

**SYNTEGON**

PROCESSING & PACKAGING



**Training Modules**

[www.syntegon.com/academy](http://www.syntegon.com/academy)

## **Syntegon Academy**

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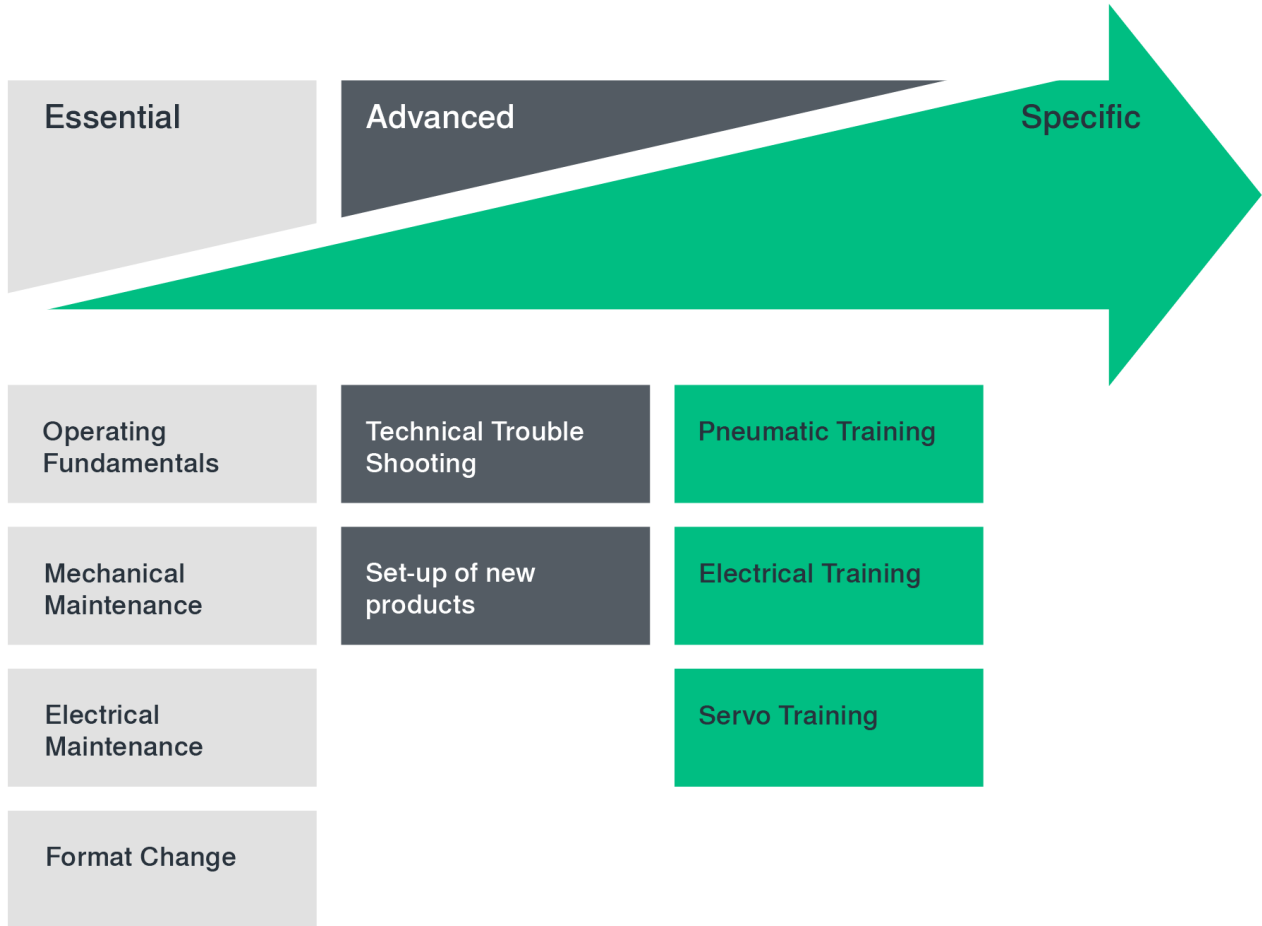
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## 1 Learning architecture



The Academy offers three different types of training for all Syntegon Technology machinery. These types of training consist of different modules that are composed individually for your needs:

### Essential training:

Learn how to safely and correctly operate and maintain your Syntegon system.

### Advanced training:

With our technical advanced training you achieve higher productivity, enhanced quality, more stable processes and a more detailed understanding of your Syntegon equipment.

### Specific training:

Expand your knowledge about selected technologies and processes.

