UNIVERSITY of DEBRECEN

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Name of the course:	**The scientific approach to the transition between Industry 4.0 and Industry 5.0**
Course type:	Optional
Responsible lecturer:	Dr. Géza Husi
Content:	The aim of the course is to provide a comprehensive insight into the latest developments in the current technological transformation of the industry. Throughout the course, we will examine in detail the foundations and main characteristics of Industry 4.0, including applications such as industrial automation, big data, machine learning, and the Internet of Things (IoT). Additionally, the course will introduce the transition from Industry 4.0 to Industry 5.0, which encompasses deeper integration of human and machine interaction, adaptive and flexible manufacturing processes, as well as intelligent manufacturing systems. Participants will learn about the main differences, challenges, and opportunities between Industry 4.0 and Industry 5.0, and study future industrial trends and innovations. Objectives of the course: Understanding the concepts and principles of Industry 4.0 and Industry 5.0. Developing the ability to scientifically evaluate and critically analyze Industry 4.0 technologies and applications. Understanding the main characteristics and engineering scientific challenges of the transition to Industry 5.0. Developing the ability to design and implement deeper integration of human and machine interaction. Developing the ability to design and develop intelligent manufacturing systems and adaptive manufacturing processes from a scientific perspective.
Literature:	• K. Schwab, "The Fourth Industrial Revolution," Currency, 2017. [Online]. Available: https://ieeexplore.ieee.org/document /8323546. [Accessed: Feb. 28, 2024]. • H. von Scheel, "Industry X.0: Realizing Digital Value in Industrial Sectors," Wiley, 2019. [Online]. Available: https://ieeexplore.ieee.org/document/8995444. [Accessed: Feb. 28, 2024]. • World Economic Forum, "The Future of Jobs Report 2020," Geneva, Switzerland. [Online]. Available: https://www.weforum.org/reports/the-future-of-jobs-report-2020. [Accessed: Feb. 28, 2024]. • K. Schwab, "Shaping the Future of the Fourth Industrial Revolution: A Guide to Building a Better World," Currency, 2018. [Online]. Available: https://ieeexplore.ieee.org/ document/8622178. [Accessed: Feb. 28, 2024]. • P. F. Drucker, "Management Challenges for the 21st Century," HarperBusiness, 1999. [Online]. Available: https://ieeexplore.ieee.org/document /7816799. [Accessed: Feb. 28, 2024].