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Name of the course:	**Modern Robotics**
Course type:	Optional
Responsible lecturer:	Dr. Géza Husi
Content:	The aim of the Modern Robotics course is to provide a comprehensive overview of the field of modern robot technology, including design principles, control methods, and application possibilities. Throughout the course, we will thoroughly examine the fundamentals of robotics, including the design of mechanical structures, the operation of actuators and sensors, and software control. Additionally, the course will present the operation and programming of modern robots, including parallel kinematic and multi-robot systems. Participants will gain practical experience in applying robotics technology in various industrial and service environments. Objectives of the course: Understanding the fundamentals and operational principles of modern robotics. Developing the ability to design and assemble the mechanical and electronic components of robots. Developing the ability to control and program robots using software. Familiarizing with different robot architectures and application areas. Developing the ability to apply robotics technology practically in industrial and service environments.
Literature:	• B. Siciliano, L. Sciavicco, L. Villani, és G. Oriolo, "Robotics: Modelling, Planning and Control," Springer, 2009. [Online]. Available: https://ieeexplore.ieee.org/document/4884280. [Accessed: Feb. 28, 2024]. • M. W. Spong, S. Hutchinson, és M. Vidyasagar, "Robot Modeling and Control," Wiley, 2006. [Online]. Available: https://ieeexplore.ieee.org/document/1370765. [Accessed: Feb. 28, 2024]. • R. M. Murray, Z. Li, és S. S. Sastry, "A Mathematical Introduction to Robotic Manipulation," CRC Press, 1994. [Online]. Available: https://ieeexplore.ieee.org/document/596262. [Accessed: Feb. 28, 2024]. • P. Corke, "Robotics, Vision and Control: Fundamental Algorithms in MATLAB®," Springer, 2011. [Online]. Available: https://ieeexplore.ieee.org/document/5992017. [Accessed: Feb. 28, 2024]. • N. Papanikolopoulos és K. Kyriakopoulos, "Robot Motion and Control: Recent Developments," Springer, 2006. [Online]. Available: https://ieeexplore.ieee.org/document/1234685. [Accessed: Feb. 28, 2024]. • Dr. Szabó Tamás (2014) Mechatronikai modellezés Miskolci Egyetem • Mesterséges Intelligencia modern megközelítésben (ARTIFICIAL INTELLIGENCE. A MODERN APPROACH. 2nd Edition. ISBN

0137903952, by Russell, Stuart and Norvig, Peter, published by Pearson Education,)

- Robotmechanizmusok Dr. Szabó Zsolt, Budai Csaba, Dr. Kovács László, Dr. Lipovszki György BME MOGI ISBN 978-963-313-170-1
- Frank C. Park Kevin M. Lynch: Modern Robotics: Mechanics, Planning, and Control", Cambridge University Press 2017