<p style="text-align:center">**List of the examination questions**
EFFECTIVE FROM THE ACADEMIC YEAR 2021/2022</p>

Automation and Robotics
Embedded Robotics (ARE)
Second level studies

Questions in the field of studies:

1. Computer modeling of random variables
2. Parametric and non-parametric approach to system identification
3. Goals, tasks and methods of optimization
4. Use of modal logic (LTL) and Büchy automata in automatic verification.
5. Normal forms of representations of dynamic systems and control systems
6. The feedback in linear and nonlinear systems
7. Pole placement, linear quadratic and H-infinity control problems
8. Discuss the tools and methods of solving the

Questions in the filed of studies and specialty:

1. Robotic programing frameworks - distributed system design.
2. Formalisms for modeling Discrete Event Systems.
3. Event-driven control. Concept, problems, application examples.
4. Programming environments, debugging tools and techniques used for embedded systems.
5. Describe microcontroller peripherals useful in embedded systems for robots.
6. Methods for mobile robot localization and mapping.
7. Present two selected methods of motion planning usable in low and high dimensional state spaces.
8. Design issues unique to socially interactive robots.
9. Probabilistic knowledge representation and methods for making decisions.
10. Inductive machine learning algorithms.
11. Accelerometers and gyroscopes: types and principles of operation.
12. Robustness of adaptive control systems, deployment of formally described control strategies to embedded controllers through automatic code generation.