Traditional On-site Training
Traditional training classes in our facility in Vernon Hills, Illinois are conducted by qualified and certified instructors on simulation equipment, and are supported with course literature and all other materials associated with hands-on training. Our instructors will provide students with the programming and troubleshooting skills necessary to increase production and reduce cycle times.

Custom Local Training
Custom classes are available to meet your needs for cost and convenience. Our training department will work with your organization to tailor an on-site class with the content most relevant to you. This allows you to maximize the number of attendees while eliminating travel costs for your organization.

CNC Blended Learning
CNC Blended Learning is a new approach to traditional training providing customers with digital and multimedia resources that, in turn, maximizes the efficiency and effectiveness of learning. Students are provided with software and telephone support allowing them to connect to virtual machines to complete the course remotely. The classes are custom, one-on-one sessions that are tailored to each and every customer, and with no travel required, fewer expenses are incurred.

Online Training (e-Learning)
e-Learning courses created by Mitsubishi Electric are designed to provide a general background into fundamentals and an overview of Mitsubishi Electric Factory Automation products for both newcomers and longtime users of these products. Available in 17 languages, covering topics from power distribution control products to process control, and specific products such as the iQ-R control platform and AC Servos, these courses allow for self-paced learning.

Table of Contents

CNC Service and Maintenance Training .................................................. 6
CNC Service and Maintenance Training
Citizen Machine Specific ........................................................................ 9
CNC Service and Maintenance Training
DMG MORI Machine Specific ............................................................... 10
CNC Service and Maintenance Training
Mazak Machine Specific ........................................................................ 11
CNC Operations and Programming Training ........................................... 12
CNC PLC Training ................................................................................... 13
Motion Controller & Servo Training ......................................................... 14
Software Training ....................................................................................... 14
Networking Training .................................................................................. 15
HMI Training ............................................................................................ 16
PLC Training .............................................................................................. 16
Robot Programming Training .................................................................. 17
Robot Maintenance Training ................................................................... 17
Robot Repair Training ............................................................................... 20
VFD Training .............................................................................................. 21
CNC Maintenance Certification Programs

In addition to individual CNC classes offered through Mitsubishi University, Mitsubishi Electric Automation offers bundled packages to allow students to earn certification based on three distinct curriculum levels. This program is for machine maintenance employees who wish to obtain industry-recognized service credentials that will last a lifetime. Maintenance employees have the opportunity to select and purchase one of three certification packages through Mitsubishi University – MEAUS (Level 1), MEAUM (Level 2), or MEAUE (Level 3) certification.

**MEAUS certification** is designed for the student who seeks to become a “Specialist” in his or her specific area of expertise. The specialist curriculum is designed to provide a well-rounded scope of everything involved with maintaining a complete control system based on one specific control model. The course curriculum, once taken, empowers an individual to know how to service and maintain a control, troubleshoot the PLC ladder diagram, and understand some basic tenets of G-code programming.

**MEAUM certification** is designed for individuals eager to prove that they are serious about their careers. This level of certification is offered on behalf of the student looking to become a “Master” within his or her area of expertise, combined with even broader knowledge of CNC service and maintenance. This curriculum extends from the Specialist certification into other, more advanced areas of CNC knowledge and skills. Students who choose to purchase this package will gain knowledge about modern, more recent controls featured at Mitsubishi Electric, and also those controls and drives of yesteryear. Additionally, students will be able to learn more advanced topics covered within Mitsubishi Electric’s lathe and mill programming classes. All in all, this package is designed specifically for professionals seeking to gain a competitive edge throughout the machine tool marketplace.

**MEAUE certification** is designed for the student who seeks to become an “Expert” within his or her area of influence. The student who achieves the status of an expert through Mitsubishi University has taken the highest step possible in becoming the leading authority for Mitsubishi Electric CNC service and maintenance at his or her company. In pursuing the “Expert” curriculum, a student achieves the most superior service rating at Mitsubishi Electric Automation. This student instantly becomes a senior level service professional with the knowledge and skills to lead others. Whether it is learning about parametric or macro programming or another control model altogether, students who matriculate through the MEAUE curriculum will become natural experts in executing the 7-step troubleshooting method, proficient in reducing machine downtime, and knowledgeable in executing preventative and predictive maintenance programs within organizations. The MEAUE student ultimately benefits a company’s bottom line, and by doing so, they force themselves to stand out from the crowd.

Each level of certification affirms to the student and their company that they have completed a very robust set of curricula and received an industry distinction which is both noteworthy and respected. Currently, Mitsubishi Electric Automation offers two ways to achieve Level 1, Level 2, or Level 3 certification, by purchasing individual classes, or by purchasing the various bundle packages.

For more information about pricing and availability, please see our registration page at https://us.mitsubishielectric.com/fa/en/support/training/topics/computerized-numerical-controls/certification-programs
<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
<th>Credits</th>
<th>Duration</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>MENC00-0101</td>
<td>CNC Basic Maintenance and Troubleshooting Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MENCPC-0101</td>
<td>CNC PC Specialty Software Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MENC74-0101</td>
<td>Legacy NC and Drive Maintenance Training</td>
<td>4</td>
<td>4 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MENCST-0101</td>
<td>Advanced MDS and MR-J2 Drive Training</td>
<td>4</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MENC30-0101</td>
<td>M300 Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MENC50-0102</td>
<td>M50 Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MENC50-0101</td>
<td>M500 Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MENC60-0102</td>
<td>M60 Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MENC60-0101</td>
<td>M600 Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MENC70-0102</td>
<td>M70/M700VS Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MENC70-0101</td>
<td>M700 Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MENC80-0102</td>
<td>M80/800S Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MENC80-0101</td>
<td>M80W/800W Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MENC6C-0101</td>
<td>C60 Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MENC7C-0101</td>
<td>C70 Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MENC8C-0101</td>
<td>C80 Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBCZ-3101</td>
<td>Citizen M300 Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBCZ-5101</td>
<td>Citizen M500 Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBCZ-6101</td>
<td>Citizen M600 Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBCZ-7101</td>
<td>Citizen M700 Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBCZ-7102</td>
<td>Citizen M70/M700VS Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBCZ-8101</td>
<td>Citizen M800 Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBCZ-8102</td>
<td>Citizen M80 Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBMO-6102</td>
<td>DMG MORI M60 Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBMO-7101</td>
<td>DMG MORI M700BM Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBMO-7102</td>
<td>DMG MORI M700UM Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBMO-8102</td>
<td>DMG MORI M800UM Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBMO-8701</td>
<td>M730BM/M750BM, CELOS &amp; M800UM Training for DMG Personnel Only</td>
<td>3</td>
<td>4 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBMZ-3101</td>
<td>Mazak M32/T32 Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBMZ-5101</td>
<td>Mazak M/T Plus Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBMZ-6101</td>
<td>Mazak Fusion Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBMZ-7101</td>
<td>Mazak Matrix Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBMZ-7102</td>
<td>Mazak Matrix II Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBMZ-8101</td>
<td>Mazak Smooth Maintenance Training</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MEMTBMZ-8701</td>
<td>Matrix /Smooth Training for Mazak Personnel Only</td>
<td>3</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MECPRG0-0101</td>
<td>Introduction to G-code Programming</td>
<td>4</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MECPRG7-0101</td>
<td>M70/M700 Operations Training</td>
<td>2</td>
<td>1 Day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MECPRGL-0101</td>
<td>CNC Lathe Program Training</td>
<td>4</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>MECPRGM-0101</td>
<td>CNC Mill Program Training</td>
<td>4</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>MECPRGM-0130</td>
<td>CNC Macro Program Training</td>
<td>4</td>
<td>3 Days</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>MEPLC0-0101</td>
<td>CNC PLC Troubleshooting Training</td>
<td>4</td>
<td>3 Days</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

