



D2.6 - MOOC on soft skills and new way of working

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Abstract

This deliverable presents the design, structure, and expected impact of the MOOC developed under the ASTRAIOS project, aimed at equipping Master's students, PhD candidates, and early-career professionals in space and other STEM sectors with essential transferable skills. Building on the insights and learning outcomes from the European Space Bootcamp (D2.5), the MOOC focuses on the development of soft skills critical for innovation, leadership, and interdisciplinary collaboration. Through interactive online modules, case-based learning, and real-world examples, the course addresses topics such as communication, teamwork, problem-solving, adaptability, and team and project management. The MOOC format ensures flexible access and broad outreach across Europe and beyond, enabling a diverse audience to benefit from high-quality training aligned with evolving workforce demands. This report outlines the pedagogical framework, digital content strategy, and alignment with ASTRAIOS objectives, while providing recommendations for the integration of soft skills training in space-related education and professional development.

Keywords

MOOC, Soft Skills, Innovation, Leadership, Communication Skills, Teamwork and Collaboration, Project Management, Problem-Solving, Adaptability and Resilience, Diversity and Inclusion, Digital Learning, Career Development, Interdisciplinary Skills, Continuous Learning.

Information Table

Contract Number	101082636
Project Acronym	ASTRAIOS
Project Title	Analysis of Skills, Training, Research, And Innovation Opportunities in Space
Topic	HORIZON-CL4-2022-SPACE-01-72
Type of Action	HORIZON-CSA
Start date of project	1 January 2023
Duration	36 months
Project Coordinator	ESF
Version	#1
Responsible Partner (organisation)	International Space University
Actual Date of Delivery	24/06/2025
Dissemination Level	PU / CO

Document History

Version	Date	Status	Author	Description
1	24/06/2025	Finished	Andrés De Almeida	

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1. INTRODUCTION

The space sector is experiencing rapid transformation, driven by increasing interdisciplinarity, digitalisation, and collaboration across borders and industries. To maintain Europe's competitiveness and innovation capacity, it is crucial to equip the future space workforce with both technical proficiency and a strong foundation in transferable soft skills.

In alignment with Task 2300 on Ways of Working and Soft Skills, and following the successful implementation of the European Space Bootcamp (D2.5), the International Space University (ISU), together with ASTRAIOS consortium members, developed a Massive Open Online Course (MOOC) to scale the reach and impact of soft skills training across Europe and beyond. The course is designed to support the career development of Master's students, PhD candidates, young researchers, and aspiring entrepreneurs in space and STEM-related fields.

Grounded in the learning outcomes of the Bootcamp, the MOOC addresses key competencies identified as essential by both industry experts and education stakeholders: communication, teamwork, project and time management, problem-solving, adaptability, cultural awareness, and leadership. These skills are increasingly recognised as vital for success in the modern space workplace, where collaborative, remote, and cross-functional environments are the norm.

This deliverable presents the structure, methodology, and strategic goals of the MOOC, demonstrating how digital, learner-centered approaches can foster professional readiness, innovation capacity, and cross-sector mobility. By expanding access to soft skills training, the MOOC contributes to building a more agile, inclusive, and resilient European space ecosystem.

2. OBJECTIVES

The objectives of the MOOC on Soft Skills and New Ways of Working:

- **Extend the reach of soft skills training** by offering an **accessible and flexible online course** tailored to space professionals and STEM learners.
- Provide learners with **essential interpersonal and strategic skills** needed to succeed in modern, interdisciplinary space sector environments.
- **Support students, researchers, and early-career professionals in developing key soft skills** such as communication, teamwork, project management, adaptability, and problem-solving.
- **Reinforce the outcomes of the European Space Bootcamp (D2.5)** by translating its core learning content into a scalable digital format.
- **Promote equity and inclusivity** by enabling learners from diverse backgrounds and locations to access high-quality soft skills training.
- **Foster collaboration and knowledge sharing across borders** by integrating real-world case studies and expert insights
- **Empower the next generation of space professionals** with the tools and mindset to lead, innovate, and collaborate effectively in dynamic work environments.
- Contribute to the broader ASTRAIOS objective of **preparing a more resilient, skilled, and agile European space workforce**.

2.1 Target audience

In line with the ASTRAIOS project's objective to identify future skill needs and strengthen the competitiveness of the European space sector, this MOOC is designed to support the development of the next generation of space professionals. It primarily targets Master's and PhD students, early-career professionals, and aspiring entrepreneurs in STEM disciplines who aim to strengthen their soft skills and prepare for roles in a rapidly evolving, interdisciplinary, and international space environment.

