovative solutions to industrial challenges.	0.0%	0.0%	5.9%	58.8%	35.3%	**94.1%**
7	The “Biotech Student’s Guide to Future Projections” handbook provided valuable guidance on biotechnology applications and entrepreneurship.	0.0%	0.0%	5.9%	35.3%	58.8%	**94.1%**
8	The use of digital tools and interactive technologies enhanced my learning experience.	0.0%	0.0%	5.9%	41.2%	52.9%	**94.1%**
9	Hands-on laboratory activities were essential for testing and refining our biotechnology research ideas.	0.0%	0.0%	5.9%	41.2%	52.9%	**94.1%**
10	My team successfully developed a functional prototype or research project concept during the pilot training.	0.0%	0.0%	0.0%	29.4%	70.6%	**100.0%**
11	Interactions with industry representatives and academic experts helped me better understand real-world industrial challenges.	0.0%	0.0%	0.0%	47.1%	52.9%	**100.0%**
12	I intend to pursue a career in the biotechnology industry.	0.0%	11.8%	35.3%	23.5%	29.4%	**52.9%**
13	I have a strong intention to establish or join a biotechnology startup in the future.	11.8%	35.3%	17.6%	5.9%	29.4%	**35.3%**

5. Analysis of Survey Results

This section interprets the survey findings reported in Section 4 and discuss the pilot training's contribution to the project's objectives. Please address the following points.

5.1 Overall Participant Satisfaction

Overall satisfaction with the BIOSHIELD pilot training was very high. All respondents (100%) agreed or strongly agreed that they were highly satisfied with the overall quality and delivery of the programme (Q1), with 70.6% selecting “Strongly Agree” and 29.4% “Agree”.

A similarly positive pattern was observed across most aspects of the pilot. For survey items 1–11, the combined proportion of “Agree” and “Strongly Agree” responses ranged from 94.1% to 100%, while no respondent selected “Disagree” or “Strongly Disagree”. These results indicate a consistently positive perception of the training methodology, educational resources, practical activities and interaction with academic and external experts.

5.2 Strengths and Weakneses

The survey highlights several clear strengths of the pilot training. Particularly strong results were obtained for the overall quality of the programme (Q1), improvement of biotechnology-related research skills (Q3), usefulness of the animated video tutorials (Q5), successful development of a prototype or research project concept (Q10), and interactions with industry representatives and academic experts (Q11). For all five items, 100% of respondents agreed or strongly agreed.

The remaining aspects of the learning experience were also evaluated very positively. 94.1% of respondents agreed or strongly agreed that the programme improved their transversal skills (Q2), better prepared them for the labour market (Q4), that Design Thinking supported the generation of innovative solutions (Q6), that the Student Handbook provided valuable guidance (Q7), that digital and interactive tools enhanced learning (Q8), and that hands-on activities were important for testing and refining research ideas (Q9).

No clear weakness in the delivery or educational materials was identified through survey items 1–11. However, the small proportion of neutral responses (5.9%) for several items indicates that not all elements were perceived as equally relevant or beneficial by every student. The more diverse responses to career-related questions (Q12 and Q13) should be interpreted separately, as these statements concern individual career aspirations rather than satisfaction with the pilot itself.

5.3 Learning Outcomes

This section discusses evidence of improved research/transversal skills, employability perceptions, and career/entrepreneurship intentions in line with the survey items 2, 3, 4, 12, 13.

The results provide positive evidence of students’ perceived development of both research and transversal skills. A total of 94.1% agreed or strongly agreed that the programme improved skills such as teamwork, communication and creative problem-solving (Q2), while 100% reported an improvement in biotechnology-related research skills, particularly in relation to climate change mitigation (Q3).

The pilot also appears to have contributed positively to students’ perception of their employability: 94.1% agreed or strongly agreed that the training made them feel better prepared to enter the labour market (Q4).

Career and entrepreneurship intentions were considerably more heterogeneous. 52.9% agreed or strongly agreed that they intended to pursue a career in the biotechnology industry (Q12), while 35.3% were neutral and 11.8% disagreed.

For establishing or joining a biotechnology startup (Q13), 35.3% agreed or strongly agreed, while responses were distributed across the full scale.

These results suggest that the pilot successfully strengthened competencies perceived as relevant to future employment, but did not necessarily translate into a specific intention to pursue a biotechnology career or

entrepreneurship. This distinction is important in the UM context, as participants came from different study programmes and were not exclusively biotechnology students.