For more information, please visit https://us.mitsubishielectric.com/fa/en/support/training/topics/computerized-numerical-controls/certification-programs.
<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRMOT112P</td>
<td>D75/D77 Positioning</td>
<td>2 Days</td>
</tr>
<tr>
<td>TRMOT201A</td>
<td>QD77/LD77 Advanced Positioning</td>
<td>1 Day</td>
</tr>
<tr>
<td>TRMOT202P</td>
<td>Simple Motion GX Works3</td>
<td>4 Days</td>
</tr>
<tr>
<td>TRSMFT101P</td>
<td>GX Works2 Programming</td>
<td>3 Days</td>
</tr>
<tr>
<td>TRSMFT104P</td>
<td>GX Works2 Structured Programming</td>
<td>3 Days</td>
</tr>
<tr>
<td>TRSMFT108P</td>
<td>GX Works3 Programming</td>
<td>4 Days</td>
</tr>
<tr>
<td>TRSMFT105P</td>
<td>MT Works2 Programming</td>
<td>4 Days</td>
</tr>
<tr>
<td>TRSMFT106P</td>
<td>MC Works64</td>
<td>4 Days</td>
</tr>
<tr>
<td>TRSMFT202P</td>
<td>MES Interface IT/US</td>
<td>3 Days</td>
</tr>
<tr>
<td>TRNET102P</td>
<td>CC-Link Networking</td>
<td>2 Days</td>
</tr>
<tr>
<td>TRNET107P</td>
<td>CC-Link IE Networking</td>
<td>2 Days</td>
</tr>
<tr>
<td>TRNET103P</td>
<td>MELSECNET/H Networking</td>
<td>2 Days</td>
</tr>
<tr>
<td>TRNET108P</td>
<td>Ethernet Networking</td>
<td>1 Day</td>
</tr>
<tr>
<td>TRHMI101P</td>
<td>GOT1000 &amp; GT Works3</td>
<td>3 Days</td>
</tr>
<tr>
<td>TRHMI102P</td>
<td>GOT2000 &amp; GT Works3</td>
<td>3 Days</td>
</tr>
<tr>
<td>TRPLC003B</td>
<td>PLC Basics (GX Works2)</td>
<td>1 Day</td>
</tr>
<tr>
<td>TRPLC303P</td>
<td>Safety Systems QS/WS</td>
<td>2 Days</td>
</tr>
<tr>
<td>TRPLC306P</td>
<td>Safety Systems iQ-R</td>
<td>2 Days</td>
</tr>
<tr>
<td>TRROB101P</td>
<td>Robot Basic Programming</td>
<td>3 Days</td>
</tr>
<tr>
<td>MERBTM-RH3F</td>
<td>RH3F Robot Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RH6F</td>
<td>RH6F Robot Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RH12F</td>
<td>RH12F Robot Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RH20F</td>
<td>RH20F Robot Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RH1FHR</td>
<td>RH-1FHR Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RHS</td>
<td>RH-SH Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RHSD</td>
<td>RH-SDH Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RH3SDHR</td>
<td>RH-3SDHR Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RV2F</td>
<td>RV2F Robot Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RV4F</td>
<td>RV4F Robot Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RV7F</td>
<td>RV7F Robot Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RV7FLL</td>
<td>RV7FLL Robot Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RV13F</td>
<td>RV13F Robot Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RV20F</td>
<td>RV20F Robot Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RV35F</td>
<td>RV-35F Robot Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RV50F</td>
<td>RV50F Robot Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RV70F</td>
<td>RV70F Robot Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RVS</td>
<td>RV-S Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTM-RVSD</td>
<td>RV-SD/SQ Maintenance Training</td>
<td>1 Day</td>
</tr>
<tr>
<td>MERBTR-RH3F</td>
<td>RH3FH Robot Repair Training</td>
<td>2 Days</td>
</tr>
<tr>
<td>MERBTR-RH6F</td>
<td>RH6FH Robot Repair Training</td>
<td>2 Days</td>
</tr>
<tr>
<td>MERBTR-RH12F</td>
<td>RH12FH Robot Repair Training</td>
<td>2 Days</td>
</tr>
<tr>
<td>MERBTR-RH20F</td>
<td>RH20FH Robot Repair Training</td>
<td>2 Days</td>
</tr>
<tr>
<td>MERBTR-RHS</td>
<td>RH-SH Repair Training</td>
<td>2 Days</td>
</tr>
<tr>
<td>MERBTR-RHSD</td>
<td>RH-SD/SQH Repair Training</td>
<td>2 Days</td>
</tr>
<tr>
<td>MERBTR-RV2F</td>
<td>RV2F Robot Repair Training</td>
<td>3 Days</td>
</tr>
<tr>
<td>MERBTR-RV4F</td>
<td>RV2F Robot Repair Training</td>
<td>3 Days</td>
</tr>
<tr>
<td>MERBTR-RV7F</td>
<td>RV2F Robot Repair Training</td>
<td>3 Days</td>
</tr>
<tr>
<td>MERBTR-RVS</td>
<td>RV-S Repair Training</td>
<td>3 Days</td>
</tr>
<tr>
<td>MERBTR-RVSD</td>
<td>RV-SD/SQ Repair Training</td>
<td>3 Days</td>
</tr>
<tr>
<td>TRVFD102P</td>
<td>FR-D700/FR-E700 Micro Inverters</td>
<td>2 Days</td>
</tr>
<tr>
<td>TRVFD106P</td>
<td>FR-F800 Advanced VFD Training</td>
<td>2 Days</td>
</tr>
<tr>
<td>TRVFD105P</td>
<td>FR-A800 Advanced VFD Training</td>
<td>2 Days</td>
</tr>
<tr>
<td>TRVFD111C</td>
<td>Drives Start-Up Partner Program</td>
<td>2 Days</td>
</tr>
</tbody>
</table>
Mitsubishi Electric Training Courses

CNC SERVICE AND MAINTENANCE TRAINING

CNC Basic Maintenance and Troubleshooting Training
Course Code: MENC00-0101
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is intended to teach the elementary fundamentals of a complete CNC system. Students will be proficient in basic CNC maintenance and operator functions and will obtain the knowledge necessary to attend other Mitsubishi Electric classes in the future.

WHO SHOULD ATTEND?
Maintenance employees, machine operators and entry-level field service professionals with little to no experience with Mitsubishi Electric controls are encouraged to attend.

COURSE HARDWARE
N/A

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

Legacy NC and Drive Maintenance Training
Course Code: MENC74-0101
Course Credits: 4.0 credits
Length: 4 Days
Prerequisite: None

INTRODUCTION
In this class, maintenance employees will learn a fundamental understanding of all controls dating from the MELDAS 300 series to the MELDAS LX series controls.

WHO SHOULD ATTEND?
Maintenance employees and service professionals with 3-5 years of experience in servicing Mitsubishi Electric control equipment.

COURSE HARDWARE
YL, YL2, M1B, M89A, M84A, M85, M2, M2A, YM2, YM2B, YT-2, YT-3, M0, MOB, L0, LOA, LOB, M86, M3, L3, M310, M320, M320, M330, M335

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

Advanced MDS and MR-J2 Drive Training
Course Code: MENCST-0101
Course Credits: 4.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
In this class, students will learn the advanced features of Mitsubishi Electric servo and spindle drives and how to optimize the drives for peak performance. Students will also gain knowledge on how to service, maintain, and troubleshoot a MR-J2 servo drive unit.

WHO SHOULD ATTEND?
Maintenance employees and service professionals with 3-5 years of experience in servicing Mitsubishi Electric control equipment.

COURSE HARDWARE
MDS-C1, MDS-D/DH, MDS-E/EH Drives, MR-J2-xx-CT

PREREQUISITES EXPLAINED
Students should have taken the CNC Basic Maintenance and Troubleshooting class (MENC00-0101) or have equivalent experience.

M300 Maintenance Training
Course Code: MENC30-0101
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is intended to explain the Mitsubishi Electric M300 control and CNC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the M300 control and should be able to troubleshoot and maintain a complete M300 control system.

WHO SHOULD ATTEND?
Students who service, maintain, and troubleshoot M300 controls.

COURSE HARDWARE

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

M50 Maintenance Training
Course Code: MENC50-0102
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is intended to explain the Mitsubishi Electric M50 control and CNC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the M50 control and should be able to troubleshoot and maintain a complete M50 control system.

WHO SHOULD ATTEND?
Students who service, maintain, diagnose and troubleshoot M50 controls.

COURSE HARDWARE
FCa50M, FCA50L, FCA50D, FCA50G, MDS-B-SVJ2-xx, MDS-B-SPJ2-xx

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

CNC - PC Specialty Software Training
Course Code: MENCPC-0101
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
In this class, students will learn the advanced features of Mitsubishi Electric controls by virtue of specialized software that corresponds to the NC & drive systems.

WHO SHOULD ATTEND?
Maintenance employees and service professionals with 3-5 years of experience in servicing Mitsubishi Electric control equipment.

COURSE HARDWARE
N/A

PREREQUISITES EXPLAINED
Prospective students should have taken the CNC Basic Maintenance and Troubleshooting class (MENC00-0101), a previous M700/M800 class, or have equivalent experience.

Legacy NC and Drive Maintenance Training
Course Code: MENC74-0101
Course Credits: 4.0 credits
Length: 4 Days
Prerequisite: None

INTRODUCTION
In this class, maintenance employees will learn the advanced features of Mitsubishi Electric control equipment. Students will also gain knowledge on how to service, maintain, and troubleshoot a MR-J2 servo drive unit.

WHO SHOULD ATTEND?
Maintenance employees and service professionals with 3-5 years of experience in servicing Mitsubishi Electric control equipment.

COURSE HARDWARE
MR-J2-xx-CT

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

Advanced MDS and MR-J2 Drive Training
Course Code: MENCST-0101
Course Credits: 4.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
In this class, students will learn the advanced features of Mitsubishi Electric servo and spindle drives and how to optimize the drives for peak performance. Students will also gain knowledge on how to service, maintain, and troubleshoot a MR-J2 servo drive unit.

WHO SHOULD ATTEND?
Maintenance employees and service professionals with 3-5 years of experience in servicing Mitsubishi Electric control equipment.

COURSE HARDWARE
MDS-C1, MDS-D/DH, MDS-E/EH Drives, MR-J2-xx-CT

PREREQUISITES EXPLAINED
Students should have taken the CNC Basic Maintenance and Troubleshooting class (MENC00-0101) or have equivalent experience.

M300 Maintenance Training
Course Code: MENC30-0101
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is intended to explain the Mitsubishi Electric M300 control and CNC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the M300 control and should be able to troubleshoot and maintain a complete M300 control system.

WHO SHOULD ATTEND?
Students who service, maintain, diagnose and troubleshoot M300 controls.

COURSE HARDWARE

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

M50 Maintenance Training
Course Code: MENC50-0102
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is intended to explain the Mitsubishi Electric M50 control and CNC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the M50 control and should be able to troubleshoot and maintain a complete M50 control system.

