

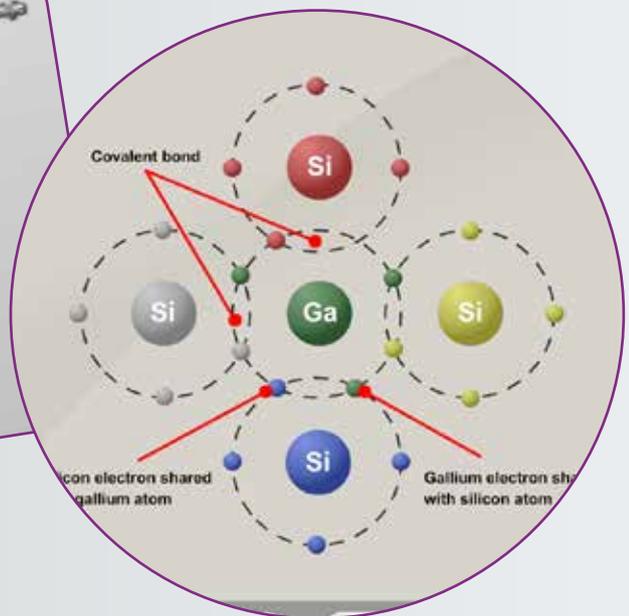
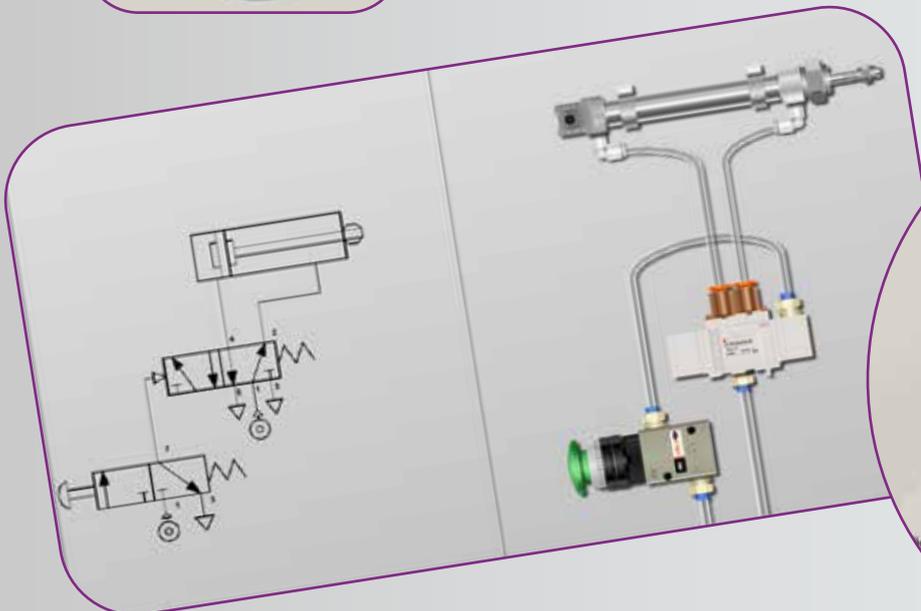
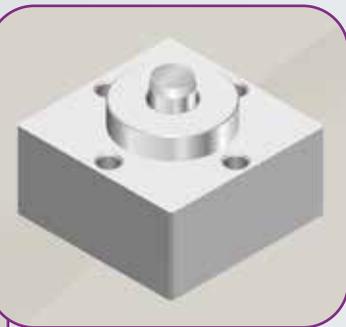
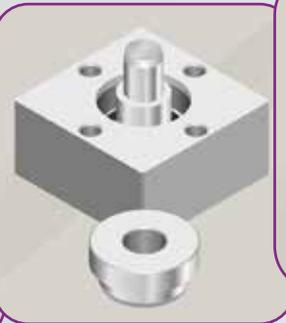
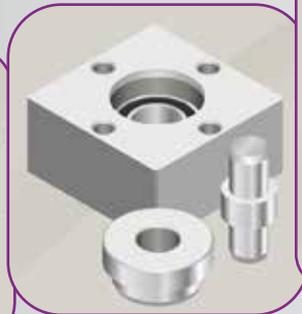


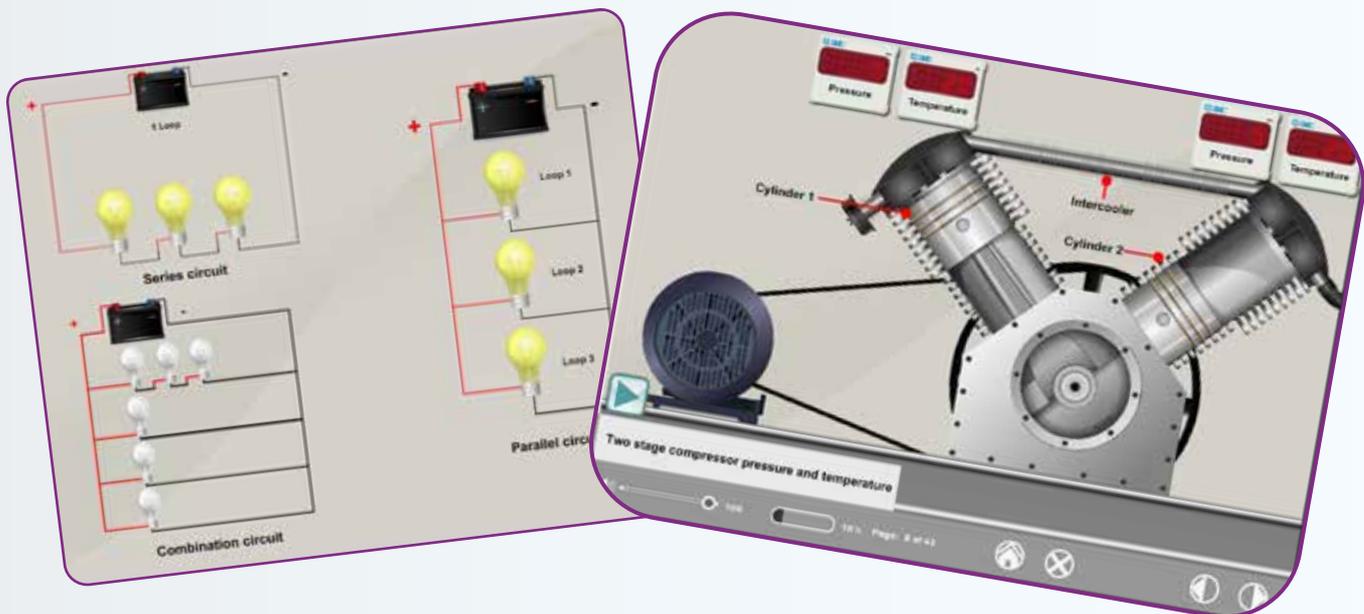
# eLEARNING-200

The perfect theory companion

Access to obstacle-free knowledge

The best way of acquiring underpinning knowledge of automation technologies to support skills development





Using new technologies intelligently means that knowledge can be picked up EASILY and FLEXIBLY.

