



## Robotics: Course organization

Vladimír Petřík

[vladimir.petrik@cvut.cz](mailto:vladimir.petrik@cvut.cz)

25.09.2023

# Outline of the course

- ▶ Manipulation robotics
  - ▶ Literature: Kevin M. Lynch and Frank C. Park: **Modern Robotics: Mechanics, Planning, and Control**
- ▶ **Kinematics** (7 lectures)
  - ▶ how to describe the robot pose in space
  - ▶ how to find robot pose for a given task, e.g. grasping
- ▶ Dynamics and Control (2 lectures)
  - ▶ how to describe dynamics properties of robot
  - ▶ how to control the robot dynamically
- ▶ AI in robotics (4 lectures)
  - ▶ Motion planning
  - ▶ Modern AI applications (RL, GraspNet, ...)



# Laboratories

- ▶ Program robotics toolbox in Python
  - ▶ combination of work in lab and homework
  - ▶ automatic evaluation with unit-tests
  - ▶ labs are in KN:E-132
  - ▶ labs follow-up the lectures, **study the lecture before lab**
- ▶ Solving practical project assignment on real industrial robot
  - ▶ robots are located in CIIRC:JP:B-415
  - ▶ brute reservation system
  - ▶ optional (recommended) consultations
  - ▶ safety in the 6th week is mandatory to attend



# Evaluation

- ▶ Homework:
  - ▶ four mandatory assignments: 10 points
  - ▶ four optional assignments: max 10 points
- ▶ Final project: max 20 points
- ▶ Tests during semester (8. and 14. week): max 20 points
- ▶ Exam: max 40 points



# Teachers

- ▶ Lectures: Vladimír Petřík, [vladimir.petrik@cvut.cz](mailto:vladimir.petrik@cvut.cz)
- ▶ Laboratories
  - ▶ Robotics toolbox and homework
    - ▶ Vladimír Petřík
    - ▶ David Kovář
  - ▶ Final project on real robots
    - ▶ Vladimír Smutný
    - ▶ Pavel Krsek

