R3.1 Framework for online and collaborative learning

WORKPACKAGE 3

Artificial Intelligence, Innovation & Society, the future of medicine – AIIS

Author(s):	Rania Aro/James Hayward
Editor(s):	Rania Aro/James Hayward
Responsible Organization:	Xebia (formerly GDD) UMONS
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Result n° and title	R3.1 Framework for online and collaborative learning
Full Title of the document	R3.1 Framework for online and collaborative learning
Title of the electronic file	R3.1 Framework for online and collaborative learning
Short Description	This report presents a comprehensive framework designed to guide the partners in the successful implementation of the AIIS learning programme. The framework provides valuable information and guidelines on various aspects crucial to the programme's effectiveness and outcomes. The report provides essential information on student profiles, recruitment strategies, online follow-up, innovative teaching methods, team formation, and collaborative work monitoring. It sets the stage for a transformative learning experience, enabling students to develop essential skills in artificial intelligence while fostering cross-sector collaboration and transnational perspectives.
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Contributor(s):	UMONS, Xebia (formerly GDD), reviewed by all partners
Next expected steps	Validation by the consortium

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CONSORTIUM:

	ROLE	NAME	Short Name	Country
1.	Coordinator	University of Salamanca	USAL	Spain
2.	Partner	Markeut Skills, S.L.	MEUS	Spain
3.	Partner	Centro de Investigación Biomédica en red	CIBER	Spain
4.	Partner	University of Mons	UMONS	Belgium
5.	Partner	Xebia (formerly known as GoDataDriven/GDD)	Xebia	Netherlands
6.	Partner	University of Thessaly	UTH	Greece
7.	Partner	SciFy	Scify	Greece
8.	Partner	Turku University of Applied Sciences	TUAS	Finland
9.	Partner	University of Turku	UTU	Finland

REVISION HISTORY:

VERSION	DATE	Revised by	Reason
0.1	2022-03-08	Xebia (formerly GDD), UMONS	First version
0.2	2022-09-28	UMONS	Update version
0.3	2022.10.09	UMONS	Modified version
0.4	2023.05.15	UMONS	Modified version
1.0	2023.07.31	UMONS	Modification based on partners' feedback

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Introduction

The main objective of Work Package 3 (WP3) is to guide the project partners in implementing the pilot phase of the AIIS learning program in their respective universities, using a collaborative approach. Active learning, which emphasizes practical application and hands-on engagement, has been widely recognized in the field of education and cognitive science as an effective way to improve retention and understanding. In line with this understanding, the project partners aim to develop a collaborative learning program that encourages students to actively apply their knowledge, motivating them to acquire AI skills and effectively utilize communication and soft skills in real-world scenarios.

WP3 is divided into two core components, each serving a specific purpose. The first component focuses on developing a collaborative framework that incorporates innovative teaching methodologies to enhance the AIIS training experience. This involves forming partnerships between public universities and private enterprises to create challenges that closely resemble real-world medical situations. By immersing students in these simulated scenarios, the aim is to provide them with practical learning opportunities that foster critical thinking, problem-solving, and collaboration skills.

The second component involves testing the AIIS educational program using two approaches: an online learning program for individual students to develop their AI and soft skills, and a collaborative learning program for multidisciplinary student groups from different countries. The outcomes of the pilot program and the testing of the learning materials will be reported in WP3. These findings will contribute significant insights and data to the final guidelines of the project.

WP3 is a comprehensive package that involves the collaboration of two distinct partners: one from the higher education institutions (UMONS) and the other from the corporate sector (Xebia). UMONS and Xebia (formerly known as GoDataDriven/GDD) will collaborate with the other partners to establish methodological guidelines for online and collaborative frameworks, ensuring the effective implementation of the program. UMONS, in close collaboration with all partners, will be responsible for creating the guidelines, while Xebia will be in charge of designing the challenges. Everything will be validated by the consortium.

