Course Syllabus

Code - Course Title	**EÇE523 - Artificial Intelligence Implementations in Early Childhood Education**
Course Type	I. SEMESTER
Laboratory + Practice	3+0
ECTS	**6.0**
Language of Instruction	Türkçe
Course Type	Elective Courses
Course Instructor(s)	DOÇ. DR. ERKAN KURNAZ

Mode of Delivery	Face to face
Prerequisites	None
Courses Recomended	Technology Integration in Early Childhood Education, Child Development in the Digital Age
Recommended Resources	Luckin, R. (2018). Machine Learning and Human Intelligence. UCL Institute of Education Press.Selwyn, N. (2019). Should Robots Replace Teachers? Polity Press.UNICEF (2021). Policy Guidance on AI for Children.Smith, J. & Marez, C. (2023). Artificial Intelligence in Early Childhood Education. Springer.
Work Placement	None

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Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 1		Introduction: Digital Transformation in Early Childhood Education. Concepts of digital citizenship and AI literacy. Definition and historical development of artificial intelligence and its place in early childhood education. General course structure, expectations and evaluation criteria.	
Week - 2		AI and Child Development Theories. Interaction with AI from the perspectives of Piaget and Vygotsky. Evaluation of artificial intelligence applications within the framework of cognitive development, social constructivism and zone of proximal development. The role of social robots (e.g. Kaspar) in early childhood education.	
Week - 3		AI Ethics and Safety for Children. Data privacy, confidentiality and 'Sharenting' risk. Children's digital rights and protection of personal data. GDPR and KVKK regulations with international standards (UNICEF, UNESCO guidelines). Algorithmic bias and child safety.	
Week - 4		Play-Based Learning and AI. Adaptive game systems and student tracking. Theoretical foundations of digital game-based learning. Examination of applications such as Khan Academy Kids and Duolingo ABC in terms of developmental appropriateness. Applications of adaptive learning algorithms in early childhood education.	

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Week - 5		AI-Powered Smart Toys. Internet of Things (IoT) and toy interaction. Design principles, pedagogical potential and risks of smart toys. Analysis of IoT-based children's toys through examples such as Anki Cozmo and LEGO Spike. Toy safety and privacy issues.	
Week - 6		AI in Language and Literacy Development. Voice assistants and interactive storytelling. Analysis of AI-based language development applications. Use of voice assistants such as Alexa and Google Assistant in early childhood education. The role and limitations of AI in supporting early literacy skills.	
Week - 7		AI in STEAM and Coding Education. Algorithmic thinking skills at an early age. The importance of computational thinking and coding education in the preschool period. Block-based programming with ScratchJr and Bee-Bot applications. Design and implementation of AI-integrated STEAM activities.	
Week - 8		Inclusive Education and Children with Special Needs. Use of AI as assistive technologies. AI-supported intervention programs for children with autism spectrum disorder, language development delays and other special needs. Possibilities and ethical dimensions of artificial intelligence in inclusive education.	
Week - 9		AI as a Teaching Assistant. Lesson planning and individual observation reporting. The role of AI tools in reducing teacher workload. Integration of applications such as MagicSchool AI and Canva Magic Media into the lesson planning process. AI-supported creation of individual child development reports.	
Week - 10		AI in Creativity and Art Education. Visual production processes of children with generative AI. Use of AI-supported art and creativity tools in early childhood education. The contribution of generative AI tools such as Midjourney and Scribble Diffusion to children's aesthetic and creative thinking development. Ethical dimensions and copyright issues.	
Week - 11		Assessment and Documentation. Portfolio creation and developmental data analysis. The importance of child development documentation in early childhood education. Monitoring and reporting student development with AI-supported portfolio systems (Seesaw, Storypark). The place of data privacy and ethical issues in the documentation process.	
Week - 12		AI in Parent-School Communication. Informing parents and data sharing. The contribution of AI-supported school management systems to parent-teacher communication. Communicating child development data to parents; secure data sharing and informing strategies. Parental attitudes towards AI applications and digital literacy.	

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Week - 13		Global Policies and the Future. AI policies in education and strategic planning. Comparative analysis of AI education policies worldwide. Turkey's AI strategy in education within the framework of MEB and international reports. Potential roles of artificial intelligence in early childhood education in the future and research priorities.	
Week - 14		Final Project Presentations. AI-integrated lesson plan presentation with ethical declaration. Presentation of the AI-integrated early childhood education project developed by students throughout the semester. Evaluation of projects from ethical, pedagogical and developmental appropriateness dimensions. General course evaluation and feedback.	

Learning Outcomes

#	Learning Outcome
1	Explains the basic working principles and pedagogical potential of AI technologies used in early childhood education.
2	Evaluates AI-supported educational materials and digital games in terms of developmental appropriateness.
3	Analyzes the use of AI in education within the framework of children's rights and data security (GDPR, KVKK).
4	Develops lesson plans and documentation strategies for early childhood classrooms using AI tools.
5	Critically examines the attitudes of teachers and parents towards AI technologies.

Sustainable Development Goals

No content has been provided.

Course Theme

No content has been provided.

AKTS Workload

Activity	Duration (Hour)	Count	Workload
Teorik Derse Katılım	0	0	0
Sınıf Dışı Çalışma (Ön Hazırlık & Pekiştirme Amaçlı)	0	0	0
Ödevler	0	0	0
Proje - Rapor - Sunum Hazırlama	0	0	0
Ara Sınav Hazırlığı (sınav süresi dahil)	0	0	0
Final Sınavı Hazırlığı (sınav süresi dahil)	0	0	0
Uygulama (Laboratuvar, Müzik/Enstrüman Uygulaması, Atölye/Saha Çalışması vb.)	0	0	0
Staj Uygulaması	0	0	0

AKTS Workload

Activity	Duration (Hour)	Count	Workload
		Calculated ECTS	**0**

Assessment Method and Passing Requirements

No content has been provided.

Assessment Method and Passing Requirements	Quamtity	Percentage (%)
Final Exam	1	100
	Sum (%)	**100**