WHO SHOULD ATTEND?
Students who service, maintain, diagnose and troubleshoot M50 controls.

COURSE HARDWARE
FCa50M, FCA50L, FCA50D, FCA50G, MDS-B-SVJ2-xx, MDS-B-SPJ2-xx

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

CNC - PC Specialty Software Training
Course Code: MENCPC-0101
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
In this class, students will learn the advanced features of Mitsubishi Electric controls by virtue of specialized software that corresponds to the NC & drive systems.

WHO SHOULD ATTEND?
Maintenance employees and service professionals with 3-5 years of experience in servicing Mitsubishi Electric control equipment.

COURSE HARDWARE
N/A

PREREQUISITES EXPLAINED
Prospective students should have taken the CNC Basic Maintenance and Troubleshooting class (MENC00-0101), a previous M700/M800 class, or have equivalent experience.
M500 Maintenance Training
Course Code: MENC50-0101
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is intended to explain the Mitsubishi Electric M500 control and CNC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the M500 control and should be able to troubleshoot and maintain a complete M500 control system.

WHO SHOULD ATTEND?
Students who service, maintain, diagnose and troubleshoot M500 controls.

COURSE HARDWARE
FCA520L/M, FCA530L/M, MDS-C1-V1/V2-xx, MDS-C1-SP-xx

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

M600 Maintenance Training
Course Code: MENC60-0101
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is intended to explain the Mitsubishi Electric M600 control and CNC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the M600 control and should be able to troubleshoot and maintain a complete M600 control system.

WHO SHOULD ATTEND?
Students who service, maintain, diagnose and troubleshoot M500 controls.

COURSE HARDWARE
FCA610, FCA635, FCA625, MDS-C1-V1/V2-xx, MDS-C1-SP-xx

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

M600 Maintenance Training
Course Code: MENC60-0102
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is intended to explain the Mitsubishi Electric M600 control and CNC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the M600 control and should be able to troubleshoot and maintain a complete M600 control system.

WHO SHOULD ATTEND?
Students who service, maintain, diagnose and troubleshoot M600 controls.

COURSE HARDWARE
FCA610, FCA635, FCA625, MDS-C1-V1/V2-xx, MDS-C1-SP-xx

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

M70/M700VS Maintenance Training
Course Code: MENC70-0102
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is intended to explain the Mitsubishi Electric M70/M700VS control and CNC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the M70/M700VS controls and should be able to troubleshoot and maintain a complete M70/M700VS control system.

WHO SHOULD ATTEND?
Students who service, maintain, diagnose and troubleshoot M70/M700VS controls.

COURSE HARDWARE
FCA720-NP, FCA730-N, FCA750-N, FCA730N/VW, FCA750VW, MDS-D-V1-xx, MDS-D-SP-xx

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

M700 Maintenance Training
Course Code: MENC70-0101
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is intended to explain the Mitsubishi Electric M700 control and CNC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the M700 controls and should be able to troubleshoot and maintain a complete M700 control system.

WHO SHOULD ATTEND?
Students who service, maintain, diagnose and troubleshoot M700 controls.

COURSE HARDWARE
FCA720-NP, FCA730-N, FCA750-N, FCA730N/VW, FCA750VW, MDS-D-V1-xx, MDS-D-SP-xx

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.
Mitsubishi Electric Training Courses

**M80/M800S Maintenance Training**

*Course Code:* MENC80-0102  
*Course Credits:* 3.0 credits  
*Length:* 3 Days  
*Prerequisite:* None

**INTRODUCTION**

This course is intended to explain the Mitsubishi Electric M80/M800S control and CNC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the M80/M800S controls and should be able to troubleshoot and maintain a complete M80/M800S control system.

**WHO SHOULD ATTEND?**

Students who service, maintain, diagnose and troubleshoot M80/M800S controls.

**COURSE HARDWARE**

FCU8-MU501, FCU8-MU502, FCU8-MU541, FCU8-MA541, MDS-E-V1/V2-xx, MDS-E-SP-xx

**PREREQUISITES EXPLAINED**

No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

---

**M80W/M800W Maintenance Training**

*Course Code:* MENC80-0101  
*Course Credits:* 3.0 credits  
*Length:* 3 Days  
*Prerequisite:* None

**INTRODUCTION**

This course is intended to explain the Mitsubishi Electric M80W/M800W control and CNC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the M80W/M800W controls and should be able to troubleshoot and maintain a complete M80W/M800W control system.

**WHO SHOULD ATTEND?**

Students who service, maintain, diagnose and troubleshoot M80W/M800W controls.

**COURSE HARDWARE**

FCU8-MA041, FCU8-MU042, MDS-E-V1/V2-xx, MDS-E-SP-xx

**PREREQUISITES EXPLAINED**

No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

---

**C60 Maintenance Training**

*Course Code:* MENC6C-0101  
*Course Credits:* 3.0 credits  
*Length:* 3 Days  
*Prerequisite:* None

**INTRODUCTION**

This course is intended to explain the Mitsubishi Electric C60 control and CNC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the C60 control and should be able to troubleshoot and maintain a complete C60 control system.

**WHO SHOULD ATTEND?**

Students who service, maintain, diagnose and troubleshoot C60 controls.

**COURSE HARDWARE**

FCU6-MU041, FCU6-EX875, MDS-E-C1-SP-xx, MDS-R/C1-V1/V2-xx

**PREREQUISITES EXPLAINED**

No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

---

**C80 Maintenance Training**

*Course Code:* MENC8C-0101  
*Course Credits:* 3.0 credits  
*Length:* 3 Days  
*Prerequisite:* None

**INTRODUCTION**

This course is intended to explain the Mitsubishi Electric C80 control and CNC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the C80 control and should be able to troubleshoot and maintain a complete C80 control system.

**WHO SHOULD ATTEND?**

Students who service, maintain, diagnose and troubleshoot C80 controls.

**COURSE HARDWARE**

R16NCPU-S01, QnUDCPU, GOT2000, MDS-E-V1/V2-xx

**PREREQUISITES EXPLAINED**

No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

---

**C70 Maintenance Training**

*Course Code:* MENC7C-0101  
*Course Credits:* 3.0 credits  
*Length:* 3 Days  
*Prerequisite:* None

**INTRODUCTION**

This course is intended to explain the Mitsubishi Electric C70 control and CNC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the C70 control and should be able to troubleshoot and maintain a complete C70 control system.

**WHO SHOULD ATTEND?**

Students who service, maintain, diagnose and troubleshoot C70 controls.

**COURSE HARDWARE**

Q173NCCPU-S01, Q173SXY, Q06UDHCPU, Q06UDHCP, MDS-D-SVJ3-xx, MDS-D-V1/V2-xx

**PREREQUISITES EXPLAINED**

No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.
CNC SERVICE AND MAINTENANCE TRAINING
CITIZEN MACHINE SPECIFIC

Citizen M300 Maintenance Training
Course Code: MEMTBCZ-3101
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is tailored to fit the uniqueness of Citizen machines using the Mitsubishi Electric M300 control. Upon completion of this course, maintenance employees will have a fundamental understanding of the M300 control and should be able to troubleshoot and maintain a complete M300 control system on any Citizen machine.

WHO SHOULD ATTEND?
Students who maintain Mitsubishi Electric M300 controls on Citizen machines.

COURSE HARDWARE

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

Citizen M600 Maintenance Training
Course Code: MEMTBCZ-6101
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is tailored to fit the uniqueness of Citizen machines using the Mitsubishi Electric M600 control. Upon completion of this course, maintenance employees will have a fundamental understanding of the M600 control and should be able to troubleshoot and maintain a complete M600 control system on any Citizen machine.

WHO SHOULD ATTEND?
Students who maintain Mitsubishi Electric M600 controls on Citizen machines.

COURSE HARDWARE
M635LC-AC11, M635LCC, M635LCCH, HR111/HR113/HR116, HR371, MDS-C1-V1-xx, MDS-B-SPJ2-37

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

Citizen M700 Maintenance Training
Course Code: MEMTBCZ-7101
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is tailored to fit the uniqueness of Citizen machines using the Mitsubishi Electric M700 control. Upon completion of this course, maintenance employees will have a fundamental understanding of the M700 control and should be able to troubleshoot and maintain a complete M700 control system on any Citizen machine.

WHO SHOULD ATTEND?
Students who maintain Mitsubishi Electric M700 controls on Citizen machines.

COURSE HARDWARE
FC70LPC-2A, FC70LPC-2AV, FC70LPC-2AVU, FC730LPC-4VS, FC730LHC-4VS, MDS-D-V1-xx, MDS-D-SP-xx

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

Citizen M70/M700VS Maintenance Training
Course Code: MEMTBCZ-7102
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is tailored to fit the uniqueness of Citizen machines using the Mitsubishi Electric M70/M700VS control(s). Upon completion of this course, maintenance employees will have a fundamental understanding of the M70/M700VS control(s) and should be able to troubleshoot and maintain a complete M70/M700VS control system on any Citizen machine.

WHO SHOULD ATTEND?
Students who maintain Mitsubishi Electric M70/M700VS controls on Citizen machines.