In summary, WP3 lays the groundwork for a dynamic and collaborative learning experience by creating a framework that integrates innovative teaching techniques, collaborative partnerships, and simulated challenges. It aims to empower students with practical skills, interdisciplinary collaboration, and the ability to think critically in order to address real-world medical scenarios effectively.

The purpose of the present working document is to facilitate coordination and ensure the coherence of the course delivered in this specific work package. It serves as a guide for the project partners, providing them with essential information and guidelines for the pilot implementation of the learning program.

This framework plays a crucial role in ensuring a consistent and harmonized approach among the partners involved. It outlines the necessary steps and considerations to

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achieve a homogeneous implementation of the program. Key aspects covered in this framework include:

1. Students' Desired Profile: This document provides information about the desired profile of the students who will participate in the program. It outlines the specific characteristics, skills, and qualifications that are sought in potential students.
2. Recruitment of Students: The framework provides guidance on the process of recruiting students for the program. It includes considerations related to student motivation, year of study, and the total number of students required for the pilot phase.
3. Online Follow-up: This section addresses the importance of maintaining online communication and follow-up with the participating students. It highlights the methods and tools that can be utilized to ensure effective online engagement and support throughout the program.
4. Proposal for Innovative and Collaborative Teaching Methods: The framework includes a proposal for innovative and collaborative teaching methods to enhance the learning experience. It explores different approaches and techniques that can be employed to promote active learning and engagement among the students.
5. Creation of Cross-Sector and Transnational Student Teams: This section emphasizes the significance of forming cross-sector and transnational student teams. It outlines the benefits of diverse teams and provides guidelines on how to create and manage such teams to foster collaboration and multidisciplinary learning.
6. Monitoring of Students' Collaborative Work: The framework emphasizes the importance of monitoring and assessing the collaborative work of the students. It suggests methods and tools for tracking progress, evaluating outcomes, and providing feedback to ensure the effectiveness of the collaborative learning process.

The guide will also establish the roles of higher education institutions (HEIs) and companies in the follow-up of challenges and offer recommendations on duration, meetings, format of works, and evaluation of students.

By providing this comprehensive framework, the documents enable the project partners to align their efforts and implement the learning program in a consistent and coordinated manner. It serves as a reference and guide throughout the implementation process, ensuring that all partners are on the same page and working towards the common goals of the project.

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1. Student desired profile

The online learning program will be an Open Educational Resource (OER) and will be open to all medical students from the four participating universities in the project. While there will be no restrictions on the number of participants, a minimum of 100 registered students and 50 successful course completions are expected.

UMONS conducted a survey in May 2022 with the partners to determine the profile of the students, knowing that the group of students to answer the challenge will be for the different universities for the pilot project will be in English, although all the learning material will be in the five languages and will be delivered to the students at the end of the piloting.

Six of our partners answer the survey and below are the summaries:

1- 67% of partners (Figure 1) recommended that third-year medical students be the target group for the pilot program.

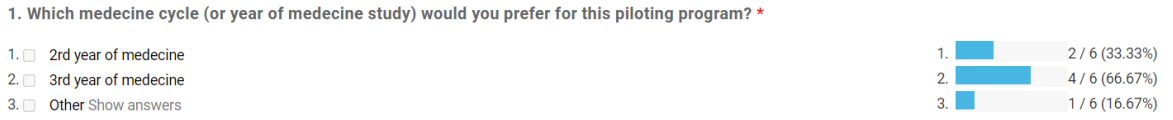

Figure 1: Survey Responses from Partners on the question of the prefer Year of Medical Study for the piloting program

2- All partners agreed that there was no need for a prerequisite study level or successful previous credits in statistics (Figure 2).

