

CAMALOT XyflexPro+ Programming and System Operation Course

This course is targeted to individuals who are tasked with the responsibility of system programming and pattern import. Separate programmer courses are offered based on the usage of the equipment; SMT or Semiconductor. Our courses offer valuable hands-on practice by following a specialized performance based curriculum according to PBET standards. Each student, upon successful completion of the skills performance and course objectives will receive a certificate of competence for CAMALOT's XyFlexPro+ Programming and System Operation course.

Intended Audience:

All individuals responsible for day-to-day system programming and operation of the CAMALOT XyflexPro+ system.

Objectives:

Upon completion of the course and accomplishment of the skills criteria, the student will be qualified to program and operate the CAMALOT XyflexPro+ system and will be able to:

- Define and use the CAMALOT XyflexPro+ Benchmark software to develop process parameters
- Explain the interaction and controls of the machine hardware through software
- Import data and CAD data file* into the system
- Construct a dispense pattern and utilize the dispense unit
- Identify machine component hardware
- Perform vision system calibration and offsets
- Identify and program Fiducials
- Perform auto-alignment and correction
- Perform conveyor and lift table operations
- Dispense dots, lines, and arcs
- Install, setup and clean the Dispense Units
- Create sub-patterns
- Use Chip Definition
- Operate Chuck temperature controls and timers
- Use the touch probe, laser and toggle touch devices
- Utilize templates and optimize patterns
- Analyze and correct process faults

* Denotes an optional topic. The student will perform these functions to CAMALOT standards.

Prerequisites:

Prior experience in SMT or Semiconductor equipment operation, Experience with CAD data, Experience in Windows XP, 2000 or later software.

Course Duration:

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

The course may end earlier, depending upon the specific machines and options of the participant group. Please do NOT make flight arrangements earlier than 3 hours after the courses' End time.

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.

CAMALOT XyflexPro+ Troubleshooting and Maintenance Course

This course is targeted to individuals who are tasked with the responsibility of system maintenance and troubleshooting. This course provides numerous practical “hands-on” troubleshooting and maintenance exercises that put to practice classroom theory following PBET standards. Each student, upon successful completion of the skills performance and course objectives, will receive a certificate of competence for CAMALOT’s XyFlexPro+ Troubleshooting and Maintenance.

Intended Audience:

All individuals responsible for system maintenance and troubleshooting of the CAMALOT XyflexPro+ system.

Objectives:

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

- Identify major Assemblies
- Identify & use Modes of Operation
- Perform File Operations
- Perform Camera to Needle Offset
- Adjust basic Dispensing Parameters
- Test Basic I/O Operations
- Interpret wiring diagrams
- Perform Machine Calibrations & Offsets
- Setup the Height Sensing Options *
- Troubleshoot the Electrical System
- Perform Vital Signs checks
- Troubleshoot the Motion Control System
- Teach Fiducials
- Perform Vision Calibration
- Troubleshoot the Vision System
- Perform lubrication and routine maintenance
- Perform Basic Dispense Unit Maintenance
- Navigate and utilize the CAMALOT XyflexPro+ Benchmark™ software

* Denotes an optional topic. The student will perform these functions to CAMALOT standards.

Prerequisites:

Ability to interpret technical drawings and schematics, Ability to utilize meters and hand tools, Familiarity with SMT motion control systems, Experience in Windows XP, 2000 or later software.

Course Duration:

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

The course may end earlier, depending upon the specific machines and options of the participant group. Please do NOT make flight arrangements earlier than 3 hours after the courses’ End time.

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.

CAMALOT FX-D Programming and System Operation Course

This course is targeted to individuals who are tasked with the responsibility of system programming and pattern import. Separate programmer courses are offered based on the usage of the equipment; SMT or Semiconductor. Our courses offer valuable hands-on practice by following a specialized performance based curriculum according to PBET standards. Each student, upon successful completion of the skills performance and course objectives will receive a certificate of competence for CAMALOT's FX-D Programming and System Operation course.

Intended Audience:

All individuals responsible for day-to-day system programming and operation of the CAMALOT FX-D system.

Objectives:

Upon completion of the course and accomplishment of the skills criteria, the student will be qualified to program and operate the CAMALOT FX-D system and will be able to:

- Define and use the CAMALOT FX-D Benchmark software to develop process parameters
- Explain the interaction and controls of the machine hardware through software
- Import data and CAD data file* into the system
- Construct a dispense pattern and utilize sub programs
- Identify machine component hardware
- Perform vision system calibration and offsets
- Identify and program Fiducials
- Perform auto-alignment and correction
- Perform conveyor and lift table operations
- Dispense dots, lines, and arcs
- Install, setup and clean Pumps
- Create sub-patterns
- Use Chip Definition
- Operate Chuck temperature controls and timers
- Use the touch probe, laser and footed needle for Z height control
- Utilize templates and optimize patterns
- Analyze and correct process faults

* Denotes an optional topic. The student will perform these functions to CAMALOT standards.

Prerequisites:

Prior experience in SMT or Semiconductor equipment operation, Experience with CAD data, Experience in Windows XP, 2000 or later software.

Course Duration:

	<u>Length</u>	<u>Start</u>	<u>End</u>
FX-D	4.5 Days	Monday 9:00 a.m.	Friday 12:00 p.m.

The course may end earlier, depending upon the specific machines and options of the participant group. Please do NOT make flight arrangements earlier than 3 hours after the courses' End time.

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.