COURSE HARDWARE
FCU8-MA041-C01, MDS-E-V1-xx, MDS-D-SP-xx

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

Citizen M800 Maintenance Training
Course Code: MEMTBCZ-8101
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is tailored to fit the uniqueness of Citizen machines using the Mitsubishi Electric M800 control. Upon completion of this course, maintenance employees will have a fundamental understanding of the M800 control and should be able to troubleshoot and maintain a complete M800 control system on any Citizen machine.

WHO SHOULD ATTEND?
Students who maintain Mitsubishi Electric M800 controls on Citizen machines.

COURSE HARDWARE
FCU8-MA041-C01, MDS-E-V1-xx, MDS-E-SP-xx

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.
**Citizen M80 Maintenance Training**

**Course Code:** MEMTBCZ-8102  
**Course Credits:** 3.0 credits  
**Length:** 3 Days  
**Prerequisite:** None

**INTRODUCTION**
This course is tailored to fit the uniqueness of Citizen machines using the Mitsubishi Electric M80 control. Upon completion of this course, maintenance employees will have a fundamental understanding of the M80 control and should be able to troubleshoot and maintain a complete M80 control system on any Citizen machine.

**WHO SHOULD ATTEND?**
Students who maintain Mitsubishi Electric M80 controls on Citizen machines.

**COURSE HARDWARE**
FCA80L, MDS-E-V1-xx, MDS-E-SP-xx

**PREREQUISITES EXPLAINED**
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

---

**CNC SERVICE AND MAINTENANCE TRAINING**

**DMG MORI MACHINE SPECIFIC**

**DMG MORI M60 Maintenance Training**

**Course Code:** MEMTBMO-6102  
**Course Credits:** 3.0 credits  
**Length:** 3 Days  
**Prerequisite:** None

**INTRODUCTION**
This course is tailored to fit the uniqueness of DMG MORI machines using the Mitsubishi Electric M60 control. Upon completion of this course, maintenance employees will have a fundamental understanding of the M60 control and should be able to troubleshoot and maintain a complete M60 control system on any DMG MORI machine.

**WHO SHOULD ATTEND?**
Students who service, maintain, diagnose and troubleshoot Mitsubishi Electric M60 controls on DMG MORI machines.

**COURSE HARDWARE**
FCA64-P1, FCA65-P1, FCA65V-P1, MDS-C1-V1/ V2-xx, MDS-C1-SP/SPM-xx

**PREREQUISITES EXPLAINED**
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

---

**DMG MORI M700BM Maintenance Training**

**Course Code:** MEMTBMO-7101  
**Course Credits:** 3.0 credits  
**Length:** 3 Days  
**Prerequisite:** None

**INTRODUCTION**
This course is tailored to fit the uniqueness of DMG MORI machines using the Mitsubishi Electric M700BM control. Upon completion of this course, maintenance employees will have a fundamental understanding of the M700BM control and should be able to troubleshoot and maintain a complete M700BM control system on any DMG MORI machine.

**WHO SHOULD ATTEND?**
Students who service, maintain, diagnose and troubleshoot Mitsubishi Electric M700BM controls on DMG MORI machines.

**COURSE HARDWARE**
FCA720BM, FCA730BM, FCA750BM, MDS-C1-V1/V2-xx, MDS-C1-SP-xx, MDS-D-V1/V2-xx, MDS-D-SP-xx

**PREREQUISITES EXPLAINED**
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

---

**DMG MORI M700UM Maintenance Training**

**Course Code:** MEMTBMO-7102  
**Course Credits:** 3.0 credits  
**Length:** 3 Days  
**Prerequisite:** None

**INTRODUCTION**
This course is tailored to fit the uniqueness of DMG MORI machines using the Mitsubishi Electric M700UM control. Upon completion of this course, maintenance employees will have a fundamental understanding of the M700UM control and should be able to troubleshoot and maintain a complete M700UM control system on any DMG MORI machine.

**WHO SHOULD ATTEND?**
Students who service, maintain, diagnose and troubleshoot Mitsubishi Electric M700UM controls on DMG MORI machines.

**COURSE HARDWARE**
FCA730UM, FCA750UM, DX078, DX079, MDS-D-V1/V2-xx, MDS-D-SP-xx

**PREREQUISITES EXPLAINED**
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

---

**DMG MORI M800UM Maintenance Training**

**Course Code:** MEMTBMO-8102  
**Course Credits:** 3.0 credits  
**Length:** 3 Days  
**Prerequisite:** None

**INTRODUCTION**
This course is tailored to fit the uniqueness of DMG MORI machines using the Mitsubishi Electric M800UM control. Upon completion of this course, maintenance employees will have a fundamental understanding of the M800UM control and should be able to troubleshoot and maintain a complete M800UM control system on any DMG MORI machine.

**WHO SHOULD ATTEND?**
Students who service, maintain, diagnose and troubleshoot Mitsubishi Electric M800UM controls on DMG MORI machines.

**COURSE HARDWARE**
FCU8-MA044-M, FCU8-MU044-M, FCU8-DX877, DX220, DX230, DX231, DX213, DX651, DX654, MDS-E-V1/V2-xx, MDS-E-SP-xx

**PREREQUISITES EXPLAINED**
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.
Mitsubishi Electric Training Courses

M730BM/M750BM, CELOS & M800UM Training for DMG MORI Personnel Only
Course Code: MEMTBMO-8701
Course Credits: 3.0 credits
Length: 4 Days
Prerequisite: None

INTRODUCTION
This course is tailored to explain the M730BM/750BM, M730UM/750UM (CELOS), and M800UM controls to DMG MORI Personnel (only). Through lecture and hands-on practice, and upon completion of this course, DMG MORI service employees will have a fundamental understanding of the M730BM/750BM, CELOS, and M800UM controls, and should be able to troubleshoot and diagnose any M730BM/M750BM, CELOS, and M800UM control or drive problem.

WHO SHOULD ATTEND?
DMG MORI employees who service, maintain, diagnose and troubleshoot the M730BM/750BM, CELOS, and M800UM controls.

COURSE HARDWARE
FCA720BM, FCA730BM, FCA750BM, MDS-C1-V1/V2-xx, MDS-C1-SP-xx, MDS-D-V1/V2-xx, MDS-D-SP-xx, MDS-E-V1/V2-xx, MDS-E-SP-xx

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

CNC SERVICE AND MAINTENANCE TRAINING MAZAK MACHINE SPECIFIC

Mazak M32/T32 Maintenance Training
Course Code: MEMTMZ-3101
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is tailored to explain the Mazatrol M32 & T32 controls through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the M32 & T32 controls and should be able to troubleshoot and maintain a complete M32/T32 control system.

WHO SHOULD ATTEND?
Students who service, maintain, diagnose and troubleshoot M32 & T32 controls.

COURSE HARDWARE

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

Mazak Fusion Maintenance Training
Course Code: MEMTMZ-6101
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is tailored to explain the Mazatrol Fusion control through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the Fusion control and should be able to troubleshoot and maintain a complete Fusion control system.

WHO SHOULD ATTEND?
Students who service, maintain, diagnose and troubleshoot Fusion controls.

COURSE HARDWARE
FCA635LNYS, FCA635MNY, FCA635LY, MDS-C1-V1/V2-xx, MDS-C1-SP-xx

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

Mazak Matrix Maintenance Training
Course Code: MEMTMZ-7101
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is tailored to explain the Mazatrol Matrix control and CNC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the Matrix control and should be able to troubleshoot and maintain a complete Matrix control system.

WHO SHOULD ATTEND?
Students who service, maintain, diagnose and troubleshoot Matrix controls.

COURSE HARDWARE
FCA515LWY, FCA535M, FCA535L, MDS-C1-V1/V2-xx, MDS-C1-SP-xx

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

Mazak M/T Plus Maintenance Training
Course Code: MEMTMZ-5101
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is tailored to explain the Mazatrol M & T Plus controls through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the M & T Plus controls and should be able to troubleshoot and maintain a complete M & T Plus control system.

WHO SHOULD ATTEND?
Students who service, maintain, diagnose and troubleshoot M & T Plus controls.

COURSE HARDWARE
FCA515LWY, FCA535M, FCA535L, MDS-C1-V1/V2-xx, MDS-C1-SP-xx

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.
Mitsubishi Electric Training Courses

Mazak Matrix II Maintenance Training
Course Code: MEMTBMZ-7102
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is tailored to explain the Mazatrol Matrix II control and CNC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the Matrix II control and should be able to troubleshoot and maintain a complete Matrix II control system.

WHO SHOULD ATTEND?
Students who service, maintain, diagnose and troubleshoot the Matrix II controls.

COURSE HARDWARE
FCA731PY, FCA751PY, MDS-DH-V1/V2-xx, MDS-DH-SP-xx

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

Mazak Smooth Maintenance Training
Course Code: MEMTBMZ-8101
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is tailored to explain the Mazatrol Smooth Control and CNC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the Smooth Control and should be able to troubleshoot and maintain a complete Smooth Control system.

WHO SHOULD ATTEND?
Students who service, maintain, diagnose and troubleshoot the Smooth Control System.

COURSE HARDWARE
FCU8-MA041-Y01, FCU8-MA041-Y02, FCU8-MA041-Y0x, FCU8-PC231, FCU8-CF011-Y0x, FCU8-YZ191, FCU8-DX749, FCU8-DX651, MDS-EH-V1/V2-xx, MDS-EH-SP-xx

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

Matrix /Smooth Training for Mazak Personnel Only
Course Code: MEMTBMZ-8701
Course Credits: 3.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is tailored to explain the Mazatrol Matrix & Smooth controls to Mazak Personnel (only). Through lecture and hands-on practice, and upon completion of this course, Mazak service employees will have a fundamental understanding of the Matrix and Smooth controls, and they should be able to troubleshoot and maintain a complete Matrix or Smooth control system.