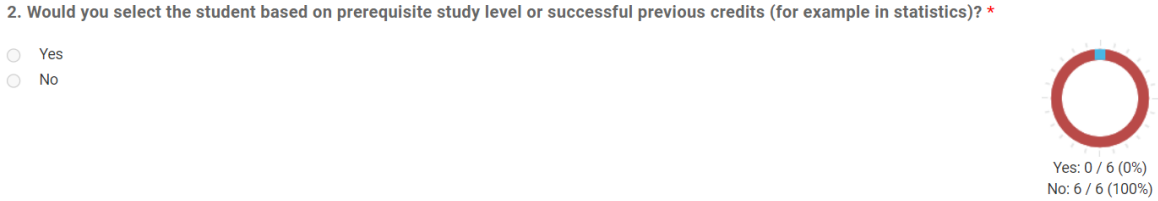

Figure 2: Survey Responses from 6 Partners on the prerequisite study level of participating students.

3- The majority (88%) (Figure 3) believed that an independent user (B1/B2) English level is preferable.

Figure 3: : Survey Responses from 6 Partners on the English Proficiency Level of Participating Students.

The project partners have collectively determined the following eligibility criteria based on the results of a survey and extensive deliberations during consortium meetings:

1. Enrollment is preferred for 3rd-year medical students, but it is not limited to that.

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2. Engineering students from TUAS will participate in the challenges, the online courses will be optional for them as they already have higher skills in the AI field. These students are pursuing a Bachelor of Engineering in Information and Communications Technology and are typically in their second or third year of Health Technologies studies.
3. No prerequisite study level or successful previous credits are required.
4. Students with an English level of independent user (B1/B2) are preferred, but no test is required to verify this.

2. Recruitment of Students

To ensure the successful achievement of our initial goal of registering 100 students, with 10 of them being engineering students, the consortium has decided to raise the target to a total of 140 students. This revised goal includes 10 engineering students from TUAS and 130 medical students. The distribution of these medical students among the universities will be based on the number of medical students in their 2nd and 3rd years, while the engineering students will be from TUAS university. The distribution is outlined below for reference:

University	N° of medical students in 2nd & 3rd yrs.	N° of student for AIIS pilot program
UTU	146	22
UMONS	283	44
UTH	45	7
USAL	376	57
TUAS		10
Total	850	140 (130 medical students + 10 engineer students)

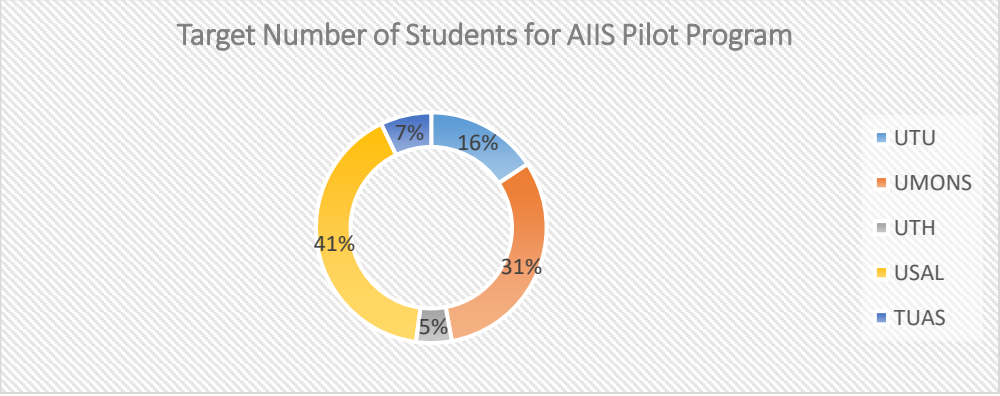

Figure 4: Distribution of medical students among universities as suggested by partners

The number of students mentioned (Figure 4) is an estimated goal derived from the distribution of students across different universities. However, it is important to note that

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this number is not a strict limitation. The intention is to ensure a proportional representation of students from each university based on the number of students currently enrolled in their respective programs. Therefore, while the goal is to have a specific number of students, it is not an absolute constraint, and additional students may still be accommodated as needed.

The registration will be open from 19th September 2022 until 14th October 2022 through a google form, and it may extend to October 24th 2022 depending on the number of students.