Delve into the fascinating world of automation technologies with an attractive, new learning system



Find out about our  
eLEARNING courses





## ■ eLEARNING-200 - The perfect theory companion



eLEARNING-200 is a flexible learning system where knowledge can be acquired dependant on the user's available time and requirements.

Users have the option to take actual classes and additional Internet courses when this suits them best.

To be able to develop different technology skills, theoretical knowledge must be acquired first. SMC International Training presents the eLEARNING-200 course programme: the perfect complement to our didactic equipment.

### Access and Use

Through SMC International Training's digital resources platform, users can get connected and work through the different chapters and tests to complete these courses.

Access and use of the eLEARNING-200 courses, once purchased, is as simple as:

- Access [digital.smctraining.com](http://digital.smctraining.com) and enter the Username and Password provided.
- Browse through the different chapters of the purchased courses.
- Each chapter ends in a TEST, validating knowledge acquisition.
- Once all course chapters have been completed, the user receives a CERTIFICATE.



### Structure

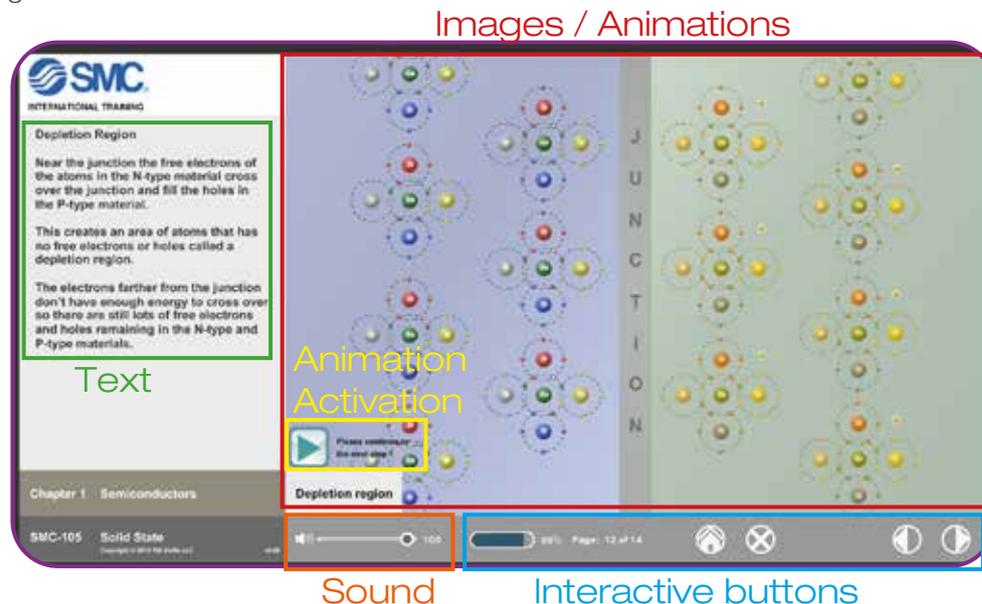
All eLEARNING-200 courses are structured as follows:



The diagram illustrates the hierarchical structure of an e-learning course. It shows three nested levels: Course, Chapter, and Slide. The 'Course' level is represented by a window titled 'SMC-101 Principles of Pneumatics' which contains a 'Chapter' window. The 'Chapter' window is titled 'Chapter 1 Introduction to Pneumatics' and contains a table of contents with 11 sections: 1 Introduction to Pneumatics, 2 Pneumatic Systems, 3 The Properties of Gases, 4 Air Compression and Distribution 1, 5 Air Compression and Distribution 2, 6 Compressed Air Treatment, 7 Pneumatic Actuators, 8 Directional Control Valves, 9 Vacuum Technology, 10 Measuring Pneumatic Variables, and 11 Pneumatic Applications. The 'Slide' level is represented by a window titled 'Pneumatics' which shows a detailed slide about pneumatic actuators, including a diagram of an actuator and text explaining its function.

## General characteristics

eLEARNING-200 comprises interactive courses, including text and images, in addition to a wide range of animation.



## Language and licence type

eLEARNING-200 comprises a total of 13 courses, in different languages, with different licence types, varying according to duration. Each licence provides access to all the available courses. Each user requires a licence.

### Language

eLEARNING-200 comes in six languages:

- ENGLISH
- SPANISH
- CZECH (SMC-110, SMC-111 and SMC-113 courses not included in this language)
- GERMAN
- BULGARIAN
- HUNGARIAN (SMC-110, SMC-111 and SMC-113 courses not included in this language)
- ITALIAN
- INDONESIAN

\*Other languages: Enquire

### Licence type

It is possible to purchase two different types of eLEARNING-200 licence, dependant on customer requirements. Licences can be SINGLE USE or ONE YEAR.

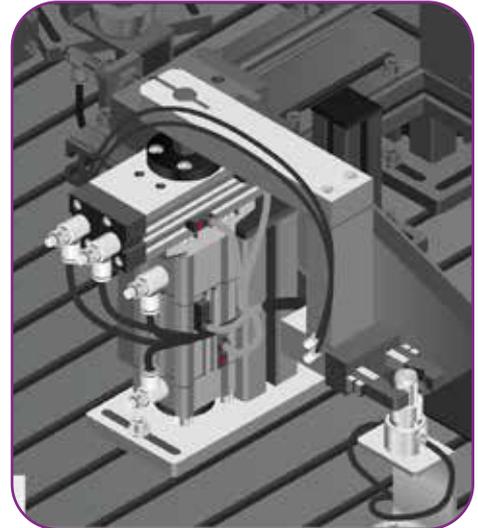
- **SINGLE USE** - The licence is valid for a single user, it is not reusable. It will be valid for one year once the user enrolls the course. Non un-enroll option.
- **ONE YEAR** - The licence is valid for a year. Valid for one user per licence. Reusable\*.

