



6 Courses

**Modern Robotics, Course 1:
Foundations of Robot
Motion**

**Modern Robotics, Course 2:
Robot Kinematics**

**Modern Robotics, Course 3:
Robot Dynamics**

**Modern Robotics, Course 4:
Robot Motion Planning and
Control**

**Modern Robotics, Course 5:
Robot Manipulation and
Wheeled Mobile Robots**

**Modern Robotics, Course 6:
Capstone Project, Mobile
Manipulation**



Feb 21, 2024

Lukas Woodtli

has successfully completed the online, non-credit Specialization

Modern Robotics: Mechanics, Planning, and Control

This specialization provides a rigorous treatment of spatial motion and the dynamics of rigid bodies, employing representations from modern screw theory and the product of exponentials formula. Students with a freshman-level engineering background will quickly learn to apply these tools to analysis, planning, and control of robot motion. Students' understanding of the mathematics of robotics will be solidified by writing robotics software. Students will test their software on a free state-of-the-art cross-platform robot simulator, allowing each student to have an authentic robot programming experience with industrial robot manipulators and mobile robots without purchasing expensive robot hardware.

The online specialization named in this certificate may draw on material from courses taught on-campus, but the included courses are not equivalent to on-campus courses. Participation in this online specialization does not constitute enrollment at this university. This certificate does not confer a University grade, course credit or degree, and it does not verify the identity of the learner.

Kevin M. Lynch
Professor of Mechanical
Engineering
Northwestern
University

Verify this certificate at:

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