SciFY will develop a Google registration form (7.1) that will include fields for student email, name, surname, university, year of study, and a checkbox for accepting the privacy policy. This form will be designed to collect the necessary information from students in a secure and organized manner. By implementing this registration form, the consortium aims to streamline the process of gathering student data while ensuring compliance with privacy regulations.

UMONS, in coordination with SciFY, will develop the launching materials for student enrolment. A series of dissemination materials, including graphics, calls to action, introduction emails (for professors by AIIS), informal emails (for students by professors), welcome letters to the program (for students by AIIS), instructions for installing the platform (for students on the AIIS website), and social media posts (for students by HEIs in the consortium), deadline September 1st.

Also, each University will use their own resources and activities to disseminate as for example presentations of the project to the students.

3. Online Follow-up

In today's digital era, online follow-up has become increasingly important for ensuring student engagement and success. Online follow-up allows educators/tutors to provide personalized support to individual students, understand their unique needs, and track their progress. By establishing a sense of accountability, educators/tutors can encourage students to stay on track with their learning goals and develop essential skills like self-discipline and time management. Additionally, online follow-up provides a platform for students to express their challenges and concerns, enabling educators/tutors to offer timely assistance and resources.

Furthermore, regular communication fosters strong teacher-student relationships, creating a supportive and trusting environment where students feel comfortable seeking guidance. Monitoring student progress through online follow-up helps identify areas that may require additional support or instructional adjustments, leading to an enhanced learning experience. Moreover, by promoting a sense of community through interactive platforms and group discussions, online follow-up encourages student engagement, participation, and collaboration with peers.

In conclusion, leveraging online follow-up allows educators to provide tailored support, monitor progress, address concerns, and build a sense of community, ultimately leading to improved student engagement and academic success.

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For that, the consortium established measures to be implemented for online follow-up, including weekly tutor meetings, progress tracking on the AIIS collaborative learning interface, direct email communication with students, and a technical issue resolution process.

3.1 Weekly Tutor Meetings:

In order to offer individualized assistance and effectively monitor student progress, each participating university in the AIIS program will nominate a tutor. These tutors will meet on a weekly basis to provide support, assess student performance, address concerns, and track progress. Additionally, the tutors will act as the primary point of contact for their respective universities.

These meetings will serve as valuable opportunities for knowledge sharing, enabling the tutors to exchange best practices and ensure consistent guidance is provided across all participating universities. Furthermore, tutors will provide encouragement and recommendations to students, empowering them to take ownership of their learning journey and develop their own strategies for success.

3.2 AIIS collaborative learning interface Progress Tracking:

The AIIS collaborative learning interface will be utilized to track student progress. Tutors will receive a weekly or biweekly report including the data and updates regarding student achievements, completion of tasks, and overall engagement with the platform. This information will provide valuable insights into individual student performance and help identify areas where additional support may be required.

3.3 Direct Email Communication:

To ensure that students have a comprehensive understanding of the program's objectives, expectations, and procedures, we will develop a set of clear and comprehensive guidelines that will be communicated to students via email, and uploaded on the website as well.

To recognize students' accomplishments and encourage their active participation and task completion, direct email communication will be implemented. Personalized messages will be sent to students, acknowledging their achievements and providing motivation. In instances where students are inactive or falling behind, tailored emails will be sent to offer encouragement and guidance. This direct communication approach aims to cultivate a sense of accountability and support student engagement. Scify and USAL will assume responsibility for ensuring prompt and timely email correspondence.

3.4 Technical Issue Resolution:

To minimize disruptions to the program and ensure a smooth learning experience, a designated contact person will be assigned in each university. Any technical issues encountered by students or tutors on the AIIS collaborative learning interface will be

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reported to the respective contact person. The contact person will then transfer these issues to a named responsible person in TUAS (Turku University of Applied Sciences) for prompt resolution. This streamlined process will address technical challenges effectively and ensure uninterrupted access to the platform.