\* Reusable: it is possible to unenroll from the courses so that a new user could be enrolled again. This process can be repeated as many times before expiration of the licence.



■ SMC-100 – Introduction to industrial automation

The SMC-100 course introduces industrial automation, widening the user's knowledge on the importance, benefits and energy sources involved in these systems. It explores a specific assembly process to understand generic automated systems.



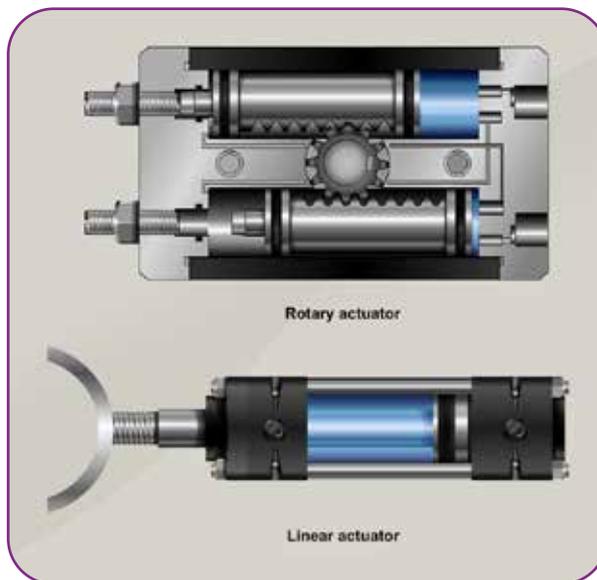
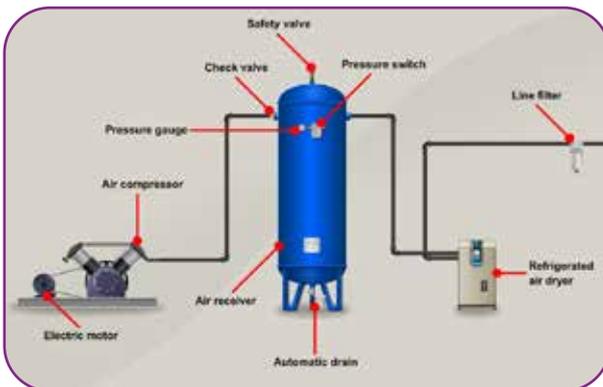
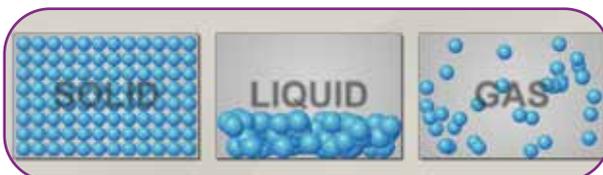
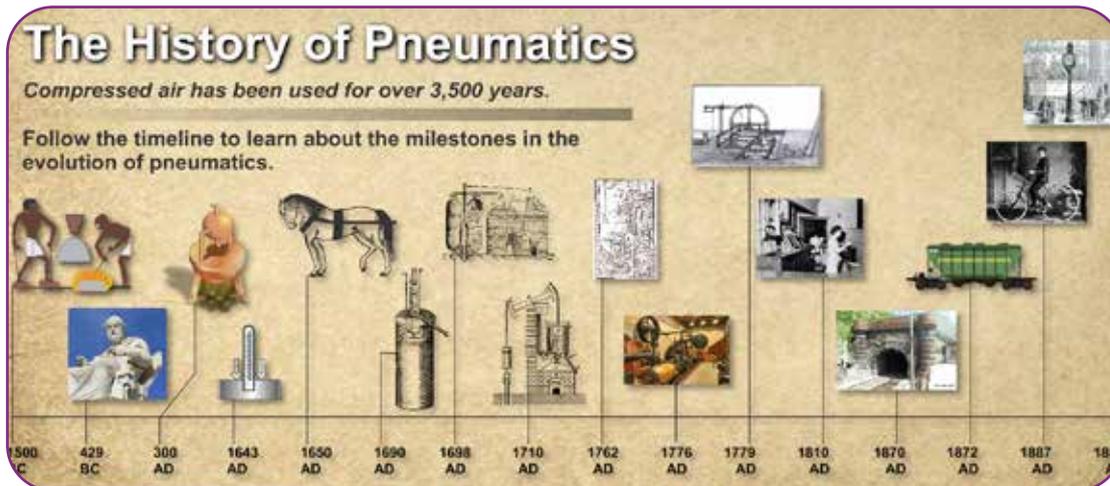
**CHAPTERS**

- Introduction to Automation
- Automated Process
- Automated System



## ■ SMC-101 – Principles of pneumatics

This course introduces users to the basic principles, laws and components used in pneumatic / electropneumatic systems. It covers the types, operating principles and symbols for the different components used in industrial applications.



### CHAPTERS

Introduction to Pneumatics	Pneumatic actuators
Pneumatics Systems	Directional control valves
The properties of gasses	Vacuum technology
Air compression and Distribution 1	Measuring pneumatic variables
Air compression and Distribution 2	Pneumatic applications
Compressed air treatment	





### ■ SMC-102 – Introduction to electricity

The SMC-102 course runs through the production, transport, distribution and use of electrical energy, including the components and control circuits used. The user will become familiar with different types of circuits and electrical applications and will be capable of understanding the laws and relationships between electrical parameters.