While tailored to postgraduate-level learners, the MOOC is publicly available and open to anyone interested in improving their communication, leadership, collaboration, and problem-solving skills. It serves as a valuable resource for lifelong learners, educators, and professionals from adjacent sectors. Its flexible digital format ensures inclusive access across geographic, academic, and professional backgrounds.

2.2 Main skills addressed

The MOOC developed as part of Deliverable D2.6 is designed for individuals at the early stages of their careers in the space and STEM sectors, with a particular focus on those who may not yet have had access to structured soft skills training. It targets:



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- **Master's and PhD students** in space-related or broader STEM disciplines seeking to complement their technical education with essential interpersonal and project-related skills.
- **Young researchers and early-career professionals** looking to strengthen their ability to work effectively in interdisciplinary and multicultural teams.
- **Aspiring entrepreneurs and innovators** aiming to enhance their leadership, communication, and organizational skills in preparation for future roles in startups, research, or industry.
- **Educators and institutions** interested in embedding soft skills development into their curricula through a flexible, high-quality digital resource.

This audience has been identified based on the insights gathered in Deliverables D2.3 and D2.5, which underscored a clear need for earlier and more accessible soft skills education across the academic and professional pipeline. The MOOC responds to this need by offering a practical, modular, and inclusive format designed to foster collaboration, adaptability, and continuous learning, that are critical attributes for success in the fast-evolving European space ecosystem.

Table 1 - Key Soft Skills Addressed in the MOOC

Soft skills	Definition
Communication	The ability to clearly convey ideas, listen actively, and adapt messages to different audiences and contexts.
Empathy	The capacity to understand and share the feelings, perspectives, and experiences of others, fostering trust and connection.
Problem-Solving	The ability to relate and work effectively across cultures by understanding different values, behaviors, and communication styles.
Cultural Intelligence	Communicating in a way that is respectful, accessible, and considerate of diverse backgrounds, identities, and needs.
Inclusive Communication	Understanding, respecting, and interacting effectively with people with different cultural backgrounds.
Leading Diverse Teams	The skill of guiding and motivating individuals from varied backgrounds, promoting equity, inclusion, and shared purpose.

Collaboration/Teamwork	Working cooperatively with others towards a shared goal, leveraging diverse skills, perspectives, and roles.
Leadership and Team Management	The ability to inspire and organize a team, align efforts toward common objectives, and support team growth and performance.
Project Management	The skill of planning, executing, and overseeing projects effectively, including managing timelines, resources, and risks.
Organization	The capacity to structure work, prioritize tasks, manage time, and maintain clarity in complex or multi-phase activities.

3. METHODOLOGY AND PROGRAMME DESIGN

The MOOC on Soft Skills and New Ways of Working was designed to be clear, accessible, and relevant for a broad audience, including students, researchers, and early-career professionals in the space and STEM sectors. Inspired by the structure and outcomes of the European Space Bootcamp (D2.5), the course aims to provide high-quality, experience-based learning in a fully online format.

All modules were recorded by professionals and experts who shared not only theoretical knowledge but also personal experiences to illustrate key concepts. The teaching approach is based on case studies and concrete examples, allowing learners to easily connect theory with real-world application.

Most of the recordings were produced at the International Space University's professional studio, ensuring high-quality sound and visuals that support a smooth and enjoyable learning experience.

The full playlist of MOOC videos is available on the ASTRAIOS Project's YouTube channel at the following link:
<https://www.youtube.com/playlist?list=PLWMj907ZRLSGIN4eMEbX-rb8ZmyTor28->

4. IMPLEMENTATION AND KEY HIGHLIGHTS

4.1 The MOOC on Soft Skills and New Ways of Working: A Flexible and Accessible Learning Format

This MOOC was developed to complement the in-person experience of the European Space Bootcamp by offering an accessible, flexible, and scalable learning resource. It was designed to reach a broader audience across Europe, allowing learners to engage with essential soft skills content at their own pace and from any location.

Each video module was recorded by an expert or professional sharing both key concepts and personal experience related to the topic. The videos are concise, ranging from 10 to 15 minutes, and are designed to be clear, focused, and practical. The format avoids overly academic lectures and instead relies on examples and case studies to make the material relevant and engaging for students, researchers, and professionals

The next section provides a summary of each MOOC module, outlining the key themes, speaker contributions, and intended learning outcomes. A comprehensive list of the lectures, topics, and corresponding experts is also available in Appendix A.

4.2 Summary of Each MOOC Module

Module 1: Leadership and Team Management

This module explores the key distinctions between leadership and management, emphasizing that leadership is not about titles but about influence, vision, and emotional connection. It contrasts execution with vision, instruction with inspiration, and control with empowerment. Central themes include putting people before processes, leading change rather than just maintaining stability, and cultivating emotional intelligence. Through compelling insights and real-world examples like the ISU transformation, the video advocates for a leadership style rooted in trust, empathy, and enabling others to lead.

