

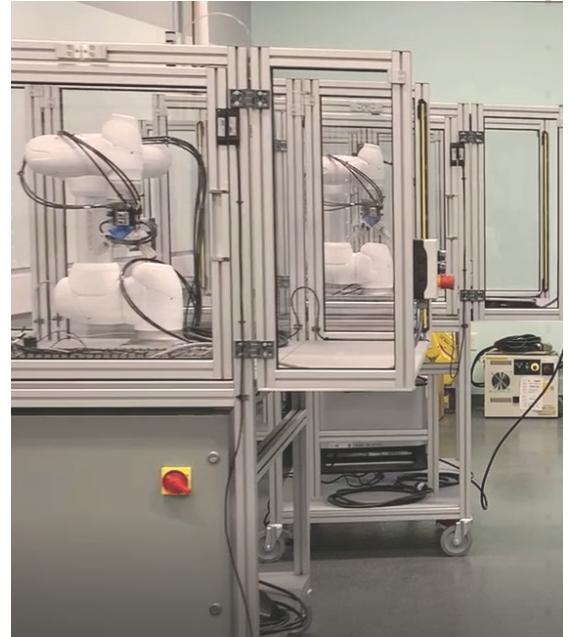
# Robotic Integration

Five-day Course | Buffalo, NY



Taught at EWI's Buffalo Manufacturing Works, **Robotic Integration** offers an introduction to common applications for standard industrial and collaborative robots. The course covers robotic selection, operation, and setup; safety considerations; electrical and pneumatic interfacing; basic and intermediate programming; and applications-based programming including pick-and-place, machine tending, palletizing, and continuous path operation. Over the course of the week, participants will wire and assemble a fully functioning robotics cell. The combination of classroom and hands-on instruction promotes the learning of robotic concepts that can be applied in a variety of production settings rather than specific product knowledge.

Robotic Integration offers 35 professional development hours upon completion of the course. If interested, contact Susan Witt, Manager of Industrial Training, at [switt@ewi.org](mailto:switt@ewi.org) or 716.710.5538.



## Robotic Integration Course Daily Schedule

<p><b>Day 1:</b></p>	<p>Day One will provide an introduction to industrial robotics with quick hands-on engagement with automation before diving deeper into the technology. The day ends with the teaching of a few simple path programs.</p>	<ul style="list-style-type: none"> <li>- Safe Operation Overview</li> <li>- Robot Selection</li> <li>- Robot Setup Discussion</li> <li>- Robot Motion Discussion</li> <li>- Hands-on Lab</li> </ul>
<p><b>Day 2:</b></p>	<p>Day Two will focus on electrical interfacing and robot cell safety. In class the basics of DC circuits will be reviewed that instruct the robot to communicate and control cell around it. The lab will consist of wiring the cell to allow the robot to utilize the safety components, operator push button interfaces, and cell indicators.</p>	<ul style="list-style-type: none"> <li>- Electrical</li> <li>- Robot Safety</li> <li>- Lockout/Tagout</li> <li>- Hands-on Lab</li> </ul>
<p><b>Day 3:</b></p>	<p>Instruction on the basic pneumatics principles used in automation cells will be covered on Day Three. Class time will include understanding pneumatic components such as valves and grippers, component selection, and how the robot will interface with these components. Additional robot programming will be taught to utilize these components. In the lab valves and grippers will be introduced with participants wiring the valves and feedback sensors, connecting the pneumatic lines to allow the grippers to work, and creating basic programs for picking and placing components.</p>	<ul style="list-style-type: none"> <li>- Pneumatics</li> <li>- Program Control</li> <li>- Hands-on Lab</li> </ul>
<p><b>Day 4:</b></p>	<p>Day Four will provide instruction on the different kinds of vacuum technology used in pick and placing components. Classroom discussions will include an overview on vacuum technology and basic palletizing techniques. Intermediate programming topics will be introduced that will be needed to simplify the robot programming. The lab session will consist of using a new end of arm tool and implementing the vacuum technology.</p>	<ul style="list-style-type: none"> <li>- Vacuum</li> <li>- Palletizing</li> <li>- Intermediate Programming Theory</li> <li>- Pick and Place Using Conveyor</li> <li>- Hands-on Lab</li> </ul>
<p><b>Day 5:</b></p>	<p>Day Five of the course will utilize the skills of the previous days in creating the final machine tending application. Classroom time will be spent talking about typical automaton configurations for machine tending and will introduce using a conveyor to pick feed parts from a fixed location. The lab will consist unloading and unloading parts using a dual gripper and a representative a cnc machine. If there is time remaining in the day then the students will have free time to investigate product specific technology or create new programs based on possible applications at their facilities.</p>	<ul style="list-style-type: none"> <li>- Machine Tending</li> <li>- Hands-on Lab</li> </ul>