

# ROBOTICS ENGINEERING UNDERGRADUATE ACADEMIC CERTIFICATE

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The Robotics Engineering Undergraduate Academic Certificate aims to provide students with a foundational understanding of the principles and practices of robotics engineering, focusing on the key areas of kinematics, kinetics, controls, and automation.

The program is designed to enhance students' knowledge and skills in robotics engineering and prepare them for careers in industries focused on robotic/automation systems or for advanced studies in the field. It may also be helpful for students who are interested in pursuing related fields such as mechanical engineering, electrical engineering, or computer science.

The required coursework listed below must be completed with a grade of C or better (O-10-a (<https://catalog.uidaho.edu/general-requirements-academic-procedures/o-miscellaneous/>)).

Code	Title	Hours
ME 4590	Robotic Systems Engineering I	3
ME 4640	Robotics Kinematic and Kinetic Analysis	3
Select two from the following:		6
ENGR 4660	PLC Programming for Automation	
BE 4210	Image Processing and Computer Vision	
BE 4410	Instrumentation and Controls	
CS 4554	Robotic Systems Engineering II	
CS 4701	Artificial Intelligence	
CS 4712	Machine Learning	
CS 4731	Evolutionary Computation	
CS 4771	Python for Machine Learning	
CS 4885	Machine Vision	
ME 4810	Control Systems	
<b>Total Hours</b>		<b>12</b>

**Courses to total 12 credits for this certificate.**

1. Demonstrate the ability to pursue career advancement in robotics, automation, or related fields by applying the knowledge and technical skills gained from the certificate in robotics engineering.
2. Develop and design robotic components or systems, focusing on kinematics, kinetics, and control, by applying core engineering principles and adhering to real-world constraints such as cost, safety, and sustainability.
3. Effectively communicate technical concepts, engineering solutions, and advancements in robotics engineering to diverse audiences, including clients, engineers, and the general public, through written, verbal, and visual formats.