5.4 Achievement of Project Objectives

Relate the results to the WP4-O4 objectives and expected results defined in the project application (e.g., effectiveness of course delivery methodology, prototypes/research ideas developed, certification, evidence for the biotechnology curriculum and video tutorials/handbook effectiveness).

The results indicate that the UM pilot implementation achieved the main objectives and expected results defined for WP4-O4 – Piloting process of Project Results. A total of 30 students participated in the pilot training, covering the two courses of Module 3 implemented at UM FKBV and UM FF. The piloting process included theoretical and blended learning, practical/project-based activities and the development of student research ideas (7), as foreseen in the project application. Student participation was documented, the required evaluation was carried out, student video testimonials were collected, and certificates were issued to participating students.

The effectiveness of the proposed course delivery methodology was strongly supported by the survey results. The blended/flipped learning and Design Thinking-based approach was positively evaluated, with 94.1% of respondents agreeing or strongly agreeing that Design Thinking enhanced their ability to generate innovative solutions (Q6) and that digital tools and interactive technologies enhanced their learning experience (Q8). The involvement of external experts, associated partners and industry representatives also contributed to linking the learning process with real-world challenges; 100% of respondents positively evaluated these interactions (Q11).

The practical and problem-oriented dimension of the curriculum was similarly supported. 94.1% considered hands-on activities essential for testing and refining biotechnology research ideas (Q9), while 100% reported that their team had successfully developed a functional prototype or research project concept during the pilot (Q10). Student groups presented and discussed their work with academic and external experts, providing additional opportunities for feedback, critical reflection and refinement of their ideas.

The pilot also provided direct evidence regarding the usefulness of the educational outputs developed within BIOSHIELD. All respondents agreed or strongly agreed that the animated video tutorials helped them understand key concepts and prepare for practical activities (Q5), while 94.1% positively evaluated the guidance provided by the Student Handbook (Q7). Together with the very high overall satisfaction with the quality and delivery of the training (100% positive responses; Q1), these findings support the relevance and effectiveness of the BIOSHIELD curriculum and its accompanying educational materials.

Overall, the UM pilot provided the quantitative and qualitative evidence envisaged for WP4-O4, including student participation and certification, student evaluation and testimonials, development of research ideas/projects, involvement of academic and external stakeholders, and evaluation of the course delivery methodology and project-developed educational resources. The results therefore provide a sound basis for the further use and refinement of the BIOSHIELD curriculum, video tutorials and Student Handbook.

5.5 Recommendations for Improvement

Although the survey results were highly positive, the pilot implementation provided several useful lessons for future delivery of the course.

For courses involving experiments with living plants and microorganisms, sufficient flexibility should be incorporated into the timetable. The UM FKBV experience demonstrated that plant development, pest occurrence, environmental conditions and the availability of experimental facilities can affect the planned schedule. Practical experiments should therefore be initiated sufficiently early and contingency time should be included. Where possible, controlled pot experiments could also be complemented by field-based activities or trials, as field conditions better reflect the complexity and variability of agricultural production.

This issue was also discussed during the students' final presentations. Students critically reflected on the limitations of pot experiments and controlled conditions, justified their choice of test plants and experimental design, and demonstrated awareness of the particular challenges associated with microbial biostimulants. As living microorganisms are strongly influenced by environmental conditions, their effects can be less predictable and may differ between locations and production systems. Future training should therefore place even greater emphasis on understanding these context-dependent responses and on communicating them to farmers and other users.

The practical component should be maintained and, where feasible, further strengthened. The combination of experimental work with scientific literature searching, critical evaluation of commercial products and manufacturers' claims, data analysis and interpretation proved particularly valuable. Additional structured support for statistical analysis and interpretation of experimental results could further strengthen students' research skills.

The final discussion also highlighted opportunities to broaden the content related to sustainable soil and crop management. Students emphasised the importance of soil organic matter, good soil tilth and biologically active soils as a foundation for healthy crop production. Compost-based approaches, including compost extracts and compost tea, were identified as relevant low-cost options deserving further investigation alongside commercial microbial products. Students also recognised the potential value of developing biostimulants based on locally adapted beneficial microbial strains and the need for further biotechnology research in Slovenia. The discussion was complemented by an example of a Slovenian-developed biostimulant progressing towards registration, whose efficacy had been tested at the Faculty.