Fossil fuels



Geothermal



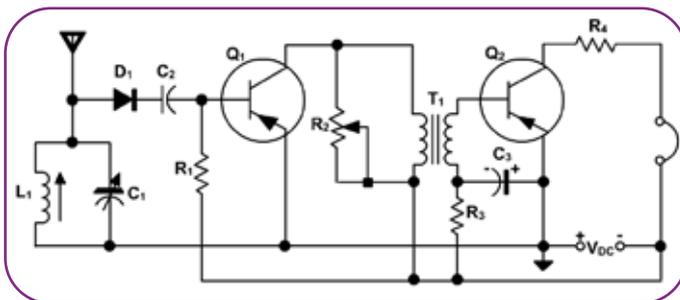
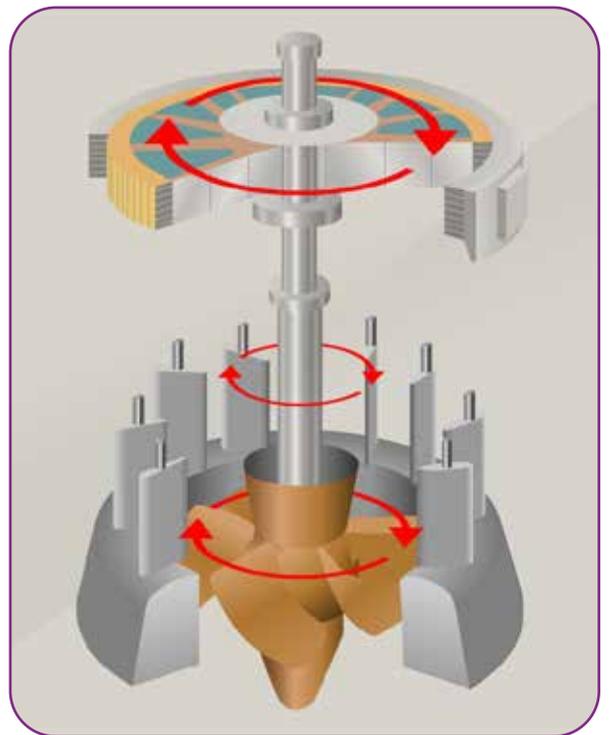
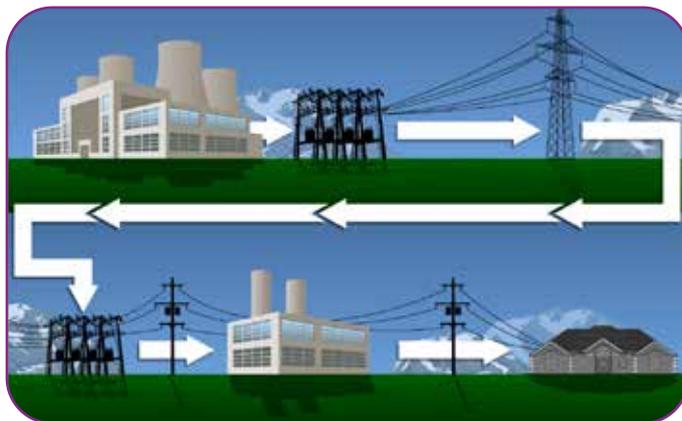
Solar



Biomass



Nuclear



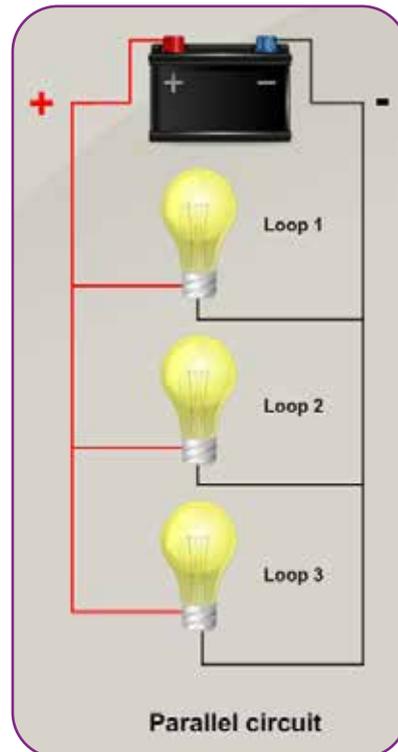
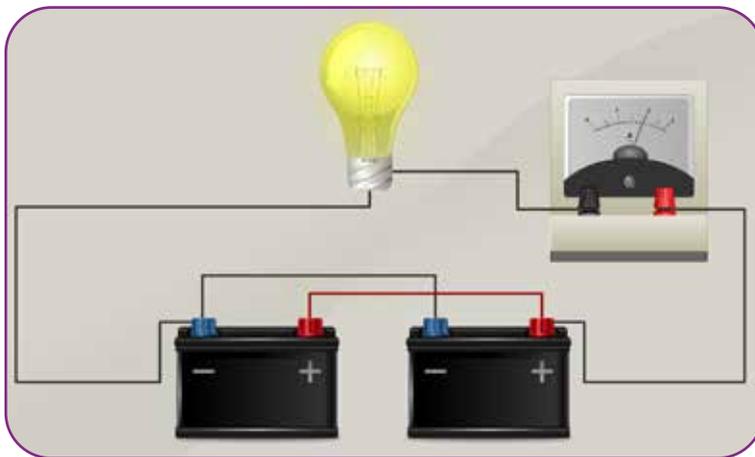
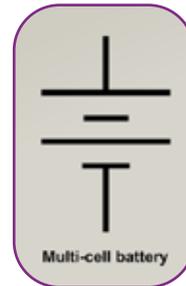
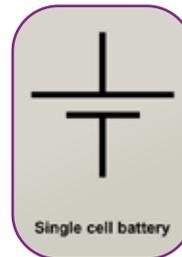
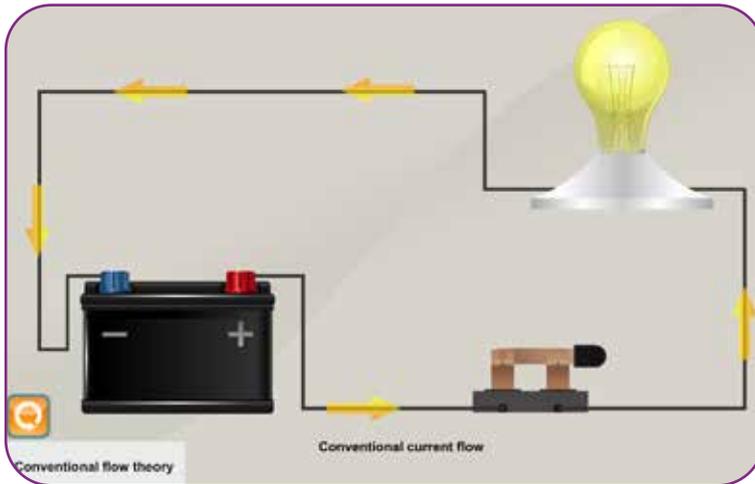
#### CHAPTERS

Production of electricity	Voltage
Transmission and distribution	Electrical power
Uses of electricity	Resistance
Atomic structure	Ohm's law
Electrical circuits	Watt's law
Electrical current	



## ■ SMC-103 – DC electricity

This course focuses on the theory of direct current circuits. Working from the most common dc source, the battery, a closer look is taken at its connections, and the different types of dc receiver circuits (series, parallel, etc.).



