

MPM Edison Programming & Operations Course

This course provides students with a practical hands-on experience enabling them to create a new process program and print the board. Visual inspection to determine print quality is also covered. Our courses offer valuable hands-on practice by following a specialized performance based curriculum founded on *Performance Based Equipment Training (PBET)* standards. Extra emphasis is placed upon the needs of the attendees. Each student, upon successful completion of the skills criteria and course objectives, will receive a certificate of competence.

Intended Audience:

All individuals responsible for the programming and operation of the MPM printing system.

Objectives:

Upon completion of the course and accomplishment of the practical skills criteria, the student will be qualified to program and operate the MPM printer system(s) and will be able to:

- Explain the basic process theory of the machine
- Identify standard machine components
- Understand safety concerns
- Identify machine optional equipment
- Utilize the ITW EAE delivered manuals
- Perform a machine startup/shutdown
- Navigate the operation screens and functions
- Manage machine users and passwords
- Interpret and recover from machine alarms
- Perform file management functions
- Review machine configuration settings
- Define the considerations of the printing process
- Teach a basic process program
- Create vision alignment targets
- Optimize the printing process
- Perform required process maintenance activities
- Explain the machine auto offset functionality *
- Explain the setup of the paste dispenser option *
- Explain the setup of the stencil cleaner option *
- Explain the setup of the Quik-Tool option *
- Explain the setup of the Edge-Loc option *
- Explain the Paste Height Monitor option *

* Denotes an optional topic, which will be covered on a time permitting basis.

Programming courses are taught using MPM standard squeegee blades and PCB examples. Please contact the training instructor for information and/or quotation on custom courses.

Prerequisites:

Preferably 30 day's operational experience with the equipment and a basic understanding of the printing process. Basic understanding of Microsoft™ Windows 7 OS navigation.

Course Offered:

<u>Number</u>	<u>Name</u>
TR-ED-PO	Edison Programming / Operations

Course Duration:

<u>Length</u>	<u>Start</u>	<u>End</u>
4.5 Days	Monday 9:00 a.m.	Friday 12:00 Noon

Please do NOT schedule your return flight departure time earlier than 3 p.m. on Friday to insure class is completed in its' entirety. Any exceptions require instructor approval prior to the start of class.

Please do NOT make travel arrangements until you have registered and received a confirmation from ITW EAE that your class seat has been reserved.

All courses are structured according to PBET standards. The PBET standards were developed by the Technician Training Council and sponsored by SEMATECH and SEMI/SEMITECH and include the following six concepts that are integrated into every course:

- Derive performance objectives from analysis
- Establish course content from performance objectives
- Identify prerequisite skills
- Maximize hands-on practice
- Develop skill tests to measure competency
- Repeat practice and skill tests until mastery of each objective is achieved per course objectives.

MPM Edison Troubleshooting & Calibrations Courses

This course provides students with the printer's theory of operation enabling them to test, repair, analyze and diagnose the Motion Control Circuits, Printhead Assembly and Vision Optics System. The course takes a practical approach to interpret engineering drawings and how they relate to troubleshooting the root cause of problems. This course also covers the software driven calibrations that may occasionally be required. Extra emphasis is placed on addressing customers machine configurations during the class. Our equipment courses offer valuable hands-on practice by following a specialized performance curriculum based on PBET standards. Each attendee, upon successful completion of the course objectives, will receive a certificate of competence.

Intended Audience:

All individuals responsible for the repair, maintenance and calibration of the MPM printing system.

Objectives:

Upon completion of the course and accomplishment of the practical skills criteria, the student will be qualified to:

- Explain the basic process theory of the machine
- Identify standard machine components
- Understand safety concerns
- Identify machine optional equipment
- Utilize the ITW EAE delivered manuals
- Perform a machine startup/shutdown
- Navigate the operation screens and functions
- Manage machine users and passwords
- Interpret and recover from machine alarms
- Perform file management functions
- Review machine configuration settings
- Perform troubleshooting checks to test machine functionality
- Execute automated diagnostic tests
- Use the machine input/output test screen
- Navigate the machine's electrical schematics
- Troubleshoot basic electrical problems
- Explain the motion control system theory
- Troubleshoot motion related problems
- Perform a sample of motion calibrations
- Explain the vision control system theory
- Perform vision calibrations & tests
- Explain the printhead control system theory
- Perform printhead calibrations and adjustments
- Calibrate the optional stencil cleaner system *
- Calibrate the optional dispenser system *
- Calibrate the optional Edge-Loc system *
- Calibrate the Boardstop sensor *

* Denotes an optional topic, which will be covered on a time permitting basis.