Finally, interaction with farmers, external experts and industry representatives should remain an integral part of future implementation. Their involvement at different stages of the learning process could provide students with early feedback on the feasibility of their ideas and strengthen the connection between experimental research and agricultural practice.

6. Annexes

Please list and attach any supporting documentation referenced in this report.

Annex	Description	Uploaded (Y/N)
Annex 1	List of participating students	Y
Annex 2	Certificates issued (sample)	Y
Annex 3	Raw satisfaction survey data (Google Forms/Excel Sheet)	Y
Annex 4	Photographic documentation / activity evidence	Y
Annex 5	Student video testimonials (.mp4 or video file reference)	Y
Annex 6	Description(s) of research ideas / prototypes developed (Student Presentations)	Y
Annex 7	Other supporting documents (if applicable)	

Annex 1 – List of participating students

FKBV



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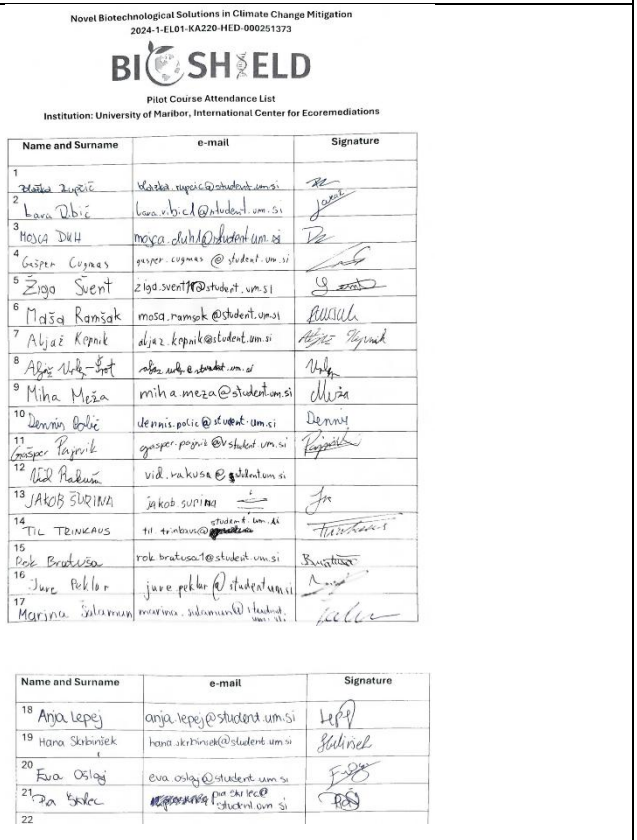
Novel Biotechnological Solutions in Climate Change Mitigation
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BIOSHIELD

Pilot Course Attendance List
Institution: University of Maribor, Faculty of Agriculture and Life Sciences

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7 Vid ŠVAB	vid.svab@student.um.si	Švab Vid

FF



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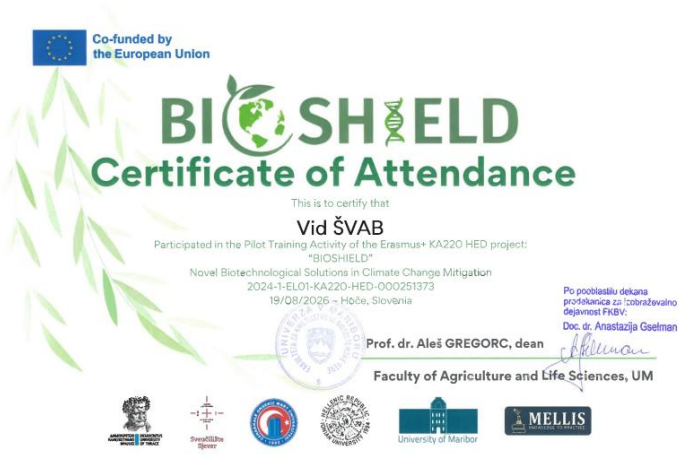
BIOSHIELD

Pilot Course Attendance List
Institution: University of Maribor, International Center for Ecoremediations

Name and Surname	e-mail	Signature
1		
2 Lara Dbić	lara.vbic1@student.um.si	
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16 Jure Peklar	jure.peklar@student.um.si	
17 Marina Šalamun	marina.salamun@student.um.si	

