

EMTECH Curriculum: Preparing Higher Education for AI and Extended Reality

Artificial Intelligence (AI) and Extended Reality (XR) are transforming teaching and learning in higher education. From generative AI tools to immersive learning environments, these technologies create new opportunities for innovation while also raising important ethical and pedagogical questions. The EMTECH project responds to this transformation by developing a curriculum that strengthens AI and XR literacy in higher education. Through interactive modules, the programme helps educators and students understand how they can be integrated responsibly into teaching and learning.

Understanding and Implementing AI and XR in Higher Education: The EMTECH Curriculum

Emerging technologies are rapidly reshaping higher education. Artificial Intelligence (AI) and Extended Reality (XR) are increasingly being used in universities to support learning, enhance teaching practices, and create new forms of interaction between students, educators, and knowledge.

While these technologies offer significant opportunities for innovation, they also introduce new challenges. Educators and institutions must consider questions related to ethics, transparency, data use, accessibility, and pedagogical impact. Understanding how these technologies work—and how they should be used responsibly—has therefore become a key competence in contemporary higher education.

The EMTECH project aims to support this transition by developing a structured curriculum focused on AI and XR literacy for higher education. The curriculum is designed to help educators, students, and institutions better understand emerging technologies and explore how they can be integrated into teaching and learning environments in meaningful and responsible ways.

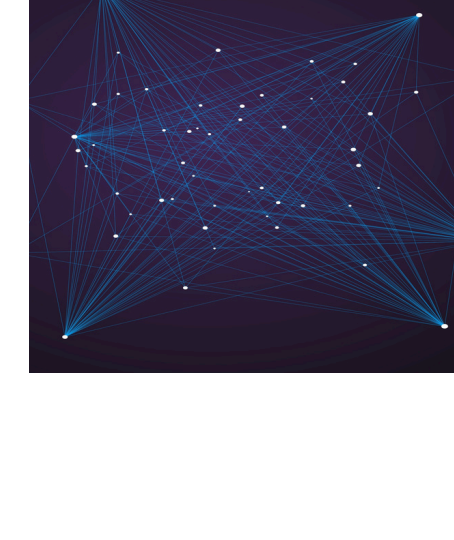
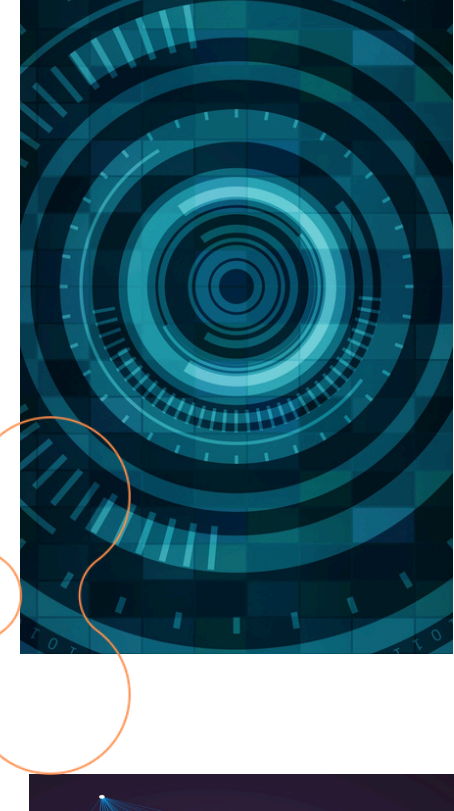


Curriculum modules

The EMTECH curriculum is organised into a sequence of learning modules that guide participants from basic concepts to practical implementation. The first part of the curriculum introduces the foundations of AI and XR technologies. Participants explore what artificial intelligence and extended reality are, how they function, and what types of applications are currently emerging in education. These introductory modules also examine the technological processes behind AI systems, such as data collection, model training, and inference, helping learners understand the mechanisms that drive generative AI tools and other intelligent systems.

In addition to technological foundations, the curriculum highlights the importance of human–technology interaction. AI and XR systems are shaped not only by algorithms but also by how people interact with them. Factors such as prompts, user input, feedback, and learning contexts can significantly influence how these systems behave and how useful they become in educational environments.

Building on this foundation, the curriculum then explores the affordances of AI and XR for different stakeholders in higher education. Some modules focus on how students can use emerging technologies to enhance learning, creativity, and problem-solving. Others address how educators can integrate AI and immersive technologies into teaching practices, assessment strategies, and learning design. Additional modules consider the institutional perspective, examining how universities can adopt these technologies strategically while ensuring ethical and inclusive practices.



Different levels

Another important component of the EMTECH curriculum focuses on the implementation of emerging technologies across different levels of the education system. Participants examine practical scenarios in which AI and XR can be applied in teaching, schools, and institutional strategies. These modules encourage critical reflection on how technology adoption should be aligned with pedagogical goals rather than driven solely by technological trends.

The curriculum also addresses broader ethical and societal considerations related to emerging technologies. AI systems, for example, can reproduce biases present in training data and often operate as “black box” systems that lack transparency. Similarly, XR technologies raise questions about accessibility, inclusion, and the design of immersive learning environments. For this reason, the EMTECH programme emphasizes the need for responsible and critical engagement with technology in higher education.

By combining conceptual explanations, real-world scenarios, interactive activities, and reflective exercises, the EMTECH curriculum provides participants with both knowledge and practical tools. The aim is not only to introduce new technologies but also to help educators and learners evaluate when, how, and why they should be used.

Ultimately, the EMTECH project seeks to empower higher education institutions to navigate the opportunities and challenges of digital transformation. By fostering AI and XR literacy, the curriculum supports universities in preparing students and educators for a future where emerging technologies will play an increasingly central role in education, research, and society.

Empowering Higher Education for the Future of AI and XR

The EMTECH curriculum is structured as a progressive learning pathway that guides participants from foundational concepts to practical implementation. Initial modules introduce the basic principles behind artificial intelligence and extended reality technologies, helping learners understand how these systems function and how they are currently being used in educational contexts.

As the curriculum progresses, it explores the potential of AI and XR for higher education. Participants reflect on how students can benefit from these technologies to support learning, creativity, and problem-solving, while educators examine how emerging tools can enhance teaching practices, assessment strategies, and course design.

Another important dimension of the programme focuses on institutional perspectives. Universities increasingly need strategies for integrating emerging technologies responsibly, considering aspects such as ethics, data protection, accessibility, and inclusion. The EMTECH curriculum therefore encourages institutions to think critically about how digital transformation should be aligned with pedagogical values and educational goals.

In the long term, EMTECH aims to empower higher education institutions to engage with emerging technologies in an informed and responsible way. By strengthening AI and XR literacy, the project supports universities in preparing educators and students for a future in which technological innovation will continue to reshape teaching, learning, and knowledge creation.