Maintenance courses are taught using MPM standard squeegees blades and PCB examples. Please contact the training instructor for information and/or quotation on custom courses.

Prerequisites:

Able to Use Meters, Hand Tools, etc.; Basic Electro-Mechanical Skills; Able to Read / Interpret Engineering Drawings and Schematics. Basic understanding of Microsoft™ Windows 7 OS navigation.

Course Offered:

<u>Number</u>	<u>Name</u>
TR-ED-TSC	Edison Troubleshooting / Calibrations

Course Duration:

<u>Length</u>	<u>Start</u>	<u>End</u>
4.5 Days	Monday 9:00 a.m.	Friday 12:00 Noon

Please do NOT schedule your return flight departure time earlier than 3 p.m. on Friday to insure class is completed in its' entirety. Any exceptions require instructor approval prior to the start of class.

Please do NOT make travel arrangements until you have registered and received a confirmation from ITW EAE that your class seat has been reserved.

All courses are structured according to PBET standards. The PBET standards, developed by the Technician Training Council and sponsored by SEMATECH and SEMI/SEMITECH and include the following six concepts that are integrated into every course:

- Derive performance objectives from analysis
- Establish course content from performance objectives
- Identify prerequisite skills
- Maximize hands-on practice
- Develop skill tests to measure competency
- Repeat practice and skill tests until mastery of each objective is achieved per course objectives.

MPM Accela / Momentum Programming & Operations Courses

This course provides students with a practical hands-on experience enabling them to create a new process program and print the board. Then, utilize SPC, 2D and visual inspection data to determine print quality. Our courses offer valuable hands-on practice by following a specialized performance based curriculum founded on *Performance Based Equipment Training (PBET)* standards. Extra emphasis is placed upon the needs of the attendees. Each student, upon successful completion of the skills criteria and course objectives, will receive a certificate of competence for the equipment course attended.

Intended Audience:

All individuals responsible for the programming and operation of the MPM printing system.

Objectives:

Upon completion of the course and accomplishment of the practical skills criteria, the student will be qualified to program and operate the MPM printer system(s) and will be able to:

- Explain the basic process theory of the machine
- Identify standard machine components
- Understand safety concerns
- Identify machine optional equipment
- Utilize the ITW EAE delivered manuals
- Perform a machine startup/shutdown
- Navigate the operation screens and functions
- Manage machine users and passwords
- Interpret and recover from machine alarms
- Perform file management functions
- Review machine configuration settings
- Define the considerations of the printing process
- Teach a basic process program
- Create vision alignment targets
- Optimize the printing process
- Utilize SPC production data
- Perform required process maintenance activities
- Explain the machine auto offset functionality *
- Explain the setup of the paste dispenser option *
- Explain the setup of the stencil cleaner option *
- Explain the setup of the Standard 2D option *
- Explain the setup of the Enhanced 2D option *
- Explain the setup of the Quik-Tool option *
- Explain the setup of the Auto-Tooling option *
- Explain the setup of the Edge-Loc option *
- Explain the setup of Barcode Reader options *
- Explain the Paste Height Monitor option *
- Explain the setup of the Bridge/Stencil Vision option *

* Denotes an optional topic, which will be covered on a time permitting basis.

Programming courses are taught using MPM standard squeegee blades and PCB examples. Custom courses can also be arranged for (such as using an EnclosedFlow head). Please contact the training instructor for information, scheduling and/or quotation on custom courses.

Prerequisites:

Preferably 30 day's operational experience with the equipment and a basic understanding of the printing process. Basic understanding of Microsoft™ Windows 7 OS navigation.

Courses Offered:

<u>Number</u>	<u>Name</u>
TR-ACEL-PO	Accela Programming / Operations
TR-MO-PO	Momentum Programming / Operations

Due to complexity & time requirements only one machine type will be used per course (i.e. Accela or Momentum).