### CHAPTERS

Direct current

Batteries

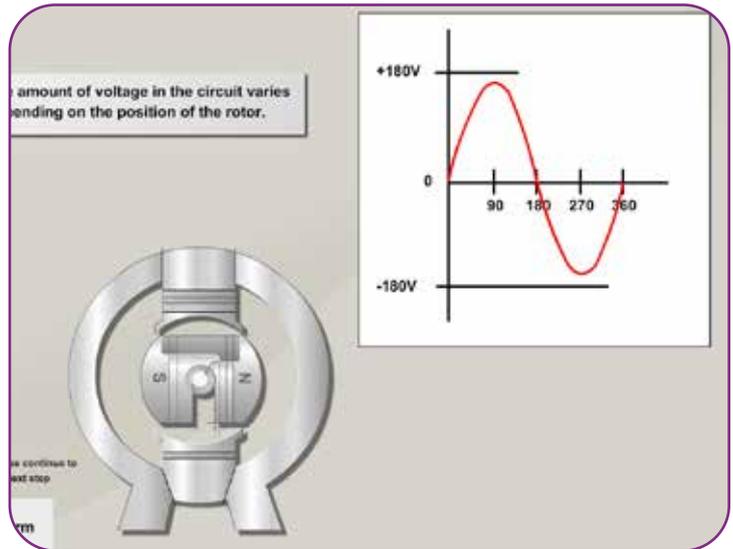
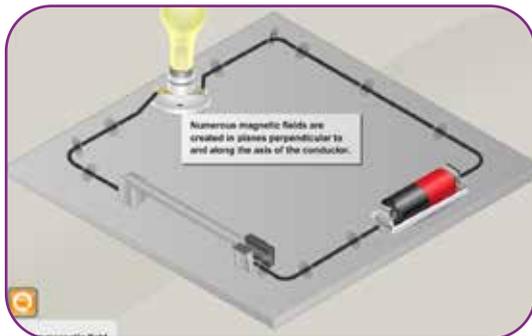
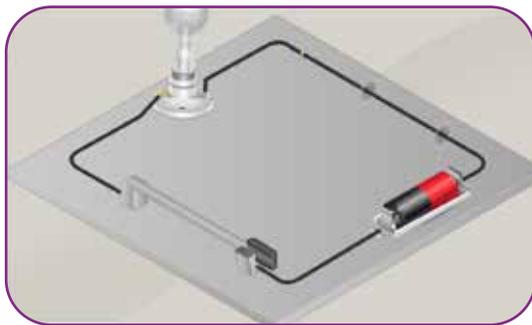
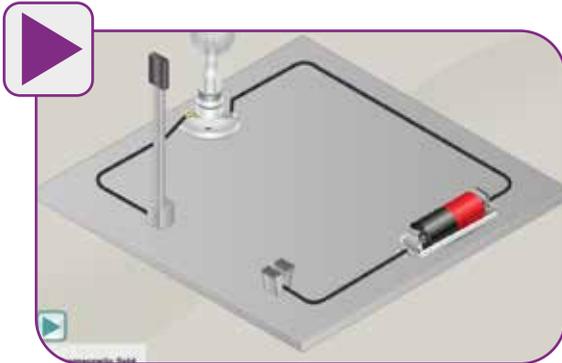
Circuit analysis





### ■ SMC-104 – AC electricity

This course runs through the principles and laws associated with induction and electromagnetism as the basis for understanding how alternating current circuits work and their applications. Details of different devices including coils, relays, transformers and condensers are explained. Concepts of magnetic fields, generating alternate current, frequency, etc. complete the course.



#### CHAPTERS

Electromagnetism

AC waveform generation

Electromagnetic devices

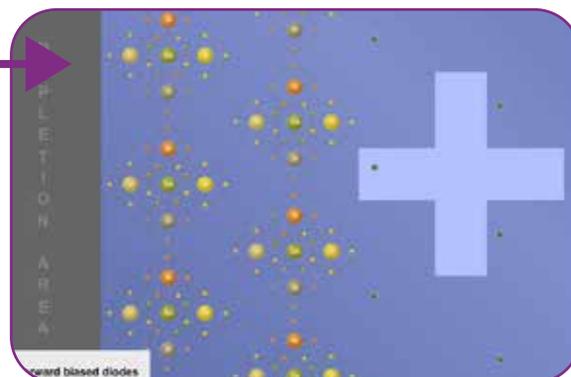
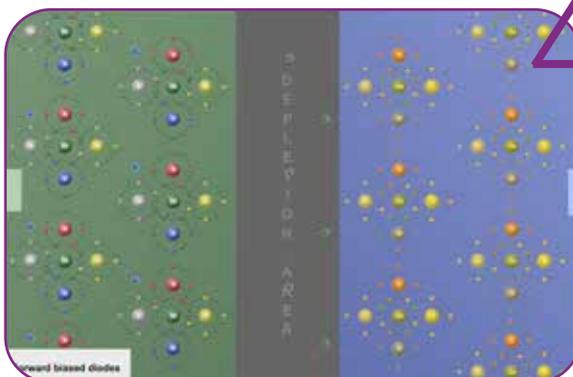
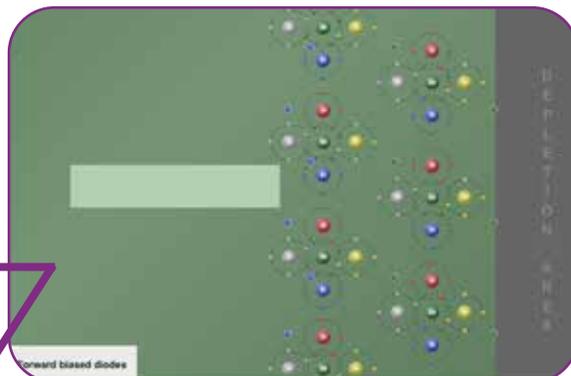
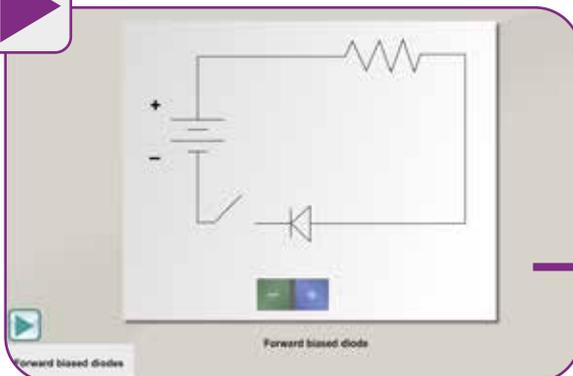
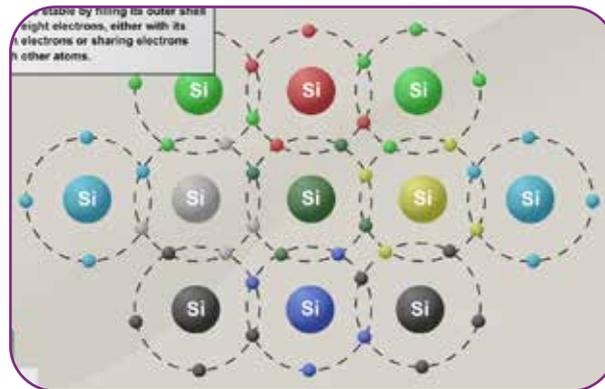
Transformers