Module 2: Collaboration and Teamwork

This module delves into the essential elements that define high-performing teams, highlighting that collaboration is not just a soft skill but a strategic advantage. It emphasizes building trust and psychological safety, where team members feel safe to speak up and take risks. The module underscores the importance of a shared purpose, using ISU's Moon Shot 2030 as a motivating example, and promotes diversity, inclusion, and transparent communication as drivers of innovation. Additional key themes include mutual accountability, flexibility within defined roles, and fostering a culture of recognition and continuous growth. Through insights and lived examples from ISU, the video reinforces that thriving teams are intentional, not accidental.

Module 3: Communication

This module explores the foundational principles of effective communication, emphasizing that it is a continuous, cyclical process essential for building understanding, relationships, and self-awareness. It highlights common barriers such as cultural and language differences and emotional states, and offers practical solutions for overcoming them. Key focus areas include active listening, empathy, clear and intentional messaging, and the powerful role of body language, which constitutes 55% of communication.

Through real-world insights, the session encourages learners to listen more, judge less, and communicate with emotional intelligence and clarity.

Module 4: Empathy

This module explores empathy as a vital interpersonal skill for understanding others on a deeper level. It explains the foundations of empathic communication such as perception, attitude, and ego balance, and introduces the different levels of empathic response, from recognizing emotions to reflective support. The development of empathy across life stages is outlined, along with techniques to strengthen empathy such as role-playing, experiential learning, and observation. Emphasis is placed on empathy's transformative role in daily life, promoting emotional well-being, stronger relationships, social connection, and a more compassionate world.

Module 5: Project Management

This module offers a practical introduction to project management in the context of the space sector, guiding learners through how to align teams around clear objectives while balancing cost, time, and resources. It presents both technical and financial approaches, explains industry-relevant methodologies such as Agile, Waterfall, and Model-Based Systems Engineering, and breaks down project phases using essential tools like Work Breakdown Structures, Gantt charts, and critical path analysis.

Crucially, the session emphasizes that tools don't make projects, people do. A great project manager is not just a scheduler or a technician, but a strategic leader. Someone who listens actively, understands complex systems through tri-dimensional thinking, and has the courage to make clear decisions when it matters most. This role is about managing projects, not people, while enabling the team's potential through clarity, adaptability, and purpose, not micromanagement or over-reliance on software.

Module 6: Equity, Diversity, Inclusion in STEM environments

This module explores the essential role of equity, diversity, and inclusion in building effective, respectful, and high-performing teams in STEM. It introduces the concept of cultural intelligence as a key asset for navigating international collaboration and fostering mutual understanding across cultures. Through the lens of inclusive communication, the session encourages learners to adapt their messaging and behavior to create space for all voices, perspectives, and backgrounds.

The module also addresses the structural and interpersonal barriers to equity in STEM fields and provides strategies to promote diversity in research, leadership, and education. Learners are invited to reflect on their own biases, challenge assumptions, and develop the mindset of an inclusive leader. Practical techniques for managing multicultural and interdisciplinary teams are shared, with a focus on trust-building, representation, and allyship. The session ultimately invites participants to see inclusion not as an obligation, but as a powerful driver for better collaboration and meaningful change.

4.3 Expert Backgrounds and Contributions

Dr. John Wensveen, President, International Space University (ISU)

Dr. John Wensveen is the President of the International Space University (ISU) in Strasbourg, France, leading the premier global institution dedicated to space education, innovation, and international collaboration. Under his leadership, ISU is expanding its role as a catalyst for groundbreaking research and strategic partnerships that shape the future of space exploration.

Prior to ISU, John served as Chief Innovation Officer at Nova Southeastern University (NSU), where he spearheaded a multimillion-dollar innovation hub that attracted top entrepreneurs, cutting-edge technologies, and major investments. He has held leadership roles in academia, including Vice Provost at Miami Dade College, Professor and Head of the School of Aviation at Purdue University, and Dean of Aviation at Dowling College.

John's industry expertise spans aviation, aerospace, and business strategy, with executive roles at Mango Aviation Partners, Radixx International, MAXjet Airways, and Canada 3000 Airlines. He is a TEDx speaker, media contributor, and author of two leading industry books, including the best-seller *Air Transportation: A Global Management Perspective*.

John holds a Ph.D. and master's degrees from Cardiff University (UK) and a B.A. from the University of Victoria (Canada).