Conclusion:

By implementing the measures outlined in this framework report, the AIIS program will establish a robust system for online follow-up and support. Weekly tutor meetings, progress tracking on the AIIS collaborative learning interface, direct email communication with students, and efficient resolution of technical issues will collectively contribute to enhanced student engagement, improved performance, and a smooth learning experience. This framework lays the foundation for successful implementation of the AIIS program, enabling students to thrive in their AI education journey.

4. Innovative and Collaborative Teaching Methods

To provide students with opportunities to enhance their AI knowledge and soft skills, a total of 10 challenges will be developed by the consortium partners.

Xebia will take the lead in coordinating this task, requiring input from all universities and companies involved to develop and execute the challenges effectively.

The initial phase of each challenge will involve standard data exploration, such as examining correlations between columns and identifying missing data. Subsequently, students will use data science techniques to answer a medical question based on the dataset provided. For example, they may be tasked with identifying the risk factors for stroke or predicting which patients are most likely to experience a stroke. However, the challenges will remain open-ended, allowing students to demonstrate their creativity in solving problems using the dataset.

To facilitate students' participation in machine learning tasks, Xebia will provide a guide on utilizing the AI/Data Science platform H2O, as well as alternative platforms if necessary . This will enable students to perform machine learning tasks without the need to code the algorithms themselves.

5. Creation of Cross-Sector and Transnational Student Teams

To foster cross-disciplinary collaboration and diverse expertise, the creation of 10 groups is planned. Each group will be composed of students from medical disciplines, accompanied by at least one engineering student from TUAS. The aim is to ensure that each group consists of a diverse mix of students from medical disciplines and engineering, fostering cross-disciplinary collaboration and enabling the utilization of various expertise within the teams.

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The creation of groups will be based on the students' choice of challenges within the AIIS collaborative learning interface. Each student will have the opportunity to select a specific challenge that aligns with their interests and skills. Once the students have made their challenge choices, the groups will be formed accordingly.

Once the groups are formed, the mentor responsible for that particular challenge will receive an email from Xebia containing the names and email addresses of the group members. The mentor will then utilize this information to directly contact the students, providing them with the necessary details about the challenge. In addition, the mentor will schedule a weekly meeting using a platform like Doodle to ensure regular interaction. This efficient process enables mentors to effectively coordinate with their assigned group, schedule meetings, share essential documents, and keep track of student attendance throughout the duration of the challenge.

6. Monitoring of Students' Collaborative Work

The monitoring of students' collaborative work during the challenges was a significant aspect addressed through a survey conducted by UMONS in collaboration with partners in May 2022. The survey aimed to gather insights and recommendations regarding the roles of universities and/or companies in overseeing the challenges, which will span approximately two months. Six partners actively participated in the survey, and their responses (Figure 5) provided valuable findings on key aspects of the monitoring process.

Firstly, there was a lack of consensus among the partners regarding the importance of having two mentors—one from a university and another from a company. The opinions varied, and no definitive agreement was reached on this matter.

Secondly, the majority of respondents agreed that four videoconference meetings between students and mentors within the two-month duration were sufficient. This frequency was considered satisfactory for effective communication and progress tracking.

Furthermore, diverse perspectives emerged regarding the necessity of mentors having a work plan that clearly outlined the individual contributions of each student. The partners held different views on this topic, reflecting the varying approaches to managing and organizing the collaborative efforts of the students.

Regarding the reporting process, partners generally agreed that mentors should receive weekly reports on the progress of students' work. These reports would serve as a foundation for creating an action plan and ensuring appropriate support and guidance throughout the challenges.

Lastly, half of the partners completely agreed that the final evaluation should be based on the deliverable, which is a presentation showcasing the team's proposed solution for each challenge. This approach emphasizes the practical application of the acquired skills and knowledge throughout the challenges.