Course Duration:

<u>Length</u>	<u>Start</u>	<u>End</u>
4.5 Days	Monday 9:00 a.m.	Friday 12:00 Noon

Please do NOT schedule your return flight departure time earlier than 3 p.m. on Friday to insure class is completed in its' entirety. Any exceptions require instructor approval prior to the start of class.

Please do NOT make travel arrangements until you have registered and received a confirmation from ITW EAE that your class seat has been reserved.

All courses are structured according to PBET standards. The PBET standards were developed by the Technician Training Council and sponsored by SEMATECH and SEMI/SEMITECH and include the following six concepts that are integrated into every course:

- Derive performance objectives from analysis
- Establish course content from performance objectives
- Identify prerequisite skills
- Maximize hands-on practice
- Develop skill tests to measure competency
- Repeat practice and skill tests until mastery of each objective is achieved per course objectives.

MPM Accela / Momentum Troubleshooting & Calibrations Courses

This course provides students with the printer's theory of operation to enable them to test, repair, analyze and diagnose the Motion Control Circuits, Printhead Assembly and Vision Optics System. The course takes a practical approach to interpret engineering drawings and how they relate to troubleshooting the root cause of problems. This course also covers the software driven calibrations that may occasionally be required. Extra emphasis is placed on addressing customers machine configurations during the class. Our equipment courses offer valuable hands-on practice by following a specialized performance curriculum based on PBET standards. Each attendee, upon successful completion of the course objectives, will receive a certificate of completion for the course.

Intended Audience:

All individuals responsible for the repair, maintenance and calibration of the MPM printing system.

Objectives:

Upon completion of the course and accomplishment of the practical skills criteria, the student will be qualified to:

- Explain the basic process theory of the machine
- Identify standard machine components
- Understand safety concerns
- Identify machine optional equipment
- Utilize the ITW EAE delivered manuals
- Perform a machine startup/shutdown
- Navigate the operation screens and functions
- Manage machine users and passwords
- Interpret and recover from machine alarms
- Perform file management functions
- Review machine configuration settings
- Perform troubleshooting checks to test machine functionality
- Utilize SPC Data for diagnosing problems
- Execute automated diagnostic tests
- Use the machine input/output test screen
- Navigate the machine's electrical schematics
- Troubleshoot basic electrical problems
- Explain the motion control system theory
- Troubleshoot motion related problems
- Perform a sample of motion calibrations
- Explain the vision control system theory
- Perform vision calibrations & tests
- Explain the printhead control system theory
- Perform printhead calibrations and adjustments
- Calibrate the optional wiper system *
- Calibrate the optional dispenser system *
- Calibrate the optional Edge-Loc system *
- Calibrate the Boardstop sensor *
- Utilize the optional Print Registration system *
- Calibrate the optional Auto-Tooling option *

* Denotes an optional topic, which will be covered on a time permitting basis.

Programming courses are taught using MPM standard squeegee blades and PCB examples. Custom courses can also be arranged for (such as using an EnclosedFlow head). Please contact the training instructor for information, scheduling and/or quotation on custom courses.

Prerequisites:

Able to Use Meters, Hand Tools, etc.; Basic Electro-Mechanical Skills; Able to Read / Interpret Engineering Drawings and Schematics. Basic understanding of Microsoft™ Windows 7 OS navigation.

Courses Offered:

<u>Number</u>	<u>Name</u>
TR-ACEL-TSC	Accela Troubleshooting / Calibrations
TR-MO-TSC	Momentum Troubleshooting / Calibrations

Due to complexity & time requirements only one machine type will be used per course (i.e. Accela or Momentum).

Course Duration:

<u>Length</u>	<u>Start</u>	<u>End</u>
4.5 Days	Monday 9:00 a.m.	Friday 12:00 Noon

Please do NOT schedule your return flight departure time earlier than 3 p.m. on Friday to insure class is completed in it's entirety. Any exceptions require instructor approval prior to the start of class.

Please do NOT make travel arrangements until you have registered and received a confirmation from ITW EAE that your class seat has been reserved.

All courses are structured according to PBET standards. The PBET standards, developed by the Technician Training Council and sponsored by SEMATECH and SEMI/SEMITECH and include the following six concepts that are integrated into every course:

- Derive performance objectives from analysis
- Establish course content from performance objectives
- Identify prerequisite skills
- Maximize hands-on practice
- Develop skill tests to measure competency
- Repeat practice and skill tests until mastery of each objective is achieved per course objectives.