

Universal Robots North America Training Calendar 2017

<u>COURSE</u>	<u>DATE</u>	<u>DURATION</u>	<u>LOCATION</u>
Core	Jan 10-11	2d	East Setauket New York
Service & Troubleshooting	Jan 12	1d	East Setauket New York
Core	Jan 10-11	2d	Ann Arbor Michigan
Service & Troubleshooting	Jan 12	1d	Ann Arbor Michigan
Advanced	Jan 24-25	2d	Irvine California
Core	Jan 31 - Feb 1	2d	Irving Texas
Service & Troubleshooting	Feb 02	1d	Irving Texas
Advanced	Feb 7-8	2d	Ann Arbor Michigan
Advanced	Feb 14-15	2d	Irving Texas
Core	Feb 21-22	2d	Irvine California
Service & Troubleshooting	Feb 23	1d	Irvine California
Core	Feb 28 - Mar 1	2d	Ann Arbor Michigan
Service & Troubleshooting	Mar 2	1d	Ann Arbor Michigan
Advanced	Mar 7-8	2d	Irvine California
Core	Mar 21-22	2d	Irving Texas
Service & Troubleshooting	Mar 23	1d	Irving Texas
Advanced	March 28-29	2d	Ann Arbor Michigan
Core	April 18-19	2d	East Setauket New York
Service & Troubleshooting	April 20	1d	East Setauket New York
Advanced	April 18-19	2d	Irving Texas
Core	April 25-26	2d	Irvine California
Service & Troubleshooting	April 27	1d	Irvine California
Advanced	May 9-10	2d	Ann Arbor Michigan

IMPORTANT NOTE : All students should complete the UR Academy modules before doing Core training or attending any UR hands-on training. This is web-based training, done at users pace, and can be done through the UR website in less than 2 hours.

- CORE training is 2 days, open to distributors & system integrators only.
- SERVICE & TROUBLESHOOTING is 1 day, follows Core and is open to anyone.
- ADVANCED is 2 days and is open to anyone. Requires that end-user/customer must have completed Core training from distributor before attending.
- For REGISTERING for a class contact that specific office. Here are the contacts :

Michigan office - Daniel Moore (dmo@universal-robots.com)
 New York office - Brian Kobus (bko@universal-robots.com)
 Texas office - Michel Guerrero (mgu@universal-robots.com)
 California office - Dylan Shanahan (dsh@universal-robots.com)

Here is an overview of curriculum :

Core training focuses on the following areas:

- Operate robot in a safe way
- Make simple application programs
- Manage program files
- Connect I/O signals
- Read and modify programs
- Perform basic maintenance and troubleshooting

This includes all the setup, best-practices for programming, and how to set up elaborate logic chains in the robot to enable it to respond to different inputs or program states.

Advanced training gets deeper, covering the following topics:

- Using URScript to get more direct control over the robot commands
- Practice using variables, including passing data between programs
- Set up programs that can move based on coordinate inputs or changing workpiece conditions (use of 'feature' coordinate frames to aid in teaching and program design)
- Reading the robot state and handling more complex I/O systems
- Getting information from TCP/IP sources, and allowing direct control of the robot remotely
- How to set up an HMI that can override the robot state directly, including clearing faults and warnings.

Service & Troubleshooting training covers :

- Overview of complete system
- Configuration of arm and joints (replacement)
- Use of Expert Mode in low level control
- Controlbox component functions and communication flow
- Safety system setup
- Troubleshooting joint issues, communication issue and initialization
- Kinematic calibration
- Claims handling
- Examination
- 50% of time in this class is hands-on with students having to fix problems that are staged on the robots by the instructor

PSI Certification :

- PSI must complete Core, S&T plus Advanced. Core can be completed via training from distributor.
- At completion of Advanced PSI will remain at training center for a 3rd day to complete a hands-on examination.