



Title of lecture: Holistic Secure Systems Development

ECTS Credits: 0,5 ECTS

Degree Programme:	Citizen-Centered Digital Health and Social Care
Semester:	1
Teaching Units:	8
Description:	This intensive lecture equips you with the security mindset needed for modern health and social care technologies – before a single line of code is written. You will learn why today's most critical failures happen early in design, and how a <i>Shift-Left</i> philosophy combined with the Secure Software Development Lifecycle (SSDLC) can prevent harm, reduce costs, and protect patient trust. Across the day, we explore real-world security challenges in health tech, from defining security requirements and threat modeling clinical data, to managing open source, supply chains, and AI-generated code. A key focus is Human–AI collaboration: we will explore the risks of AI-generated code (hallucinations, insecure patterns) and discuss how to ensure an AI agent doesn't introduce "black box" vulnerabilities into a health platform. Further, the use of AI agents to monitor deployment pipelines and detect anomalies in real-time, as well as the move from manual approvals to AI-assisted compliance checking will be addressed. The lecture concludes with a forward-looking perspective on the future of secure, AI-enabled health technologies, drawing on current research into autonomous yet human-governed SSDLCs, and a clear assignment briefing. Ideal for students who want to: • Understand security as a socio-technical responsibility, not just a technical one • Work at the intersection of healthcare, AI, ethics, and cybersecurity • Build skills that are highly relevant for digital health, medtech, and regulated environments By the end, you won't just know <i>how</i> to build secure systems, you'll understand why security decisions matter for real people and real lives.
Assessment:	Written reflection on social/ethical implications and deployment strategies when architecting open-source solutions and robust systems with advanced security strategies to meet health and social care needs.

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Notes:	Prerequisites for Erasmus funding for your stay: • Currently valid partnership agreement (Inter-Institutional Agreement) • At least 8 teaching unit • At least 2 full days spent at USTP • Ukraine: at least 5 days spent at USTP