WHO SHOULD ATTEND?
Mazak employees who service, maintain, diagnose and troubleshoot the Matrix and Smooth controls.

COURSE HARDWARE
FCA730PY, FCA750PY, MDS-DH-V1/V2-xx, MDS-DH-SP-xx FCU8-MA041-Y01, FCU8-MA041-Y02, FCU8-MA041-Y0x, FCU8-PC231, FCU8-CF011-Y0x, FCU8-YZ191, FCU8-DX749, FCU8-DX651, MDS-EH-V1/V2-xx, MDS-EH-SP-xx

PREREQUISITES EXPLAINED
No prerequisite required. This class is recommended for beginners with little or no experience with Mitsubishi Electric controls.

CNC OPERATIONS AND PROGRAMMING TRAINING

Introduction to G-code Programming
Course Code: MEPRG0-0101
Course Credits: 4.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is intended to teach the basic fundamentals of G-code programming. The class will feature simple concepts of 2-axis and 3-axis programming. At the end of the course, the student will be able to write a simple G-code program from scratch.

WHO SHOULD ATTEND?
Students who are interested in learning G-code programming should attend this course. This course is not intended to teach the student to become a machinist. However, some practical instruction on machining will be provided.

COURSE HARDWARE
N/A

PREREQUISITES EXPLAINED
No prerequisite required. Students should have some basic knowledge of CNC operations.

M70/M700 Operations Training
Course Code: MEPRG7-0101
Course Credits: 2.0 credits
Length: 1 Day
Prerequisite: None

INTRODUCTION
This course will support, guide and assist potential operators in the day-to-day operations of the control. The one-day session will provide the operator with all of the knowledge and skills needed to set up, run, edit, and adjust the program in order to make the machine run at peak performance.

WHO SHOULD ATTEND?
Students who are interested in learning how to set up the machine to make parts should attend this course.

COURSE HARDWARE
N/A

PREREQUISITES EXPLAINED
No prerequisite required. Students should have some basic knowledge of CNC operations.
CNC Lathe Program Training
Course Code: MEPRL-0101
Course Credits: 4.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is intended to teach the G-code lathe programming language to the machine operator or programmer. This class will start with basic 2-axis programming. At the end of the course, the student will be able to program a real world part from a blueprint-type drawing.

WHO SHOULD ATTEND?
Students who are interested in learning G-code programming should attend this course. This course is not intended to teach the student to become a machinist. However, some practical instruction on machining will be provided.

COURSE HARDWARE
N/A

PREREQUISITES EXPLAINED
Students should have some basic knowledge of CNC operations.

CNC Mill Program Training
Course Code: MEPRGM-0101
Course Credits: 4.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is intended to teach the G-code mill programming language to the machine operator or programmer. This class will start with basic 3-axis programming. At the end of the course, the student will be able to program a real-world part from a blueprint-type drawing.

WHO SHOULD ATTEND?
Students who are interested in learning G-code programming should attend this course. This course is not intended to teach the student to become a machinist. However, some practical instruction on machining will be provided.

COURSE HARDWARE
N/A

PREREQUISITES EXPLAINED
Students should have some basic knowledge of CNC operations.

CNC Macro Program Training
Course Code: MEPRGM-0130
Course Credits: 4.0 credits
Length: 3 Days
Prerequisite: Introduction to G-code Programming

INTRODUCTION
This course is intended to provide an understanding in macro or parametric programming, along with system, local, common variables and their usage. Students will learn to build macro programs, debug them and make them error proof. Upon completion of the class, the student will be able to utilize custom G-Code, M-Code, and canned cycle programs using macro programming techniques.

WHO SHOULD ATTEND?
This course teaches some advanced concepts of machining, so the prospective student should have a basic knowledge of G-code programming.

COURSE HARDWARE
N/A

PREREQUISITES EXPLAINED
Introduction to G-code Programming (MEPRG0-0101) is required before this class can be taken.

CNC PLC Training
CNC PLC Troubleshooting Training
Course Code: MEPLC0-0101
Course Credits: 4.0 credits
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is intended to explain the Mitsubishi Electric CNC PLC concepts through lecture and hands-on practice. Upon completion of this course, maintenance employees will have a fundamental understanding of the CNC PLC and should be able to troubleshoot any machine-side PLC problem.

WHO SHOULD ATTEND?
This class is intended for students who are interested in learning how the Mitsubishi Electric PLC works with the CNC software and how to effectively troubleshoot machine-side problems through the ladder.

COURSE HARDWARE
Laptops with GX Developer and/or GX Works will be provided

PREREQUISITES EXPLAINED
No prerequisite required. A basic understanding of PLCs is not necessary but will be helpful.
MOTION CONTROLLER & SERVO TRAINING

D75/D77 Positioning

Course Code: TRMOT112P  
Course Credits: None  
Length: 2 Days  
Prerequisite: GX Works2 Programming

INTRODUCTION
This course is intended to familiarize the attendee with the QD75, QD77, LD75, and LD77 families of motion control modules and the software needed to configure, make changes, and maintain a motion system. Positioning, parameters, homing, and diagnostics will be discussed. This class is focused on positioning control, and does not contain a discussion of PLC addressing, address types, basic software operation or hardware configuration. The material in this class is applicable to all of the QD75, QD77, LD75, and LD77 positioning module families.

WHO SHOULD ATTEND?
Students with an interest in learning how to create a simple motion system with the iQ platform should attend this course.

COURSE HARDWARE
QD75, QD77, LD75, LD77

PREREQUISITES EXPLAINED
Students should have already attended the GX Works2 Programming course, or have at least 1 year experience programming Mitsubishi Electric PLCs.

QD77/LD77 Advanced Positioning

Course Code: TRMOT201A  
Course Credits: None  
Length: 1 Day  
Prerequisite: D75/D77 Positioning

INTRODUCTION
This course is intended to familiarize the attendee with the synchronous control functions of the QD77 and LD77 families of motion control modules. This class is focused on the advanced control capabilities of the QD77 and LD77. Basic programming, operation, and troubleshooting of these modules is not covered in this class.

WHO SHOULD ATTEND?
This class is ideal for those who have already attended the D75/77 Positioning class, and have a desire to learn the concepts of synchronous control and camming operations.

COURSE HARDWARE
QD77, LD77

PREREQUISITES EXPLAINED
Students must attend the D75/77 Positioning class prior to attending. The advanced class is always instructed immediately following the D75/77 Positioning class.

Simple Motion GX Works3

Course Code: TRMOT202P  
Course Credits: None  
Length: 2 Days  
Prerequisite: GX Works3 Programming

INTRODUCTION
Positioning, parameters, homing, diagnostics, synchronous, and camming features are discussed. Students will have the opportunity to create their programs in multiple programming languages. This class is focused on positioning control, and does not contain a discussion of PLC addressing, address types, basic software operation or hardware configuration. The material in this class is applicable to all of the RD77MS, RD77GF, and FX5-40SSC-S positioning modules.

WHO SHOULD ATTEND?
Students with an interest in learning how to create a simple motion system with the iQ-R/iQ-F platform should attend this course.

COURSE HARDWARE
RD77MS/GF, FX5-40SSC-S

PREREQUISITES EXPLAINED
Students should have already attended the GX Works3 Programming course, or have at least 1 year experience programming Mitsubishi Electric iQ-R/F PLCs.

SOFTWARE TRAINING

GX Works2 Programming

Course Code: TRSFT101P  
Course Credits: None  
Length: 3 Days  
Prerequisite: PLC Basics (GX Works2)

INTRODUCTION
This course is intended to introduce the GX Works2 programming software and programming in ladder logic. This course covers the concepts of ladder programming, as well as the features of the GX Works2 software. The material covered will include concepts applicable to the FX Series, L Series, and Q Series programmable controller families. In most cases, different hardware options will be available to allow groups of students to use the hardware platform of their choice.

WHO SHOULD ATTEND?
Interested parties wanting to learn the programming of Mitsubishi Electric programmable logic controllers.

COURSE HARDWARE
iQ Series, FX3 processors

PREREQUISITES EXPLAINED
PLC Basics recommended but not necessary for students with prior experience programming any type of programmable logic controllers.

GX Works2 Structured Programming

Course Code: TRSFT104P  
Course Credits: None  
Length: 3 Days  
Prerequisite: GX Works2 Programming

INTRODUCTION
This course is intended to introduce the concepts of structured programming. This includes the structured ladder, structured text, and sequential function chart programming languages.

WHO SHOULD ATTEND?
Students responsible for creating programs in the structured programming languages: ST, SFC, structured ladder/FBD, and ladder using device and label based programming.

