**Robotics (ECTS credits: 6)**

Language: the course is offered in English, Serbian and Hungarian.

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**Course description:**

The course covers topics related to industrial robots, mobile robots and robotic systems. Main topics include: types an structure of robots, forward and inverse kinematics, autonomous robots, sensors and actuators in robots. Exercises include calculations for forward kinematics based on Denavit–Hartenberg parameters, handling of real industrial robots and simulation of robotic systems.

The course would cover the following topics, both as lectures and exercises:

1. Types and structure of robots

2. Kinematics and dynamics of robots

3. Forward and inverse kinematics

4. Denavit–Hartenberg parameters

5. Autonomous robots

6. Simulation of robots

7. 1. written examination

8. Sensors in robots

9. Actuators in robots

10. Control of robots

11. Image processing in robotics

12. Robot operating systems

13. Construction of robots

14. 2. written examination

15. Repeat. Conclusion of the semester

**Aims:**

The goals of the course are the following: introduce students to the types and structure of robots and robotic systems, working concepts of industrial and mobile robots, and handling of industrial robots.