CAMALOT FX-D Troubleshooting and Maintenance Course

This course is targeted to individuals who are tasked with the responsibility of system maintenance and troubleshooting. This course provides numerous practical “hands-on” troubleshooting and maintenance exercises that put to practice classroom theory following PBET standards. Each student, upon successful completion of the skills performance and course objectives, will receive a certificate of competence for CAMALOT’s FX-D Troubleshooting and Maintenance.

Intended Audience:

All individuals responsible for system maintenance and troubleshooting of the CAMALOT FX-D system.

Objectives:

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

- Identify major Assemblies
- Identify & use Modes of Operation
- Perform File Operations
- Perform Camera to Needle Offset
- Adjust basic Dispensing Parameters
- Test Basic I/O Operations
- Interpret wiring diagrams
- Perform Machine Calibrations & Offsets
- Setup the Height Sensing Options *
- Troubleshoot the Electrical System
- Perform Vital Signs checks
- Troubleshoot the Motion Control System
- Perform Vision Calibration
- Troubleshoot the Vision System
- Perform lubrication and routine maintenance
- Perform Basic Pump Maintenance
- Navigate and utilize the CAMALOT FX-D Benchmark™ software

* Denotes an optional topic. The student will perform these functions to CAMALOT standards.

Prerequisites:

Ability to interpret technical drawings and schematics, Ability to utilize meters and hand tools, Familiarity with SMT motion control systems, Experience in Windows XP, 2000 or later software.

Course Duration:

	<u>Length</u>	<u>Start</u>	<u>End</u>
FX-D	4.5 Days	Monday 9:00 a.m.	Friday 12:00 p.m.

The course may end earlier, depending upon the specific machines and options of the participant group. Please do NOT make flight arrangements earlier than 3 hours after the courses’ End time.

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.

CAMALOT Basic Dispensing & System Operation Course

This course guides the student through the basic operation of the CAMALOT system with the emphasis on SMT and Semiconductor applications. Our equipment courses offer valuable hands-on practice by following a specialized performance based curriculum according to PBET standards. Each student, upon successful completion of the skills performance and course objectives, will receive a certificate of competence in SMT Dispensing & System Operation.

Intended Audience:

All individuals responsible for the operation and/or programming of the CAMALOT 1414 and 1818.

Objectives:

Upon completion of the course and accomplishment of the practical skills criteria, the student will be qualified to operate the CAMALOT SMT configured system and will be able to:

- Identify machine component hardware
- Perform vision system calibration and offsets
- Use GFX software and user interface to create, troubleshoot and execute dispense patterns
- Perform basic lubrication and maintenance of the pump
- Identify and program fiducials
- Perform auto-alignment and correction
- Perform conveyor and lift table operations
- Dispense dots, lines, and arcs
- Import CAD data files *
- Install, setup and clean the pump
- Create sub-patterns
- Use edge detection
- Operate Oven/Chuck temperature controls and timers
- Use the touch probe, laser and toggle touch devices
- Perform Auto Needle Calibration
- Perform lubrication and routine maintenance

* Denotes an optional topic. The student will perform these functions to CAMALOT standards.

Prerequisites:

None

Course Duration:

	<u>Length</u>	<u>Start</u>	<u>End</u>
1414, 1818	4.5 Days	Monday 9:00 a.m.	Friday 12:00 p.m.

The course may end earlier, depending upon the specific machines and options of the participant group. Please do NOT make flight arrangements earlier than 3 hours after the expected end time.

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.

CAMALOT Troubleshooting and Maintenance Course

The focus of this hardware orientated course is to deliver to the maintenance technician an in-depth understanding of the various control systems of the CAMALOT platforms. This course provides numerous practical “hands-on” troubleshooting and maintenance exercises that put to practice classroom theory following *PBET standards. Each student, upon successful completion of the skills performance and course objectives, will receive a certificate of competence in CAMALOT’s System Troubleshooting and Maintenance course.

Intended Audience:

All individuals responsible for the troubleshooting of the control systems and maintenance of the GFX dispensing systems for CAMALOT’s 1414 and 1818 systems

Objectives:

Upon completion of the course and accomplishment of the skills criteria, the student will be qualified to maintain and troubleshoot the CAMALOT system(s) and will be able to:

- Identify major Assemblies
- Identify & use Modes of Operation
- Navigate CAMALOT GFX Software
- Perform File Operations
- Perform Camera to Needle Offset
- Adjust basic Dispensing Parameters
- Test Basic I/O Operations
- Interpret wiring diagrams
- Perform Machine Calibrations & Offsets
- Setup the Height Sensing Options
- Troubleshoot the Electrical System
- Perform Vital Signs checks
- Troubleshoot the Motion Control System
- Teach Fiducials
- Perform Vision Calibration
- Troubleshoot the Vision System
- Perform lubrication and routine maintenance
- Perform Basic Pump Maintenance
- Setup the Needle Calibrator

* Denotes an optional topic. The student will perform these functions to CAMALOT standards.

Prerequisites:

Ability to interpret technical drawings and schematics, A general familiarity with the dispensing process and machines at your facility, Ability to utilize meters and hand tools and Basic electromechanical skills.

Course Duration:

	<u>Length</u>	<u>Start</u>	<u>End</u>
1414, 1818	4 Days	Monday 9:00 a.m.	Thursday 5 p.m.

The course may end earlier, depending upon the specific machines and options of the participant group. Please do NOT make flight arrangements earlier than 3 hours after the expected end time.

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- 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.