COURSE HARDWARE
UdE processors

PREREQUISITES EXPLAINED
Students should have already attended the GX Works2 Basics and Programming course, or have at least 1 year experience programming Mitsubishi Electric PLCs.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Credits</th>
<th>Length</th>
<th>Prerequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRSFT108P</td>
<td>None</td>
<td>4 Days</td>
<td>None</td>
</tr>
<tr>
<td>TRSFT106P</td>
<td>None</td>
<td>4 Days</td>
<td>None</td>
</tr>
<tr>
<td>TRNET107P</td>
<td>None</td>
<td>2 Days</td>
<td>GC Works2 Programming</td>
</tr>
<tr>
<td>TRNET102P</td>
<td>None</td>
<td>2 Days</td>
<td>GC Works2 Programming</td>
</tr>
</tbody>
</table>

**GX Works3 Programming**

**Course Code:** TRSFT108P  
**Course Credits:** None  
**Length:** 4 Days  
**Prerequisite:** None  

**INTRODUCTION**  
This course is intended to introduce and take an in-depth look at the features and programming languages of the GX Works 3 software. It provides full descriptions of Ladder, ST, SFC, and FBD/LD languages utilizing label based programming.

**WHO SHOULD ATTEND?**  
Students should have some PLC programming experience. Some topics covered are advanced in nature.

**MT Works2 Programming**

**Course Code:** TRSFT105P  
**Course Credits:** None  
**Length:** 4 Days  
**Prerequisite:** GX Works2 Programming  

**INTRODUCTION**  
This course is intended to familiarize the attendee with motion controllers and MT Works2 software. Positioning, parameters, homing, diagnostics, real/virtual modes, and camming features are discussed. This course focuses on the Motion Control CPU and programming, and does not contain a discussion of basic PLC addressing, address types, basic GX Works2 operation, or hardware configuration. This class is applicable to the QDS Motion CPU, QD Motion CPU, QH Motion CPU, as well as the Q170M CPU and MR-MQ100 standalone motion controllers.

**WHO SHOULD ATTEND?**  
Students with an interest in learning how to create a motion system with the iQ platform should attend this course.

**COURSE HARDWARE**  
Q172D(S)CPU, Q173D(S)CPU  

**PREREQUISITES EXPLAINED**  
Students should have already attended the GX Works2 Programming course, or have at least 1 year experience programming Mitsubishi Electric PLCs.

**MC Works64**

**Course Code:** TRSFT106P  
**Course Credits:** None  
**Length:** 4 Days  
**Prerequisite:** None  

**INTRODUCTION**  
The use of multiple platforms in industrial automation has called upon the integration of several software packages into one single usable software package. MC Works64 comes with a centralized project management tool: the Workbench. This tool is a single application needed to configure and run the different aspect of an HMI project. The application based on .NET technology will allow making project changes over the internet. This course will cover the several applications provided through Workbench.

**COURSE HARDWARE**  
QJ71MES96, QJ71GF11-T2  

**PREREQUISITES EXPLAINED**  
Students should have an understanding of networks and industrial controls systems.

**MES Interface IT/US**

**Course Code:** TRNET202P  
**Course Credits:** None  
**Length:** 3 Days  
**Prerequisite:** None  

**INTRODUCTION**  
This course will cover programming of the MES IT and MES US modules thru the WorkBench software. The software is basically identical for both modules. MES IT will be used for this class.

**COURSE HARDWARE**  
QJ71MES96IT and the QJ71MES96US are different products and are not covered in this class.

**WHO SHOULD ATTEND?**  
Technicians, engineers, SQL programmers and IT personnel can all benefit from this class.

**PREREQUISITES EXPLAINED**  
Students should have already attended the GX Works2 Basics and Programming course, or have at least 1 year experience programming Mitsubishi Electric PLCs.

**CC-Link Networking**

**Course Code:** TRNET107P  
**Course Credits:** None  
**Length:** 2 Days  
**Prerequisite:** GC Works2 Programming  

**INTRODUCTION**  
This course is intended to introduce and demonstrate the CC-Link network and its configuration, execution, and troubleshooting. This class will be taught using the Q Series processors and GX Works2 software.

**COURSE HARDWARE**  
QJ61BT11N  

**PREREQUISITES EXPLAINED**  
Students should have already attended the GX Works2 Basics and Programming course, or have at least 1 year experience programming Mitsubishi Electric PLCs.

**CC-Link IE Networking**

**Course Code:** TRNET102P  
**Course Credits:** None  
**Length:** 2 Days  
**Prerequisite:** GC Works2 Programming  

**INTRODUCTION**  
This course is intended to introduce and demonstrate the CC-Link IE Control and CC-Link IE Field networks and configuration, execution, and troubleshooting of the networks. This class will be taught using the Q Series processors and GX Works2 software.

**COURSE HARDWARE**  
QJ71GP21-SX, QJ71GF11-T2  

**PREREQUISITES EXPLAINED**  
Students should have already attended the GX Works2 Basics and Programming course, or have at least 1 year experience programming Mitsubishi Electric PLCs.

**MC Works64**

**Course Code:** TRSFT106P  
**Course Credits:** None  
**Length:** 4 Days  
**Prerequisite:** None  

**INTRODUCTION**  
The use of multiple platforms in industrial automation has called upon the integration of several software packages into one single usable software package. MC Works64 comes with a centralized project management tool: the Workbench. This tool is a single application needed to configure and run the different aspect of an HMI project. The application based on .NET technology will allow making project changes over the internet. This course will cover the several applications provided through Workbench.

**COURSE HARDWARE**  
QJ71MES96, QJ71GF11-T2  

**PREREQUISITES EXPLAINED**  
Students should have an understanding of networks and industrial controls systems.

**MES Interface IT/US**

**Course Code:** TRNET202P  
**Course Credits:** None  
**Length:** 3 Days  
**Prerequisite:** None  

**INTRODUCTION**  
This course will cover programming of the MES IT and MES US modules thru the WorkBench software. The software is basically identical for both modules. MES IT will be used for this class.

**COURSE HARDWARE**  
QJ71MES96IT and the QJ71MES96US are different products and are not covered in this class.

**WHO SHOULD ATTEND?**  
Technicians, engineers, SQL programmers and IT personnel can all benefit from this class.

**PREREQUISITES EXPLAINED**  
Students should have already attended the GX Works2 Basics and Programming course, or have at least 1 year experience programming Mitsubishi Electric PLCs.

**CC-Link IE Networking**

**Course Code:** TRNET107P  
**Course Credits:** None  
**Length:** 2 Days  
**Prerequisite:** GC Works2 Programming  

**INTRODUCTION**  
This course is intended to introduce and demonstrate the CC-Link network and its configuration, execution, and troubleshooting. This class will be taught using the Q Series processors and GX Works2 software.

**COURSE HARDWARE**  
QJ61BT11N  

**PREREQUISITES EXPLAINED**  
Students should have already attended the GX Works2 Basics and Programming course, or have at least 1 year experience programming Mitsubishi Electric PLCs.

**CC-Link Networking**

**Course Code:** TRNET102P  
**Course Credits:** None  
**Length:** 2 Days  
**Prerequisite:** GC Works2 Programming  

**INTRODUCTION**  
This course is intended to introduce and demonstrate the CC-Link network and its configuration, execution, and troubleshooting. This class will be taught using the Q Series processors and GX Works2 software.

**COURSE HARDWARE**  
QJ61BT11N  

**PREREQUISITES EXPLAINED**  
Students should have already attended the GX Works2 Basics and Programming course, or have at least 1 year experience programming Mitsubishi Electric PLCs.

**MC Works64**

**Course Code:** TRSFT106P  
**Course Credits:** None  
**Length:** 4 Days  
**Prerequisite:** None  

**INTRODUCTION**  
The use of multiple platforms in industrial automation has called upon the integration of several software packages into one single usable software package. MC Works64 comes with a centralized project management tool: the Workbench. This tool is a single application needed to configure and run the different aspect of an HMI project. The application based on .NET technology will allow making project changes over the internet. This course will cover the several applications provided through Workbench.

**COURSE HARDWARE**  
QJ71MES96, QJ71GF11-T2  

**PREREQUISITES EXPLAINED**  
Students should have an understanding of networks and industrial controls systems.

**MES Interface IT/US**

**Course Code:** TRNET202P  
**Course Credits:** None  
**Length:** 3 Days  
**Prerequisite:** None  

**INTRODUCTION**  
This course will cover programming of the MES IT and MES US modules thru the WorkBench software. The software is basically identical for both modules. MES IT will be used for this class.

**COURSE HARDWARE**  
QJ71MES96IT and the QJ71MES96US are different products and are not covered in this class.

**WHO SHOULD ATTEND?**  
Technicians, engineers, SQL programmers and IT personnel can all benefit from this class.

**PREREQUISITES EXPLAINED**  
Students should have already attended the GX Works2 Basics and Programming course, or have at least 1 year experience programming Mitsubishi Electric PLCs.
MELSECNET/H Networking
Course Code: TRNET103P
Course Credits: None
Length: 2 Days
Prerequisite: GX Works2 Programming

INTRODUCTION
This course is intended to introduce and demonstrate the MELSECNET/H network and its configuration, execution, and troubleshooting. This class will be taught using the Q Series processors and GX Works2 software.

WHO SHOULD ATTEND?
Students responsible for commissioning and maintaining a MELSECNET/H network.

COURSE HARDWARE
QJ71BR11

PREREQUISITES EXPLAINED
Students should have already attended the GX Works2 Basics and Programming Course, or have at least 1 year experience programming Mitsubishi Electric PLCs.

