1st degree University program ELECTRICAL ENGINEERING

Title: Introduction to robotics

Lecturer: Prof. Dr. Tadej Bajd

Aim of the course: To acquire thorough knowledge of geometry of bodies which is not only useful in robotics, but also in computer vision, virtual environments and computer graphics; To learn how to program advanced industrial robots.

Required (pre)knowledge:
none

Contents:
Rotation and orientation (quaternions); Pose (position and orientation) and displacement (translation and rotation); Homogenous transformation matrix; Geometrical model of robot (Denavit Hartenberg parameters); Direct robot model; Inverse robot model.

Selected references:
Bajd T, Mihelj M, Lenarčič J, Stanovnik A, Munih M: Robotics, Springer, 2010
Sciavico L, Siciliano B: Modeling and Control of Robot Manipulators, Springer, 2002