

Robotics 2: Modeling, Analysis, and Control 2021 Summer

Organizer	Prof. Dr. Jochen Steil
Lecturer	Dr. Bertold Bongardt
Exercises	Sven Tittel, Bertold Bongardt

Format	2 SWS (L) + 2 SWS (E)
Times	Mon, 11:30 – 13:00 (L) + Wed, 09:45 – 11:15 (E)
Rooms	online, access via Stud-IP

Module	INF-ROB-45
Credit points	5

Goals

Based on the course ‘Robotics 1: Technical and Mathematical Foundations’ in the previous winter semester, we intensify the study of robotics in the second term. Using the fundamental concepts studied in the first lecture, we focus on more practical issues arising in robotics in the second lecture. Attending ‘Robotics 2’, you prepare to attend the advanced robotics classes offered by the IRP.

Audience

Students of Computer Science and STEM (Science, Technology, Engineering and Mathematics)

Literature

Relevant reading material will be announced in the lecture

Overview

Block	Date	Topics
01	2021-04-12	Introduction and Wrap-Up
02	2021-04-19	Robotics Software and System Control
03	2021-04-26	Introduction to Dynamics
04	2021-05-03	Advanced Techniques of Robot Control
05	2021-05-10	Plans and Trajectories
06	2021-05-17	Principles of Sensing and Measuring

07	2021-05-31	Robot Programming: Fundamentals
08	2021-06-07	Robot Programming: Tools, Components, Schemata
09	2021-06-14	Mechanisms, Graphs, and Matrices
10	2021-06-21	Tools for General Geometries
11	2021-06-28	Design, Shapes, and Workspaces
12	2021-07-05	Configurations, Singularities, Modes, Redundancy
13	2021-07-12	Non-Rigidity: Contact, Haptics, Elasticity
14	2021-07-19	Summary