Capacitors



## ■ SMC-105 – Solid state

The SMC-105 course focusses on studying solid state devices commonly used in automated equipment and facilities. Starting with the study of the operating principle for semi-conductors (PN union, etc.), the user becomes familiar with different solid state devices such as diodes, rectifiers, transistors, opto-couplers, etc.



### CHAPTERS

Semiconductors

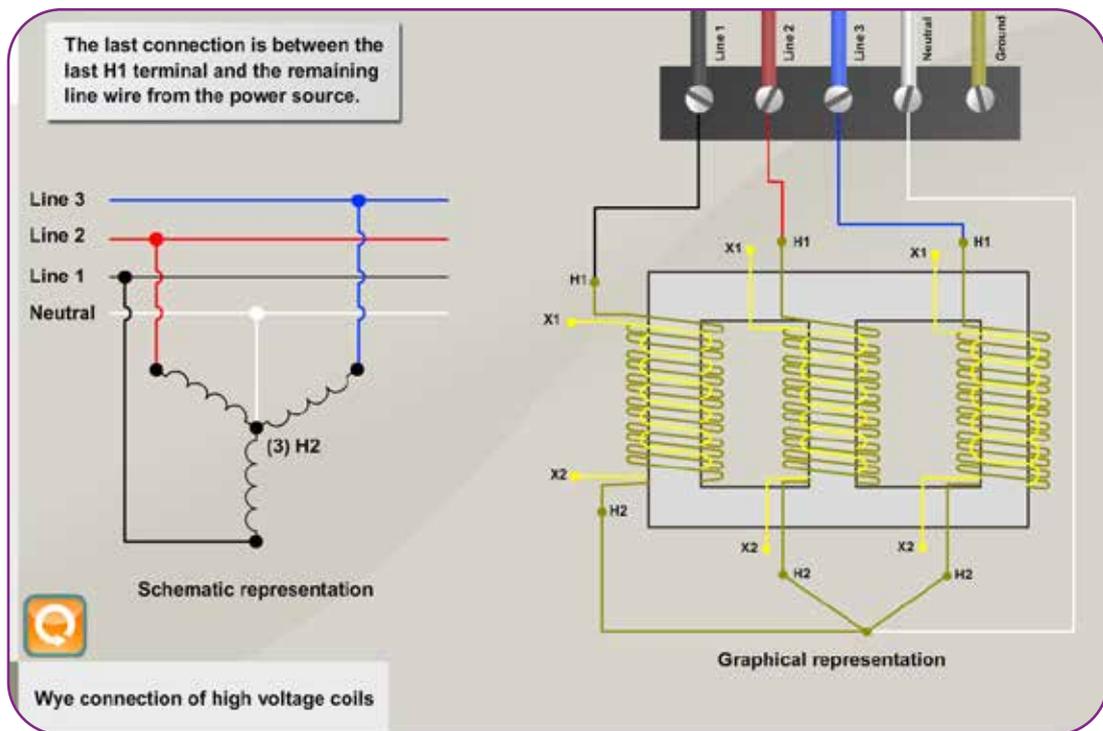
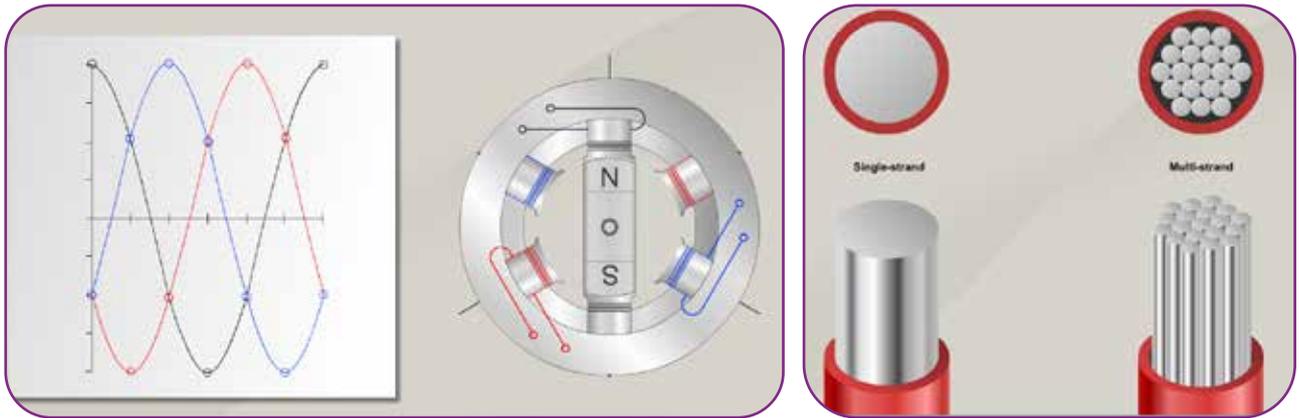
Solid state devices





### ■ SMC-106 – Introduction to wiring

This course presents the components, tools and procedures used in connecting and wiring control panels and electrical facilities. It explains earthing, connectors, cable sizes and the different ways of connecting transformers.