HMI TRAINING
GOT1000 & GT Works3
Course Code: TRHMI101P
Course Credits: None
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is intended to familiarize the attendee with the GOT1000 Family of operator interface products and the software needed to create, configure and modify screens which can be used with PLC systems. This class will be taught using the GT15 or GT16 operator interfaces, Q Series or L Series PLCs, and GT Works3 software suite.

WHO SHOULD ATTEND?
Those wishing to learn how to program and interface with the Mitsubishi Electric HMI offerings.

COURSE HARDWARE
GOT1000 Series operator interface

PREREQUISITES EXPLAINED
Although it is not required, it would be helpful if the student has prior knowledge of PLC programming.

GOT2000 & GT Works3
Course Code: TRHMI102P
Course Credits: None
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is intended to familiarize the attendee with the GOT2000 Family of operator interface products and the software needed to create, configure and modify screens which can be used with PLC systems. This class will be taught using the GT27 operator interfaces, Q Series PLCs, and GT Works3 software suite.

WHO SHOULD ATTEND?
Those wishing to learn how to program and interface with the Mitsubishi Electric HMI offerings.

COURSE HARDWARE
GOT2000 Series operator interface

PREREQUISITES EXPLAINED
Although it is not required, it would be helpful if the student has prior knowledge of PLC programming.

PLC TRAINING
PLC Basics (GX Works2)
Course Code: TRPLC003B
Course Credits: None
Length: 1 Day
Prerequisite: None

INTRODUCTION
This course provides the opportunity to learn about the basics of programmable logic controllers.

WHO SHOULD ATTEND?
Interested parties wanting to learn the basics of all programming of logical controllers.

COURSE HARDWARE
None. This class is an introduction to programming programmable logic controllers.

PREREQUISITES EXPLAINED
No prerequisite required. Recommended for beginners with little or no experiencing programming.

Safety Systems QS/WS
Course Code: TRPLC303P
Course Credits: None
Length: 2 Days
Prerequisite: PLC Basics (GX Works2)

INTRODUCTION
This course is intended to introduce the Q Safety Controller, Q Safety Relay Modules, WS Controller, and CC-Link Safety network. This class is taught with the QS001CPU Safety PLC and GX Developer software as well as the WS Safety Controller and WS Developer.

WHO SHOULD ATTEND?
Interested parties looking to integrate safety PLC and hardware to their process lines.

COURSE HARDWARE
QS001CPU, WS, CC-Link networking module

PREREQUISITES EXPLAINED
An understanding of GX Developer programming software. The processor is only accessed through this software. Networking is introduced but attendance in a networking course would be recommended, not required.
Safety Systems iQ-R  
**Course Code:** TRPLC306P  
**Course Credits:** None  
**Length:** 2 Days  
**Prerequisite:** GX Works3 Programming  

**INTRODUCTION**  
This course introduces the iQ-R Safety Controller and its associated CC-Link IE Field Safety network. This class will teach programming the R06SFCPU safety processor with GX Works3 software. The student will learn the integration of both safety and standard programming available with the processors. Executing and accessing remote I/O connectivity through network modules. Utilize the shared label list for interaction between programming types available and the use safety rated function blocks. By the completion of the course the student will be familiar with the creation and interaction of working programs with available hardware.

**WHO SHOULD ATTEND?**  
Interested parties looking to integrate safety PLC and hardware to their process lines.

**COURSE HARDWARE**  
iQ-R Safety Series PLCs: R6SFM, RJ71GF11-T2.

**PREREQUISITES EXPLAINED**  
Networking is introduced but attendance in a networking course would be recommended, not required.

---

**ROBOT PROGRAMMING TRAINING**

**Robot Basic Programming**  
**Course Code:** TRROB101P  
**Course Credits:** None  
**Length:** 3 Days  
**Prerequisite:** None  

**INTRODUCTION**  
This course familiarizes attendees with Mitsubishi Electric robot products and the software needed to configure, teach points, make changes, and maintain a robot system.

**WHO SHOULD ATTEND?**  
This class is ideal for students with limited knowledge of Mitsubishi Electric Robots and the RT Toolbox2 programming software.

**COURSE HARDWARE**  
F Series, S Series  

**PREREQUISITES EXPLAINED**  
This is an entry level class. No prerequisite is required.

---

**ROBOT MAINTENANCE TRAINING**

**RH-F Maintenance Training (also available as an on-site course)**  
**Course Code:** MERBTM-RH3F, MERBTM-RH6F, MERBTM-RH12F, MERBTM-RH20F  
**Course Credits:** None  
**Length:** 1 Day  
**Prerequisite:** None

**INTRODUCTION**  
This course is intended to explain the basic maintenance structure of the horizontal type of Mitsubishi Electric robots through lecture and hands on practice. The attendee will be able perform routine maintenance on the RH robot system along with learning how to properly troubleshoot the internal workings of the robot system. This class can be taught with using either the Q or D Series CPU.

**WHO SHOULD ATTEND?**  
This class is intended for maintenance individuals and those who are currently responsible for maintaining the Mitsubishi Electric RH-F robot system.

**COURSE HARDWARE**  

**PREREQUISITES EXPLAINED**  
No prerequisite required.

---

**RH-1FHR Maintenance Training**  
**Course Code:** MERBTM-RH1FHR  
**Course Credits:** None  
**Length:** 1 Day  
**Prerequisite:** None

**INTRODUCTION**  
This course is intended to explain the basic maintenance structure of the RH-1FHR inverted horizontal Mitsubishi Electric robot through lecture and hands on practice. The attendee will be able perform routine maintenance on the RH robot system along with learning how to properly troubleshoot the internal workings of the robot system. This class is taught with the Q series type of CPU.

**WHO SHOULD ATTEND?**  
This class is intended for maintenance individuals and those who are currently responsible for maintaining the Mitsubishi Electric RH-1FHR robot system.

**COURSE HARDWARE**  
RH-1FHR, CR750

**PREREQUISITES EXPLAINED**  
No prerequisite required.
RH-SH Maintenance Training
Course Code: MERBTM-RHS
Course Credits: None
Length: 1 Day
Prerequisite: None

INTRODUCTION
This course is intended to explain the basic maintenance structure of the RH-SH horizontal type of Mitsubishi Electric robot through lecture and hands on practice. The attendee will be able to perform routine maintenance on the RH robot system along with learning how to properly troubleshoot the internal workings of the robot system.

WHO SHOULD ATTEND?
This class is intended for maintenance individuals and those who are currently responsible for maintaining the Mitsubishi Electric RH robot system.

COURSE HARDWARE
RH-6SH, RH12SH, RH18SH, CR1B, CR2B

PREREQUISITES EXPLAINED
No prerequisite required.

RH-SDH Maintenance Training (also available as an on-site course)
Course Code: MERBTM-RHSD
Course Credits: None
Length: 1 Day
Prerequisite: None

INTRODUCTION
This course is intended to explain the basic maintenance structure of the RH-SDH horizontal type of Mitsubishi Electric robot through lecture and hands on practice. The attendee will be able to perform routine maintenance on the RH robot system along with learning how to properly troubleshoot the internal workings of the robot system. This class is taught with the Q or D series type of CPU.

WHO SHOULD ATTEND?
This class is intended for maintenance individuals and those who are currently responsible for maintaining the Mitsubishi Electric RH robot system.

COURSE HARDWARE

PREREQUISITES EXPLAINED
No prerequisite required.

RH-3SDHR Maintenance Training
Course Code: MERBTM-RH3SDHR
Course Credits: None
Length: 1 Day
Prerequisite: None

INTRODUCTION
This course is intended to explain the basic maintenance structure of the RH-3SDHR inverted horizontal Mitsubishi Electric robot through lecture and hands on practice. The attendee will be able to perform routine maintenance on the RH robot system along with learning how to properly troubleshoot the internal workings of the robot system. This class is taught with the D series type of CPU.

WHO SHOULD ATTEND?
This class is intended for maintenance individuals and those who are currently responsible for maintaining the Mitsubishi Electric RH-3SDHR robot system.

COURSE HARDWARE
RH-3SDHR, CR1D

PREREQUISITES EXPLAINED
No prerequisite required.
**RV-2F/4F/7F Maintenance Training**

**Course Code:**
- MERBTM-RV2F  RV2F Robots
- MERBTM-RV4F  RV4F Robots
- MERBTM-RV7F  RV7F Robots

**Course Credits:** None

**Length:** 1 Day

**Prerequisite:** None

**INTRODUCTION**
This course is intended to explain the basic maintenance structure of the RV-F vertical type of Mitsubishi Electric robot through lecture and hands on practice. The attendee will be able to perform routine maintenance on the RV robot system along with learning how to properly troubleshoot the internal workings of the robot system.

**WHO SHOULD ATTEND?**
This class is intended for maintenance individuals and those who are currently responsible for maintaining the Mitsubishi Electric RV robot system.

**COURSE HARDWARE**
- RV-2FD, RV-4FD, RV-7FD, CR750D, CR751D
- RV-2FQ, RV-4FQ, RV-7FQ, CR750Q, CR751Q

**PREREQUISITES EXPLAINED**
No prerequisite required.

**RV-7FLL/13F/20F Maintenance Training**

**Course Code:**
- MERBTM-RV7FLL  RV7FLL Robots
- MERBTM-RV13F  RV13F Robots
- MERBTM-RV20F  RV20F Robots

**Course Credits:** None

**Length:** 1 Day

**Prerequisite:** None

**INTRODUCTION**
This course is intended to explain the basic maintenance structure of the RV-F vertical type of Mitsubishi Electric robot through lecture and hands on practice. The attendee will be able to perform routine maintenance on the RV robot system along with learning how to properly troubleshoot the internal workings of the robot system.

