



Robotics: Course organization

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Outline of the course

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



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 3rd week is mandatory to attend



Evaluation

- ▶ Homework:
 - ▶ five mandatory assignments: 12.5 points
 - ▶ three optional assignments: max 7.5 points
- ▶ Final project: max 20 + 5 points
- ▶ Tests during semester (4. and 13. week): max 20 points
- ▶ Exam: max 40 points



Teachers

- ▶ Lectures: Vladimír Petřík, vladimir.petrik@cvut.cz
- ▶ Laboratories
 - ▶ Robotics toolbox and homework
 - ▶ Martin Cífka
 - ▶ Petr Vanc
 - ▶ David Kovář
 - ▶ Final project on real robots
 - ▶ Pavel Krsek
 - ▶ Vladimír Smutný