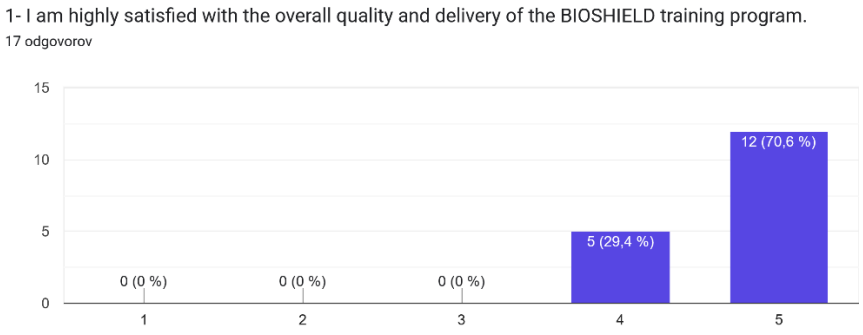
Name and Surname	e-mail	Signature
18 Anja Lepej	anja.lepej@student.um.si	
19 Hana Skrbiniček	hana.skrbinicek@student.um.si	
20 Eva Oslaj	eva.oslaj@student.um.si	
21		
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Annex 2 – Certificates issued (sample)



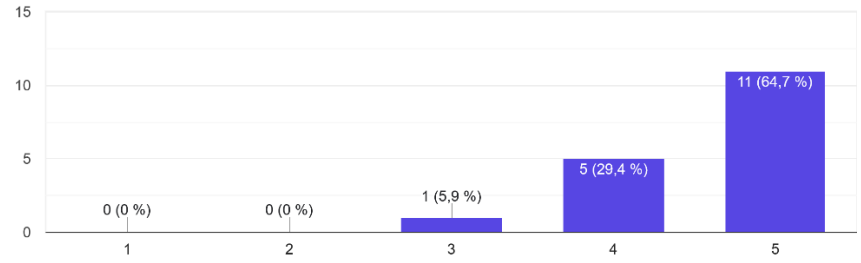


Annex 3



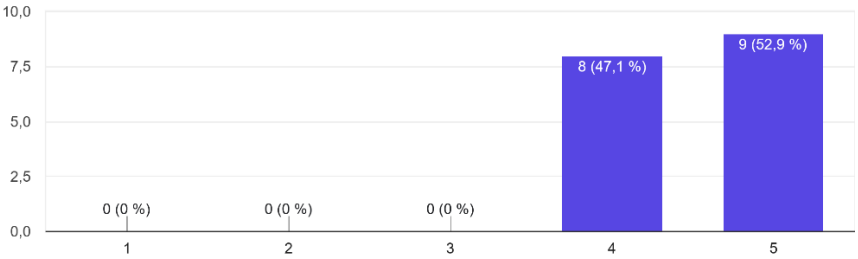
2- The program effectively improved my transversal skills, such as teamwork, communication, and creative problem-solving.

17 odgovorov



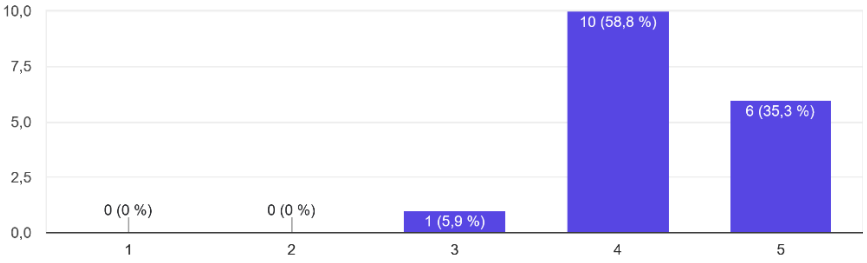
3- I feel that my insights into my research skills in the field of biotechnology (specifically for climate change mitigation) have significantly increased.

17 odgovorov



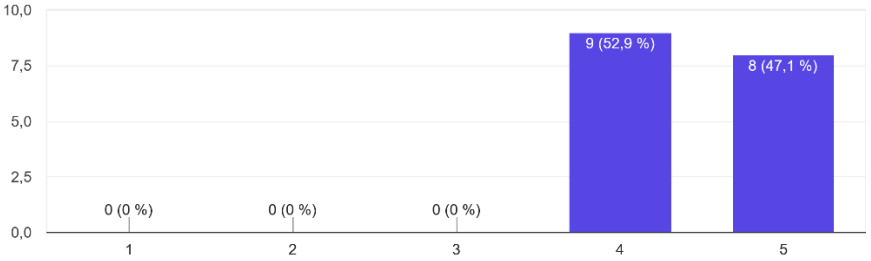
4- I feel better prepared to enter the labour market as a result of this training.