These survey results provide valuable insights into the partners' perspectives and preferences regarding the monitoring and evaluation of the challenges. The findings will

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inform the development of an effective framework for mentorship, communication, and assessment throughout the duration of the program, and based on the consortium decided the below:

1- For each challenge, two mentors will be assigned, one responsible for overseeing the technical aspects and the other focusing on the development of soft skills.
2- These mentors will meet with students at least once a week to provide support as needed.
3- Xebia will formulate an action plan and provide mentor training to help mentors guide students effectively, ensuring the challenges are completed on schedule. Furthermore, Xebia will organize regular meetings with mentors to monitor challenge progress, collect feedback, and make necessary adjustments, ensuring a rewarding and engaging experience for all participants.

4. Challenges follow up *

	0 (do not agree)	1	2	3	4	5 (Totally agree)
1- It is important to have 2 monitors, 1 from a university and the second from a company.	2/6 (33.3%)	1/6 (16.7%)	0/6 (0%)	1/6 (16.7%)	0/6 (0%)	2/6 (33.3%)
2- At minimum 4 videoconference meetings (mentor/student) in 2 months	0/6 (0%)	1/6 (16.7%)	2/6 (33.3%)	1/6 (16.7%)	1/6 (16.7%)	1/6 (16.7%)
3- The mentor must have a work plan that includes the contribution of each student	0/6 (0%)	2/6 (33.3%)	1/6 (16.7%)	0/6 (0%)	2/6 (33.3%)	1/6 (16.7%)
4- The mentor must have weekly report about work progress of students	0/6 (0%)	2/6 (33.3%)	3/6 (50%)	0/6 (0%)	0/6 (0%)	1/6 (16.7%)
5- The evaluation will be based on deliverable: Presentation proposing their solution for each challenge	0/6 (0%)	1/6 (16.7%)	0/6 (0%)	2/6 (33.3%)	0/6 (0%)	3/6 (50%)

Figure 5: Survey Responses from 6 Partners regarding recommendations for challenges' follow-up

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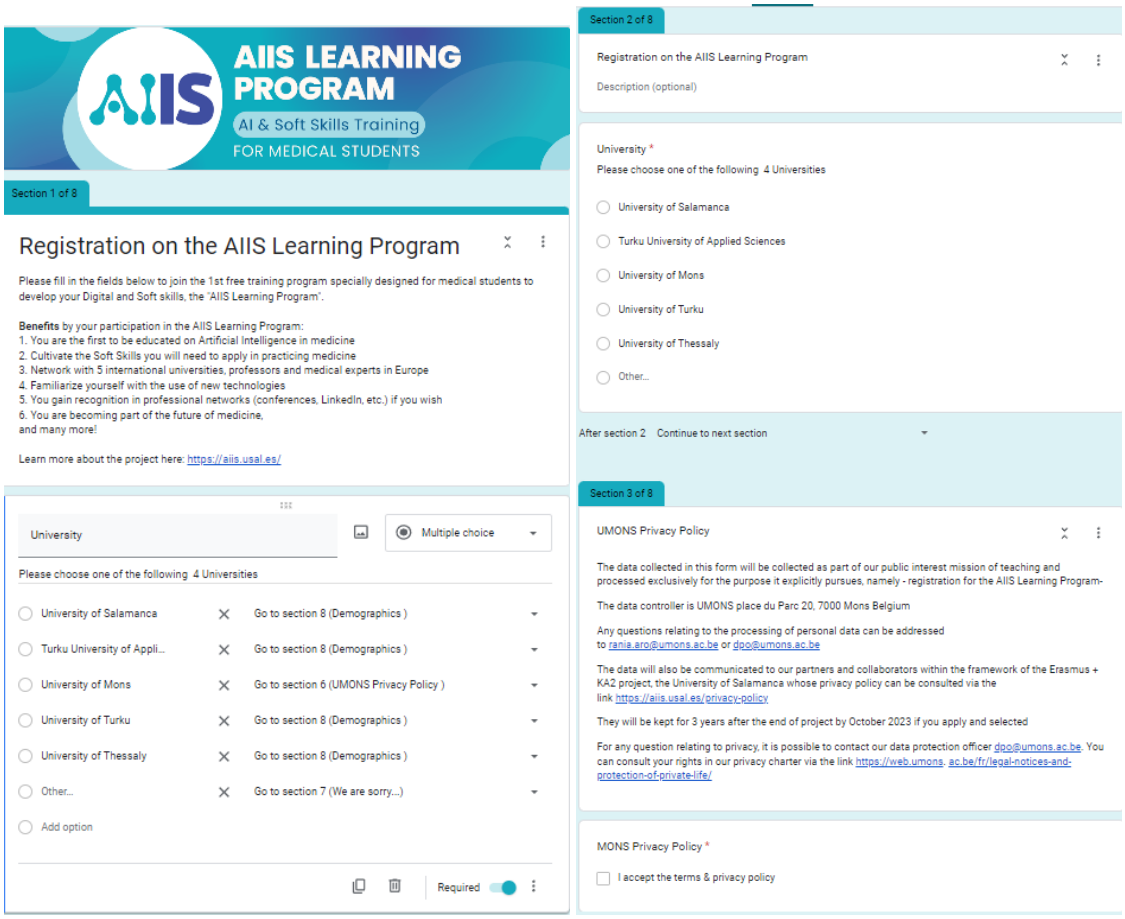
7. Annexe