## 2 Course descriptions

### I. Operating Fundamentals

#### Training objectives

- Work safely during operation
- Understand the basic functions of the equipment
- Get familiar with the operating elements
- Be able to operate the equipment
- Get familiar with cleaning procedures

#### Content

##### **General information about the equipment**

Training plan, objectives, documentation

##### **Safety**

Explanation of safety regulations and systems

##### **Functional description**

Basic functions of functional and constructional components

##### **Operating elements and instructions**

Operating and indication elements, HMI screens and menus, recipe handling, teaching of the start-up preparation, production, and shutdown sequences to reach a high quality production

##### **Cleaning**

General explanations, cleaning duties, line clearance

##### **Function monitoring**

Monitoring systems and monitored faults

##### **Failure handling and elimination**

Alarms, failure listings, recognition, evaluation and acknowledgement

##### **Conclusion**

Summary and training evaluation

#### Requirements

Basic technical know-how

#### Related training modules

Format Size Change

#### Target group

Operators, production supervisors

## II. Mechanical Maintenance

### Training objectives

- ❑ Work safely during maintenance
- ❑ Understand the equipment, spare parts and maintenance documentation
- ❑ Get familiar with the periodic maintenance tasks and preventive maintenance principles
- ❑ Learn about the equipment settings and the fundamental product parameters
- ❑ Communicate effectively with the Syntegon-Hotline for fast support

### Content

#### **General information about the mechanical maintenance module**

Training plan, objectives, documentation

#### **Safety**

Explanation of safety regulations and systems

#### **Mechanical maintenance**

Maintenance plan, periodic maintenance tasks, preventive maintenance principles, spare parts catalogue, order process for spare parts

#### **Functional details and settings**

Details of functional and constructional units, zero positions and basic settings, recipe management

#### **Trouble shooting**

Procedure for eliminating faults, diagnosis systematic

#### **Conclusion**

Summary and training evaluation

### Requirements

Operating fundamentals, know-how about format size change

### Related training modules

Electrical Maintenance, Technical Troubleshooting, Set-up of new products

### Target group

Mechanical maintenance personnel, technicians

## III. Electrical Maintenance

### Training objectives

- ❑ Work safely during electrical maintenance
- ❑ Understand the electrical documentation
- ❑ Get familiar with the electrical maintenance tasks and preventive maintenance principles
- ❑ Learn about the equipment settings and the fundamental product parameters
- ❑ Awareness of the situation and ability to evaluate risks (safety, quality)
- ❑ Communicate effectively with the Syntegon-Hotline for fast support

### Content

#### **General information about the electrical maintenance training module**

Training plan, objectives, documentation

#### **Safety**

Explanation of safety regulations and systems, hardware and software circuits

#### **Electrical Components**

Components in the control-cabinet, power supply, installed sensors and actuators in the field, change of defect components

#### **Electrical systems and functions**

Details of electrical functions and interfaces

#### **Control systems, automation system structure**

Overview of control system, purpose and function of control system components, drive concept and applied drive technology

#### **Backup & Recovery**

Backup and restore of programs / parameter settings

#### **Trouble shooting**

Procedure of eliminating faults, diagnosis systematic

#### **Maintenance / Spare parts**

Hard- and software configuration, spare parts ordering process systematic

#### **Conclusion**

Summary and training evaluation

### Requirements

Operating fundamentals, know-how about format size change

### Related training modules

Electrical Maintenance, Technical Troubleshooting, Set-up of new products

### Target group

Mechanical maintenance personnel, technicians

## IV. Format Size Change

### Training objectives

- ❑ Understand the safety principles of a format size change
- ❑ Ability to change the format size
- ❑ Check and control the format size after changeover
- ❑ Be able to ramp up

### Content

#### **General information about the format size training module**

Training plan, objectives, documentation

#### **General information about the format sizes**

Format labeling, format parts and recipe handling, size settings

#### **Safety**

Explanation of safety regulations and systems

#### **Format size change**

Format size change procedure

#### **Format size change control**

Equipment ramp up

#### **Conclusion**

Summary and training evaluation

### Requirements

Operating fundamentals

### Related training modules

Mechanical Maintenance, Electrical Maintenance

### Target group

Operators, setters, mechanical maintenance staff, production supervisors



## V. Technical Trouble Shooting

### Training objectives

- Execute an in-depth technical troubleshooting
- Know procedures to execute a systematic, team-oriented fault diagnosis
- Situation awareness and evaluate complex risk scenarios (safety, quality, process)
- Communicate effectively with the Syntegon-Hotline service for fast support