17 odgovorov



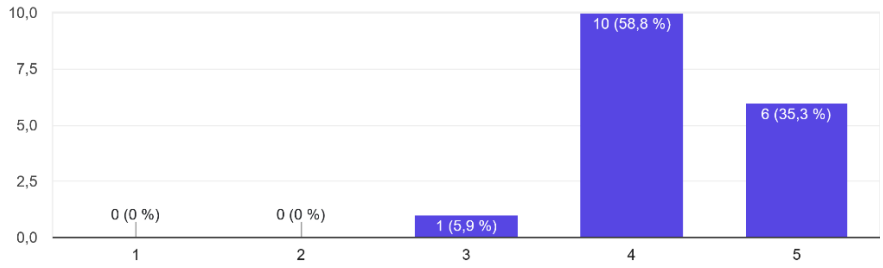
5- The animated video tutorials provided were effective in understanding the focal points and in preparing me for hands-on activities.

17 odgovorov



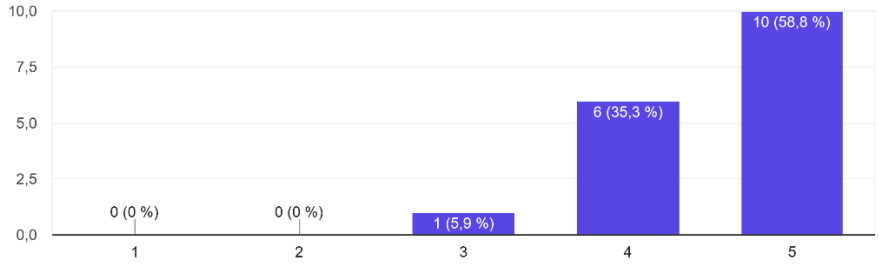
6- The Design Thinking process (Empathize, Define, Ideate, Prototype, Test) enhanced my ability to generate innovative solutions for industrial problems.

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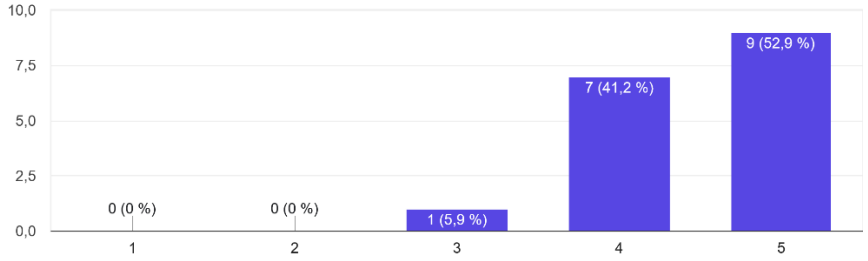
7- The "Biotech Student's Guide to Future Projections" handbook provided valuable guidance on biotechnological applications and entrepreneurship.

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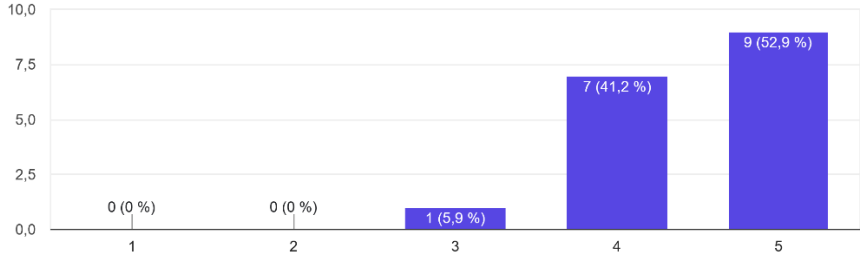
8- The use of digital tools and technologies facilitating interaction and engaging learning during the course enriched my active learning experience.

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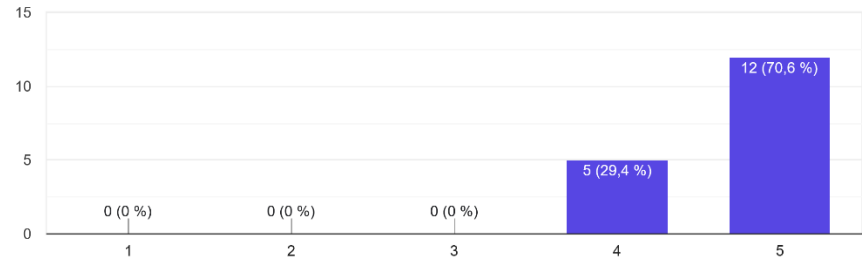
9- The hands-on laboratory work is essential for testing and refining our biotechnological research ideas.

