

# ROBOTICS SYSTEMS UNDERGRADUATE ACADEMIC CERTIFICATE

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Robotic automation has spread through all different types of manufacturing, food processing, and agriculture. The key to companies remaining competitive is to continue to increase productivity through automation using robotics. This certificate produces students that have a deep understanding of the Robotics stack from the lower level motors and controllers, through PLC controllers and into higher level cognitive processes including using modern AI techniques.

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

Required Coursework:

Code	Title	Hours
Required Coursework		
CS 453	Robotic Systems Engineering I	3
CS 454	Robotic Systems Engineering II	3
CS 443	Embedded Systems	3
Any 3 courses of the following:		9
CS 444	Supervisory Control and Critical Infrastructure Systems	
CS 452	Real-Time Operating Systems	
CS 455	Machine Vision	
CS 466	PLC Programming for Automation	
CS 470	Artificial Intelligence	
CS 472	Evolutionary Computation	
CS 474	Deep Learning	
CS 475	Machine Learning	
CS 477	Python for Machine Learning	
ME 454	Assistive Technologies for Physical Impairment	
ME 464	Robotics: Kinematics, Dynamics, and Control	
<b>Total Hours</b>		<b>18</b>

## Courses to total 18 credits for this certificate

Students should consult with their academic advisor regarding this certificate.

1. Graduates will be able to apply modern software design and engineering principles and practices to the hardware, software, safety and environmental aspects of a robotic system.
2. Graduates will be able to analyze, evaluate and design parts of the robotic stack and will be able to communicate with other disciplines working on robotic systems.