**WHO SHOULD ATTEND?**
This class is intended for maintenance individuals those that are currently responsible for maintaining the Mitsubishi Electric RV robot system.

**COURSE HARDWARE**
- RV-7FDLL, RV-13DF, RV-20DF, CR750D, CR751D, RV-7FQLL, RV-13FQ, RV-20FQ, CR750Q, CR751Q

**PREREQUISITES EXPLAINED**
No prerequisite required.

**RV-S Maintenance Training**

**Course Code:** MERBTM-RVS

**Course Credits:** None

**Length:** 1 Day

**Prerequisite:** None

**INTRODUCTION**
This course is intended to explain the basic maintenance structure of the RV-S vertical type of Mitsubishi Electric robot through lecture and hands on practice. The attendee will be able to perform routine maintenance on the RV robot system along with learning how to properly troubleshoot the internal workings of the robot system.

**WHO SHOULD ATTEND?**
This class is intended for maintenance individuals and those who are currently responsible for maintaining the Mitsubishi Electric RV robot system.

**COURSE HARDWARE**
- RV-3S, RV-6S, RV-12S, CR1B, CR2B, CR3

**PREREQUISITES EXPLAINED**
No prerequisite required.

**RV-35F/50F/70F Maintenance Training**

**Course Code:**
- MERBTM-RV35F  RV35F Robots
- MERBTM-RV50F  RV50F Robots
- MERBTM-RV70F  RV70F Robots

**Course Credits:** None

**Length:** 1 Day

**Prerequisite:** None

**INTRODUCTION**
This course is intended to explain the basic maintenance structure of the RV-F vertical type of Mitsubishi Electric robot through lecture and hands on practice. The attendee will be able to perform routine maintenance on the RV robot system along with learning how to properly troubleshoot the internal workings of the robot system.

**WHO SHOULD ATTEND?**
This class is intended for maintenance individuals those that are currently responsible for maintaining the Mitsubishi Electric RV robot system.

**COURSE HARDWARE**

**PREREQUISITES EXPLAINED**
No prerequisite required.

**RV-SD/SQ Maintenance Training**

**Course Code:** MERBTM-RVSD

**Course Credits:** None

**Length:** 1 Day

**Prerequisite:** None

**INTRODUCTION**
This course is intended to explain the basic maintenance structure of the RV-SD/SQ vertical type of Mitsubishi Electric robot through lecture and hands on practice. The attendee will be able to perform routine maintenance on the RV robot system along with learning how to properly troubleshoot the internal workings of the robot system.

**WHO SHOULD ATTEND?**
This class is intended for maintenance individuals and those who are currently responsible for maintaining the Mitsubishi Electric RV robot system.

**COURSE HARDWARE**
- RV-3SD, RV-6SD, RV-12SD, CR2D RV-3SQ, RV-6SQ, RV-12SQ, CR2Q

**PREREQUISITES EXPLAINED**
No prerequisite required.
ROBOT REPAIR TRAINING

RH-3FH/6FH/12FH/20FH Repair Training
Course Code: MERBTR-RH
Course Credits: None
Length: 2 Days
Prerequisite: None

INTRODUCTION
This course is an in depth look at the maintenance structure of the RH-FH type of Mitsubishi Electric robot. It includes complete removal and reinstallation of multiple joints on the robot. This will give the individual a greater understanding of the internal workings of the Mitsubishi Electric robot and allow them to have the ability to properly troubleshoot any issue that may arise on the robot. Upon completion of this course, operative employees will have a fundamental understanding of the Mitsubishi Electric robot system and should be able to troubleshoot and maintain a complete robot system.

WHO SHOULD ATTEND?
This course is intended for individuals that maintain and repair Mitsubishi Electric robot systems and have some basic mechanical and electrical experience.

COURSE HARDWARE
RH-6SH, RH-12SH, RH-18SH, CR1B, CR2B

PREREQUISITES EXPLAINED
No prerequisite required.

RH-SH Repair Training
Course Code: MERBTR-RHS
Course Credits: None
Length: 2 Days
Prerequisite: None

INTRODUCTION
This course is an in depth look at the maintenance structure of the RH-SH type of Mitsubishi Electric robot. It includes complete removal and reinstallation of multiple joints on the robot. This will give the individual a greater understanding of the internal workings of the Mitsubishi Electric robot and allow them to have the ability to properly troubleshoot any issue that may arise on the robot. Upon completion of this course, operative employees will have a fundamental understanding of the Mitsubishi Electric robot system and should be able to troubleshoot and maintain a complete robot system.

WHO SHOULD ATTEND?
This course is intended for individuals that maintain and repair Mitsubishi Electric robot systems and have some basic mechanical and electrical experience.

COURSE HARDWARE
RH-6SH, RH-12SH, RH-20SH, CR1B, CR2B

PREREQUISITES EXPLAINED
No prerequisite required.

RV-2F/4F/7F Repair Training
Course Code: MERBTR-RV2
Course Credits: None
Length: 2 Days
Prerequisite: None

INTRODUCTION
This course is an in depth look at the maintenance structure of the RV-F type of Mitsubishi Electric robot. It includes complete removal and reinstallation of multiple joints on the robot. This will give the individual a greater understanding of the internal workings of the Mitsubishi Electric robot and allow them to have the ability to properly troubleshoot any issue that may arise on the robot. Upon completion of this course, operative employees will have a fundamental understanding of the Mitsubishi Electric robot system and should be able to troubleshoot and maintain a complete robot system.

WHO SHOULD ATTEND?
This course is intended for individuals that maintain and repair Mitsubishi Electric robot systems and have some basic mechanical and electrical experience.

COURSE HARDWARE

PREREQUISITES EXPLAINED
No prerequisite is required.

RV-3S/6S/12S Repair Training
Course Code: MERBTR-RVS
Course Credits: None
Length: 3 Days
Prerequisite: None

INTRODUCTION
This course is an in depth look at the maintenance structure of the RV-S type of Mitsubishi Electric robot. It includes complete removal and reinstallation of multiple joints on the robot. This will give the individual a greater understanding of the internal workings of the Mitsubishi Electric robot and allow them to have the ability to properly troubleshoot any issue that may arise on the robot. Upon completion of this course, operative employees will have a fundamental understanding of the Mitsubishi Electric robot system and should be able to troubleshoot and maintain a complete robot system.

WHO SHOULD ATTEND?
This course is intended for individuals that maintain and repair Mitsubishi Electric robot systems and have some basic mechanical and electrical experience.

COURSE HARDWARE
RV-3S, RV-6S, RV-12S, CR1B, CR2B, CR3

PREREQUISITES EXPLAINED
This is an entry level class. No prerequisite is required.
Prerequisite: None

INTRODUCTION
This course is an in-depth look at the operation of the Mitsubishi Electric robot. It includes detailed explanations of the internal workings of the Mitsubishi Electric robot and allows the student to understand the fundamental principles of robotics. The course provides hands-on experience with real robots and software, allowing the student to gain practical knowledge and skills in robotics.

WHO SHOULD ATTEND?
This course is intended for individuals interested in robotics and automation. It is recommended for students pursuing careers in robotics or automation engineering, as well as professionals already working in these fields who wish to improve their knowledge and skills.

COURSE HARDWARE
Mitsubishi Electric robots and robot control software.

PREREQUISITES EXPLAINED
No prerequisite required.

VFD TRAINING
FR-D700/FR-E700 Micro Inverters
Course Code: TRVF102P
Course Credits: None
Length: 2 Days
Prerequisite: None

INTRODUCTION
This course is intended to introduce the operation and configuration of the FR-D700 and FR-E700 series of Mitsubishi Electric inverters. It covers the basic principles of inverter operation, including frequency control, parameter setting, and troubleshooting.

WHO SHOULD ATTEND?
Students interested in learning about Mitsubishi Electric inverters and their applications.

COURSE HARDWARE
FR-D700 & FR-E700 Motors and inverters.

PREREQUISITES EXPLAINED
Basic electronics knowledge is recommended.

FR-F800 Advanced VFD Training
Course Code: TRVF105P
Course Credits: None
Length: 2 Days
Prerequisite: FR-D700/FR-E700 Micro Inverters

INTRODUCTION
This course is intended to introduce the operation and configuration of the FR-F800 series of Mitsubishi Electric inverters. It covers advanced features such as speed control, vector control, and communication protocols.

WHO SHOULD ATTEND?
Students interested in learning about advanced features of Mitsubishi Electric inverters.

COURSE HARDWARE
FR-F800 Motors and inverters.

PREREQUISITES EXPLAINED
Basic electronics knowledge is recommended.

Drives Start-Up Partner Program
Course Code: TRVF111C
Course Credits: None
Length: 2 Days
Prerequisite: Prior Instructor Approval Required

INTRODUCTION
This course is designed to provide in-depth knowledge of drive installation, operation, and troubleshooting for Mitsubishi Electric drives.

WHO SHOULD ATTEND?
Engineers responsible for installation and commissioning of drives for third-party companies.

COURSE HARDWARE
Mitsubishi Electric drives and accessories.

PREREQUISITES EXPLAINED
Basic electronics knowledge is recommended.