Title of the subject in English:	AI-Assisted Virtual Care Based on the European Health Data Space		**Credit number:**	**2**
Title of the subject in Hungarian:	Az Európai Egészségadat-téren alapuló, mesterséges intelligenciával támogatott virtuális ellátás			
Neptun code*:*	EBVATMEM792A			
Category:	elective			
Distribution of theory and practice, 'educational character':		practice oriented (60-70%)		
Type of class:	lecture	seminar	practice in lab.	clinical practice	tutorial
Number of classes:		24			36
Language(s) of instruction other than Hungarian:	English			
Further applicable methods to transfer the given knowledge to students:	Short video modules, interactive assignments, and practical case studies, aligned with foundational health models, are provided on Moodle to support students in mastering course content. The program employs a student-centred approach, emphasising collaborative projects and real-world applications, allowing flexible pacing and personalised learning paths. Guided by expert mentors, the pedagogy fosters creativity, critical thinking, and initiative through hands-on problem-solving in digital health practice.			
Accepted absences:	4			
Requirements of end-term signature:	Completion of the weekly assigned tasks on a monthly basis and obtaining at least 61 points out of 120 points from the class assignments.			
Form of end-term assessment:	End-of-term assessment includes a written examination. Marks can be earned through assignments and group work completed during the semester, or with a written examination conducted during the designated examination period.		**Method of end-term assessment:**	end-of-term exam
Schedule of assessment:	Completion of the assignments given in Weeks 2 to 11, as well as the group work assignment, which is given in Week 8 to be presented by Week 12. Each assignment issued between Weeks 2 and 11 is worth 10 points each, for a total of 100 points; the group work, presented in the form of a presentation, is worth 20 points. The total number of points available is 120, with the grading scale of Pass: 61-70, Medium: 71-80, Good: 81-90, Excellent: 91-100.			
Further applicable methods of knowledge assessment:	Form: Oral presentation of group work results by 3-4 members. Timing: Assigned in Week 8, presented during the lecture in Week 12. Length: 6–10 minutes per group presentation. Assessment: Graded by points, with a maximum of 20 points awarded to each group member based on their contribution to the presentation. Consequence: Points earned will contribute to the final examination mark.			

Possibility and requirement(s) of an offered grade:	The points earned by completing the tasks will amount to a minimum of 81.
How many semesters long is the subject?	1
Subject's place in the curriculum:	3
Frequency of announcement:	In accordance of Section 21 of the SER
Place in the timetable:	In accordance with the data of the Neptun Education System
Requirement(s) of preliminary studies:	-
The standpoint of the responsible department whether a multi-semester subject can be registered without having completed the prerequisite of the same subject in the previous semester	

Aim of acquiring the professional content of the subject:

The aim of the course is to provide students with a basic knowledge and practical skills in the use of artificial intelligence (AI) for virtual care solutions in the context of the European Health Data Space (EHDS). Students will understand how AI technologies can be integrated into daily care practice to improve patient outcomes, optimise care and support decision-making processes.

Key objectives are (1) to understand the role of AI in the analysis and use of health data within the EHDS framework; (2) to develop the skills needed to design, implement and evaluate AI-driven virtual care processes tailored to individual patient needs; (3) ethical, legal and regulatory considerations of AI applications in healthcare, with a focus on privacy, data protection and equity; (4) to explore case studies and best practices for the application of AI in predictive health analytics, chronic disease management and patient engagement.

Subject description: textual list of topics of the theoretical and practical classes

Topics covered during the twelve weeks of the term.

1. Introduction to artificial intelligence in virtual care. Overview of AI technologies in healthcare and their role in virtual care solutions within EHDS.
2. The European Healthcare Data Space (EHDS) framework. A detailed exploration of EHDS policies, data interoperability and cross-border health data sharing.
3. Health data management and data protection. Key concepts of health data governance, data protection regulations and ensuring compliance with GDPR.
4. AI in predictive health analytics. Applications of AI in predicting health outcomes and risk factors using EHDS-enabled data.
5. Machine learning in healthcare. Introduction to supervised, unsupervised and deep learning techniques in virtual healthcare.
6. Ethical and legal considerations of artificial intelligence in healthcare. Addressing data bias, equity, patient consent and ethical use of AI in virtual care.
7. Designing AI-driven virtual health services. Principles for developing AI-enabled care tailored to patient needs.
8. Artificial intelligence in chronic disease management. Case studies of AI in chronic disease management and patient engagement.
9. Integration of wearables and IoT in virtual care. Exploring the role of wearables and IoT devices in data collection and personalisation of care.
10. Care context and semantic context for AI systems. Techniques to capture and organise healthcare data to support AI-driven insights.
11. Evaluation and validation of AI systems. Methods to evaluate the accuracy, reliability and safety of AI solutions in healthcare.
12.. Future trends in AI and virtual care. New technologies, challenges and opportunities for scaling AI-enabled virtual care at European level.

2-5 most important compulsory and recommended readings with bibliographical data:

Author	Title	Edition	Page	ISBN	Comp./recom.
Directorate-General for Health and Food Safety (European Commission) , EY , Open Evidencce , Politécnica LifeStech	Study on health data, digital health and artificial intelligence in healthcare	2022	337	978-92-76-47023-6	recommended
Gómez-González, E. and Gómez, E.	Artificial intelligence for healthcare and well-being during exceptional times	2023	71	978-92-68-07764-1	recommended
Directorate-General for Communications Networks, Content and Technology (European Commission) , PwC	Study on eHealth, interoperability of health data and artificial intelligence for health and care in the European Union	2021	62	978-92-76-40310-4	recommended

Prescribed professional competencies and segments of competences that the subject triggers to be developed

a) knowledge	The concept of digital health products and their applications in healthcare, with a focus on virtual care.			
	Fundamentals and key drivers for the exploitation of health data assets in care.			
b) skills	Basic ability to create and analyse actionable data.			
	Everyday use of data-driven information and digital applications in health professional - patient - machine collaboration.			
c) attitudes	Human-centred use of fact-based digital services.			
	Continuous experiential learning to improve service level.			
d) autonomy and responsibility	Patient empowerment with a wide range of tools.			
	Factual support for patient health in complex human-machine collaboration.			

Department responsible for teaching the subject:			
	Name	**Title**	**Scientific degree**
Person responsible for the subject:	**Dr. Lantos, Zoltán**	Associate Professor Head of Department	PhD
Teacher(s) participating in teaching the subject:			

Professional internship (outside the institution)	credit number:		
	length:		hour(s)
	type:		
	place in the curriculum:		
Content, professional requirements, rules			

Methods of assessing the student performance demonstrated during the professional internship

Place(s) of internship with which the training institution concluded an agreement

Organization of the professional internship, ensuring and supervising 'external' leaders of the internship:

Institutional responsible person at the place of internship:	Name	Title	Scientific degree