7.1 Registration form



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Section 4 of 8

We are sorry...

The AIIS Learning Program for this time period is limited to the Universities of Salamanca, Turku, Mons, Thessaly and Turku of Applied Sciences.
If you are studying to a different one you can not participate at the moment.
Please stay tuned though for future news and outcomes for the AIIS Project, follow us on: Facebook, Twitter, LinkedIn, Instagram, subscribe to our Newsletter, and visit our website.

After section 4 Continue to next section

Section 5 of 8

Demographics

Description (optional)

Name *

Short answer text

Surname *

Short answer text

Email *

Please enter your university email (edu)

Short answer text

Year of Study *

- 1st year
- 2nd year
- 3rd year
- 4th year
- 5th year
- 6th year

Privacy Policy

NOTE: The students must accept both items (privacy policy and media Agreement) to enroll in the AIIS program.

In AIIS project we fully respect the data security of those who participate and fully comply with the Personal Data Protection Code (GDPR) established by the European Union.
This is also the reason why we ask for the acceptance of the terms & privacy policy.

1. Privacy Policy *

Read the AIIS Privacy Policy here: https://aiis.usal.es/privacy-policy

- [ ] I accept the terms & privacy policy

2. Media Agreement *

The AIIS partner institutions will be taking photos and videos throughout the AIIS activities that may feature you. These photos and videos maybe posted, shared, and published on various social media sites, websites, and physical promotion materials. By checking Yes, you authorize and give full permission for the AIIS partner institutions to publish, post, and share photos of you on various social media sites, websites, and physical promotion materials.

- ( ) I accept these terms
- ( ) I do NOT accept these terms

See you soon in the **AIIS EduVerse**!

Section 6 of 8

UMONS Privacy Policy

The data collected in this form will be collected as part of our public interest mission of teaching and processed exclusively for the purpose it explicitly pursues, namely - registration for the AIIS Learning Program-

The data controller is UMONS place du Parc 20, 7000 Mons Belgium

Any questions relating to the processing of personal data can be addressed to rania.aro@umons.ac.be or dpo@umons.ac.be

The data will also be communicated to our partners and collaborators within the framework of the Erasmus + KA2 project, the University of Salamanca whose privacy policy can be consulted via the link https://aiis.usal.es/privacy-policy

They will be kept for 3 years after the end of project by October 2023 if you apply and selected

For any question relating to privacy, it is possible to contact our data protection officer dpo@umons.ac.be. You can consult your rights in our privacy charter via the link https://web.umons. ac.be/fr/legal-notices-and-protection-of-private-life/

MONS Privacy Policy *

- [ ] I accept the terms & privacy policy

After section 6 Go to section 8 (Demographics)

Section 7 of 8

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