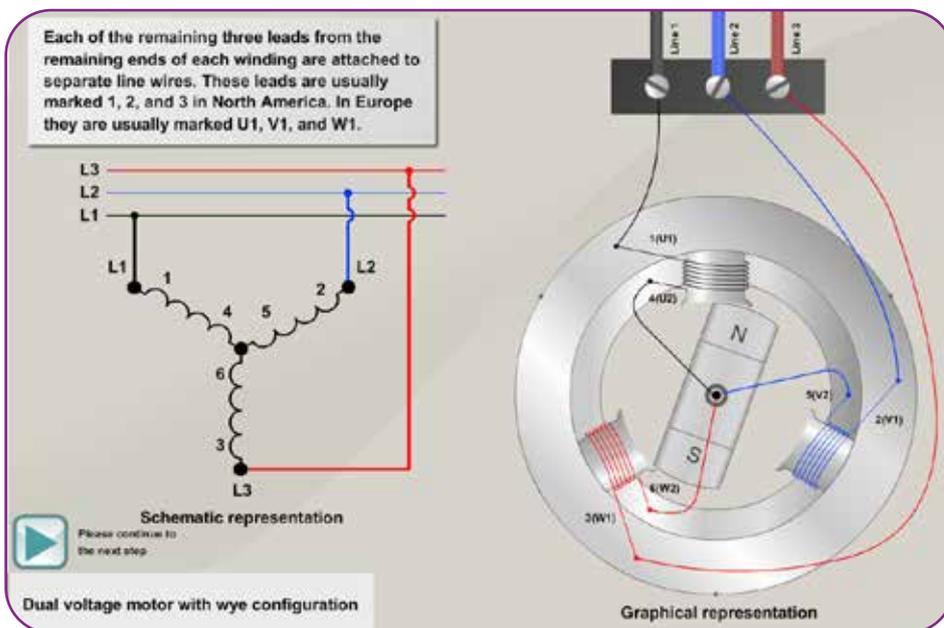
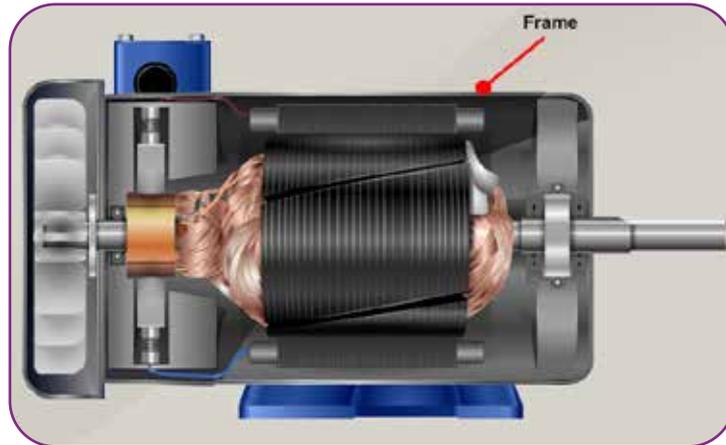
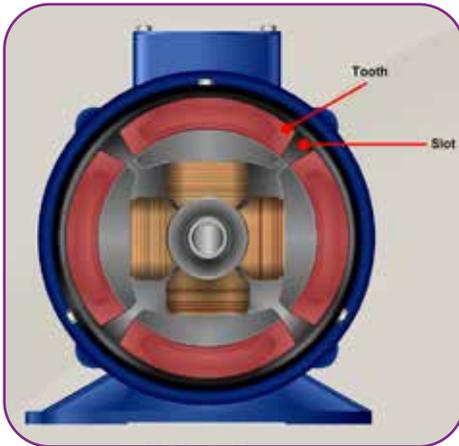
#### CHAPTERS

Wires, connectors and circuit protection  
Connecting transformers



## ■ SMC-107 – Introduction to electric motors

This course studies the operating principles for basic electrical machines such as direct current and alternate current motors, both single phase and three phase. It also studies connections, implementation and the most typical applications for these motors.



### CHAPTERS

DC motors

Single-phase AC motors

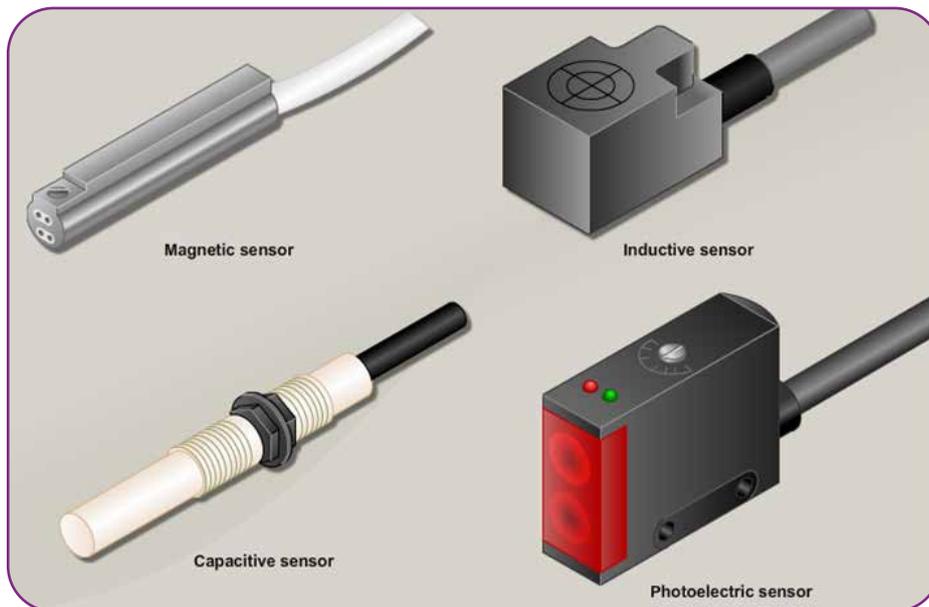
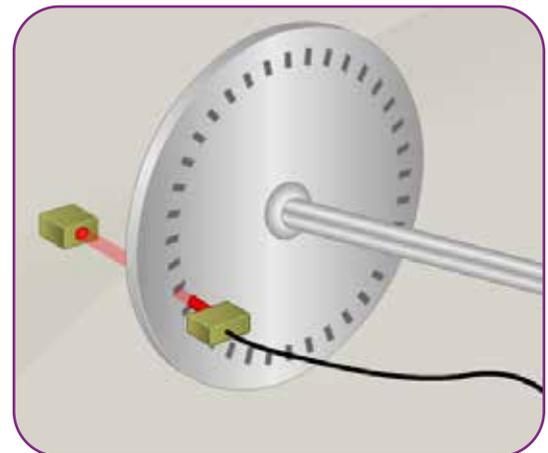
Three-phase AC motors





## ■ SMC-108 – Sensors technology

This course allows users to become familiar with the fascinating world of sensors and transducers used in industry. Starting with general applications, features and parameters of sensors, it runs through the different types of sensors, their application and symbols.