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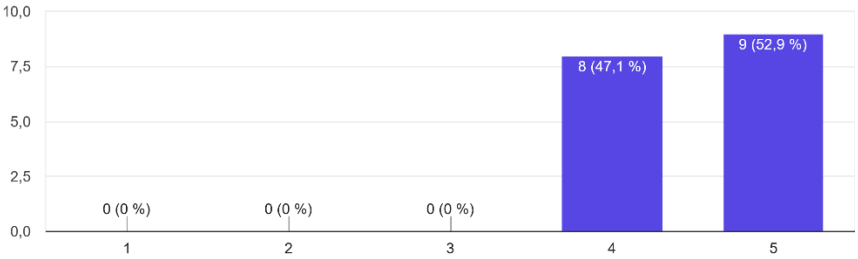
10- My team and I successfully developed a functional prototype or a research project idea with an outline during the piloting process.

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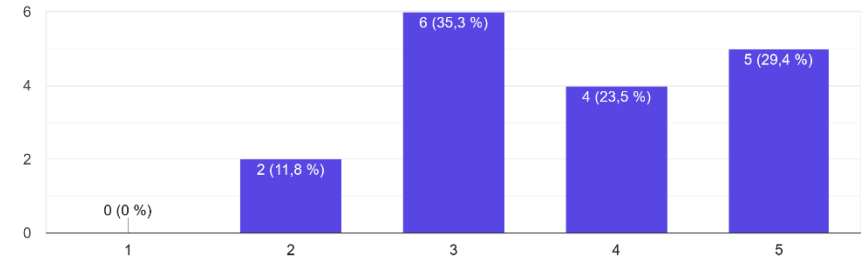
11- Interacting with industry representatives and academic experts provided me with a clear understanding of real-world industrial challenges.

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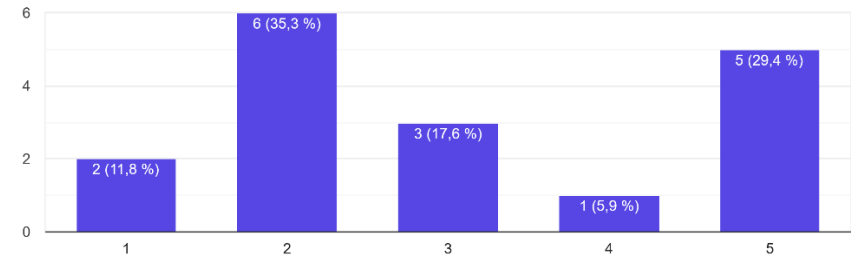
12- I intend to pursue a career in the biotechnology industry rather than other employment sectors.

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13- I have a strong intention to launch a startup or be a part of it as a partner in the biotechnology field in the future.

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Annex 4 – Photographic documentation / activity evidence

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Classroom activities	
	
	
Experimental work	
 	









Final presentation

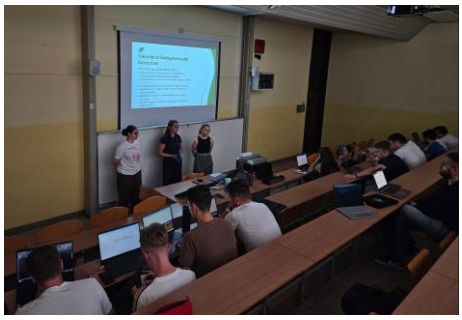








Multiplier event	
	
Learning and entertainment in Koprivnica	
	
	
FF	
	

Annex 5 – Student video testimonials (.mp4 or video file reference)

Uploaded to Google Drive: https://drive.google.com/drive/folders/1DoKBMXYjrLYKdCMA3aX--47w8CaVo4Pr?usp=drive_link

Annex 6 – Description(s) of research ideas / prototypes developed (Student Presentations)

FKBV	
	
FF	
• **GIS and IoT Support for Microalgae Wastewater Bioremediation** • **LiDAR and Digital Twin for Plant-Based Urban Stormwater Management** • **Real-Time GIS Platform for Microbial Community Composting** • **GeoAI and GeoVR Platform for Climate-Resilient Small Farming** • **3D GIS and Geotagged Data for Bio-Based Urban Pollinator Support**	

Annex 7 – Other supporting documents (if applicable)

FKBV: Moodle