Halit Mirahmetoğlu, Founder & Managing Director, Space Agenda

Halit Mirahmetoğlu is an accomplished professional with over 20 years of experience in the aerospace sector, combining technical expertise with a strong focus on space education, outreach, and intercultural collaboration. He has delivered more than 4,000 hours of training and has worked or studied in numerous international hubs including Paris, Barcelona, Beijing, Istanbul, Hong Kong, Tokyo, and Rome.

An alumnus of both the Space Studies Program and the M.Sc. in Space Management at the International Space University, Halit brings a uniquely global perspective to his work. His areas of specialization include satellite ground stations, project management, science center development, business development, space education, and intercultural negotiation.

Today, he is the founder and managing director of Space Agenda, a leading global platform that curates and promotes space-related events and conferences worldwide. Through this initiative, he continues to foster international collaboration and professional growth within the space sector.

Jay Gaillard, Resident Faculty in Space Policy and Entrepreneurship, International Space University

Jay Gaillard is a senior professional with 15 years of experience in complex technical sales, operations, and project leadership in the aerospace and high-tech sectors. He has held strategic roles in forward-looking companies including Leanspace and Yuri, both active in the New Space ecosystem, as well as Elistair, a company specializing in advanced drone systems for surveillance and telecommunication in defense and law enforcement sectors.

Today, as Resident Faculty in Space Policy and Entrepreneurship at the International Space University, Jay brings a renewed perspective on innovation and venture development, aligned with the rapid transformation of the global space sector. His mission is to prepare students to lead and create within a space economy increasingly driven by commercial initiatives and agile technologies.

5. CONCLUSIONS AND RECOMMENDATIONS

The MOOC on Soft Skills and New Ways of Working has successfully translated the core learning outcomes of the European Space Bootcamp into an accessible, scalable digital format. By focusing on key competencies such as communication, teamwork, leadership, problem-solving, adaptability, and intercultural awareness, the course provides learners across Europe with the tools to navigate an increasingly collaborative and innovation-driven space sector.

Through expert-led modules and flexible online learning, the MOOC supports the overarching goals of Task 2300 by broadening access to soft skills training, particularly for students, early-career professionals, and aspiring entrepreneurs in STEM. Its flexible, self-paced format ensures wide reach, while its alignment with real-world scenarios enhances relevance and applicability.

Recommendations for future iterations:

- Continue involving practitioners from the space industry to ensure content remains grounded and up to date
- Expand interactivity through quizzes, scenario-based exercises, and learner feedback
- Integrate the MOOC into university programs or professional development pathways as a preparatory or complementary resource
- Explore the potential for certification or micro-credentialing to increase recognition and learner motivation

By leveraging the flexibility of digital education, this MOOC represents a sustainable and inclusive way to build the future-ready skillset needed in the European space workforce.

6. ACKNOWLEDGEMENTS

The International Space University (ISU) extends its sincere thanks to all those who contributed to the development and delivery of the MOOC on Soft Skills and New Ways of Working.

We are especially grateful to the experts and facilitators who shared their time, insights, and professional experience across the various modules. Their contributions brought depth, relevance, and inspiration to the learning content.

We also acknowledge the valuable support of the ASTRAIOS consortium partners whose engagement and feedback will continue to shape future iterations of this initiative.

The European Space Bootcamp was organised as part of the European Union Funded Project [ASTRAIOS](#) (Grant Agreement No. 101082636).

7. APPENDICES

Appendix A – MOOC Module Overview

Module No.	Title	Expert	Duration	Core Topics
1	Communication	Halit Mirahmetoğlu	16 min 35 s	Learn how to communicate with empathy, clarity and impact in this practical module by Halit Mirahmetoglu featuring timeless insights and modern techniques.
2	Collaboraton & Teamwork	Dr. John Wensveen	19 min 36 s	Explore what makes a team truly thrive—from trust to shared purpose—in this module by Dr. John Wensveen, President of the International Space University.
3	Leadership & Team Management (part 1)	Dr. John Wensveen	19 min 54 s	This module explores what sets true leaders apart—vision, empathy, and empowerment—with insights from Dr. John Wensveen of the International Space University.

4	Leadership & Team Management (part 2)	Dr. John Wensveen	12 min 57	This module explores what sets true leaders apart—vision, empathy, and empowerment—with insights from Dr. John Wensveen of the International Space University.
5	Empathy	Halit Mirahmetoğlu	9 min 49 s	Understand others more deeply and build stronger connections with this powerful module on empathy by Halit Mirahmetoglu.
6	Project Management (part 1)	Jay Gaillard	12 min	Master the mindset and methods of effective project leadership in this module by Jay Gaillard where tools support the mission but people drive the outcome.
7	Project Management (part 2)	Jay Gaillard	10 min	Master the mindset and methods of effective project leadership in this module by Jay Gaillard where tools support the mission but people drive the outcome.

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This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No. 101082636

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