MPM Programming & Operations Courses

This course provides the students with practical hands-on experience to enable them to generate a new board file and print the board. Then utilizing SPC data, 2D, 3D and visual inspection to determine print quality. Our equipment courses offer valuable hands-on practice by following a specialized performance based curriculum founded on *PBET* standards. Each student, upon successful completion of the skills criteria and course objectives, will receive a certificate of competence for the equipment course they attend.

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 and safety concerns
- Identify machine optional equipment
- Utilize the Speedline provided 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 design considerations of the solder printing process
- Teach a basic board program
- Create vision alignment targets
- Optimize the printing process
- Utilize SPC production data
- Review the machine's routine maintenance requirements
- Perform required process maintenance activities
- Explain the setup of 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 2D option *
- Explain the setup of the SpeedMax Board Handling system *
- Explain the setup of the GelFlex option *
- Explain the setup of the auto tooling option *
- Explain the setup of the Y-Snugger option *
- Explain the setup of the 3D option *
- Explain the setup of the BridgeVision option *
- Explain the setup of the StencilVision option *

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

Programming courses are taught using standard squeegee blades, but custom courses can also be arranged for using Rheometric Pumpheads. Please contact the training coordinator for more information on custom courses.

Prerequisites:

Preferably 30 days operational experience with the equipment and a basic understanding of the solder paste printing process

Course Duration:

	Length	Start	End
AP HiE & AP Excel/ UP2000 HiE & UP2000NT/ Accela UP3000HiE & Ultraflex3000/ Momentum	4.5 Days	Monday 9:00 a.m.	Friday 12:00 Noon

The course may end earlier, depending upon the specific machines, options and number of the participant group. Please do NOT make flight arrangements earlier than 3 p.m. without checking with the training coordinator.

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 Troubleshooting & Calibrations Courses

This course provides the student with the printer's theory of operation to enable them to test, repair, analyze, diagnose the Motion Control Circuit, Printhead Assembly and Vision Optics System. The course takes a practical approach to interpret engineering drawings and how they relate to troubleshooting root cause problems. This course also covers the basic calibrations that may be periodically required. Our equipment courses offer valuable hands-on practice by following a specialized performance based 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 and safety concerns
- Identify machine optional equipment
- Utilize the factory 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
- Review the machine's preventive maintenance schedule
- Calibrate the optional wiper system *
- Calibrate the optional dispenser system *
- Calibrate the optional Y-snugger system *
- Calibrate the boardstop sensor *
- Calibrate the optional 3D Verification system *
- Review the maintenance issues of the auto tooling option *

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

Maintenance courses are generally taught using standard squeegees. Courses can also be arranged for using Rheometric Pumpheads, but special arrangements have to made prior to the course. Please inform the training coordinator if you have a Rheometric Pumphead at the time of course registration.

Prerequisites:

Able to Use Meters, Hand Tools, etc.; Basic Electro-Mechanical Skills; Able to Read / Interpret Engineering Drawings and Schematics

Course Duration:

	Length	Start	End
AP HiE & AP Excel/ UP2000 HiE & UP2000NT/ Accela UP3000HiE & Ultraflex3000/ Momentum	4.5 Days	Monday 9:00 a.m.	Friday 12:00 Noon

Due to the complexity of combining the Troubleshooting and maintenance course, these courses are only offered on a single machine type (ie: AP Excel Troubleshooting & Calibrations).

The course may end earlier, depending upon the specific machines, options and number of the participant group. Please do NOT make flight arrangements earlier than 3 p.m. without checking with the training coordinator.

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.