### Content

#### **General information about the troubleshooting training module**

Training plan, objectives, documentation

#### **Effective procedures to perform a complex technical troubleshooting**

Presentation of different methods based on technical examples

#### **Failure diagnosis**

Apply the procedures in working groups based on examples, signal tracing with the help of the technical documentation

#### **Troubleshooting based on built-in failures for training purposes Conclusion**

Summary and training evaluation

### Requirements

Mechanical maintenance and/or electrical maintenance

### Related training modules

Electrical PLC Training, Set-up of new products

### Target group

Mechanical maintenance staff, electrical maintenance staff, technicians, automation technicians, production supervisors

## VI. Set-up of new products

### Training objectives

- Implement a new product into the production system within the machine limits
- Adjust the fundamental settings and parameters to the new product
- Be able to run an optimization process to find the parameter set which fits best
- Situation awareness and evaluation of complex risk scenarios (safety, quality)

### Content

#### General information about the training module

Training plan, objectives, documentation

#### In-depth view on product parameters and machine settings

Mechanical settings and their influence on quality, recipe management, generation of new recipes

#### Demonstration and hands-on adjustment in the field Conclusion

Summary and training evaluation

### Requirements

Mechanical maintenance and/or electrical maintenance

### Related training modules

Electrical PLC Training, Pneumatic Training, Technical Troubleshooting

### Target group

Mechanical maintenance staff, electrical maintenance staff, technicians, automation technicians, production Supervisors

## VII. Electrical PLC Training

### Training objectives

- ❑ Understand the PLC Hardware environment and communication interfaces
- ❑ Know the structure of the Syntegon-Software application
- ❑ Get a thorough understanding of the software structure
- ❑ Capability to troubleshoot the system
- ❑ Situation awareness and evaluation of complex risk scenarios (safety, quality, process)

### Content

#### General information of the training module

Training plan, objectives, documentation

#### Safety

Electrical safety and hardware architecture

Explanation of the PLC hardware environment and the corresponding naming convention Establishing a communication with the PLC system

#### Structure of the Syntegon-Software application

Explanation of the Syntegon Systems Software Concept, guidelines and programming procedures

#### Software system troubleshooting

Understand errors handling within the software

Fault finding, fault evaluation and elimination

#### Completion

Summary and training evaluation

### Requirements

Operating fundamentals, electrical maintenance, basic PLC knowledge, computer with installed corresponding software

### Related training modules

Servo Training, Technical troubleshooting

### Target group

Electrical maintenance staff, technicians, automation technicians

## VIII. Servo Training

### Training objectives

- ❑ Understand the servo control system and the corresponding automation hierarchy
- ❑ Be familiar with the components, their functions and the communication interfaces
- ❑ Know the structure of the Syntegon-Software application
- ❑ Get a thorough understanding of the software structure
- ❑ Be able to diagnose and troubleshoot the application
- ❑ Situation awareness and evaluation of complex risk scenarios (safety, quality, process)

### Content

#### General information about the training module

Training plan, objectives, documentation

#### Safety

Electrical safety and hardware architecture

Explanation of the servo system hardware environment

Establishing a communication with the Servo system

#### Structure of the Syntegon-Software application

Explanation of the Syntegon Systems Software Concept, guidelines and programming structures

#### Software system troubleshooting

Understand error handling within the software

Fault finding, fault evaluation and elimination

#### Conclusion

Summary and training evaluation

### Requirements

Operating fundamentals, electrical maintenance, basic PLC knowledge, computer with installed corresponding software

### Related training modules

Electrical Maintenance, Technical Troubleshooting, Electrical Training

### Target group

Electrical maintenance personnel, technicians, automation technicians

## IX. Pneumatic Training

### Training objectives

- ❑ Identify, evaluate and correct errors in electro pneumatic components and systems
- ❑ Set-up and commission pneumatic valve terminal systems
- ❑ Acquire know-how about the integration of valve support systems in field bus-dominated controls
- ❑ Gain the ability to avoid, identify and correct weak points

### Content

#### Pneumatic know how

Refresh and extend existing knowledge about pneumatics

#### Systematic Troubleshooting

Gain knowledge about the implementation and documentation of systematic troubleshooting

#### Inspection and maintenance

Implement the four columns of servicing (inspection, maintenance, repair and improvement), maintenance management

#### Field bus interface

Field bus systems in electro pneumatic systems Failure handling and elimination Development and application of suitable troubleshooting strategies

#### Conclusion

Summary and training evaluation

### Requirements

Basic knowledge of pneumatics

### Related training modules

Mechanical Maintenance, Electrical Maintenance, Technical Troubleshooting

### Target group

Mechanical/electrical maintenance personnel, technicians, automation technicians