### CHAPTERS

Introduction to sensors technology

Features and properties of sensors

Proximity sensor

Position, speed and acceleration sensor

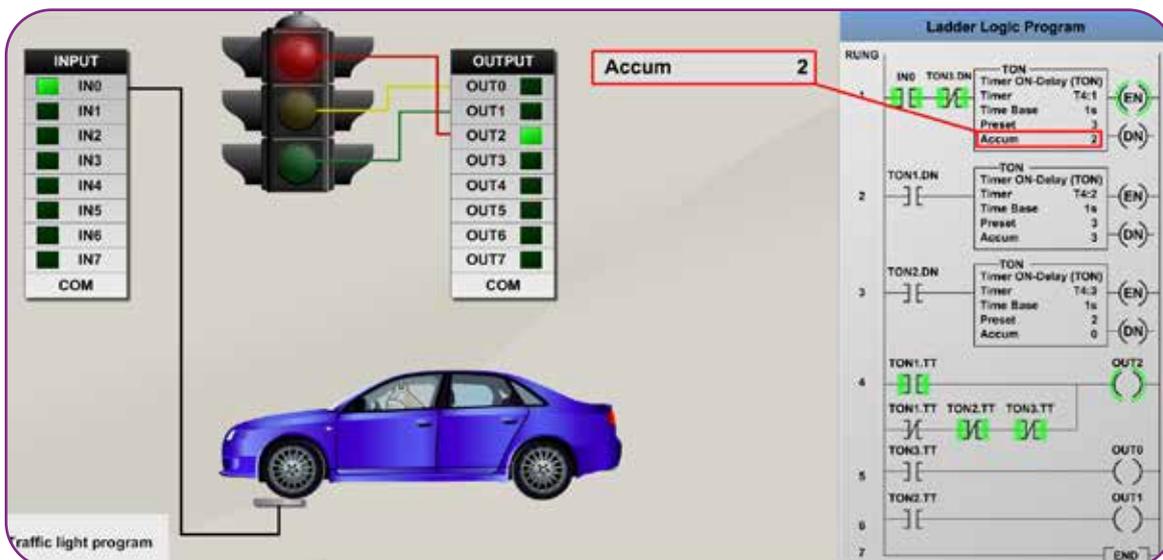
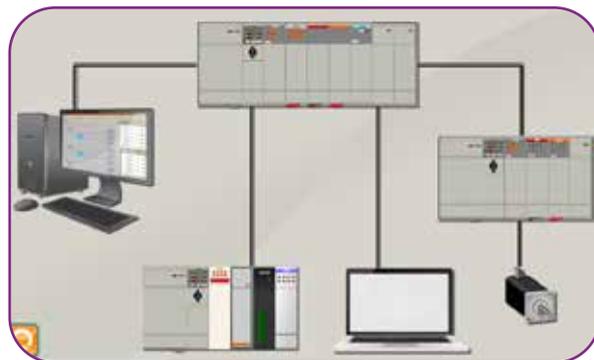
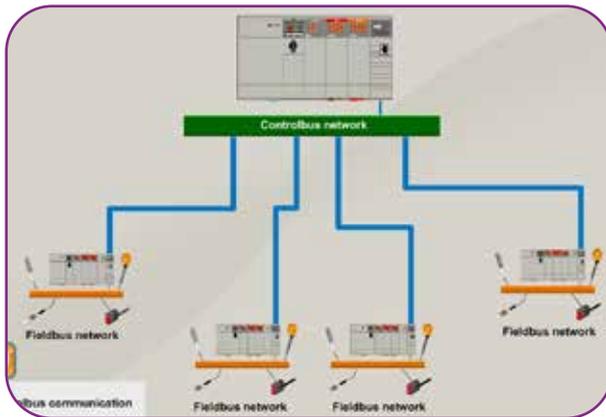
Industrial process sensors

Advanced sensors



## ■ SMC-109 – Programmable controllers

The SMC-109 course runs through the different types of Programmable Controllers, focussing on a study of Programmable Logic Controllers (PLC). It introduces digital electronics to be able to understand how a Programmable Controller works. It also studies its general structure, the CPU structure, general concepts of programming and applications for these devices.



### CHAPTERS

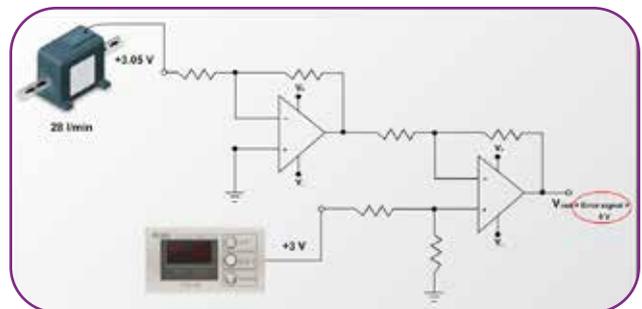
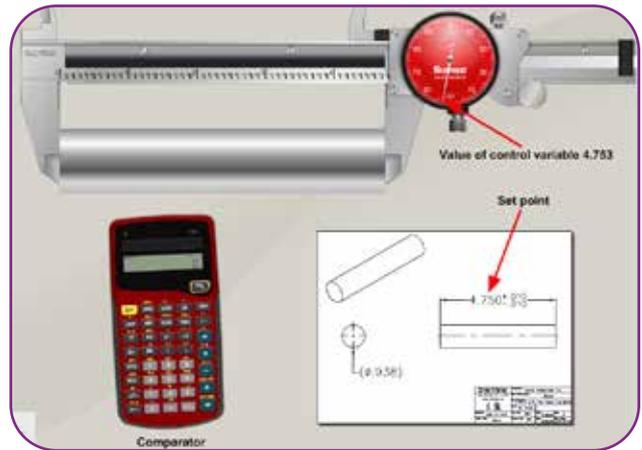
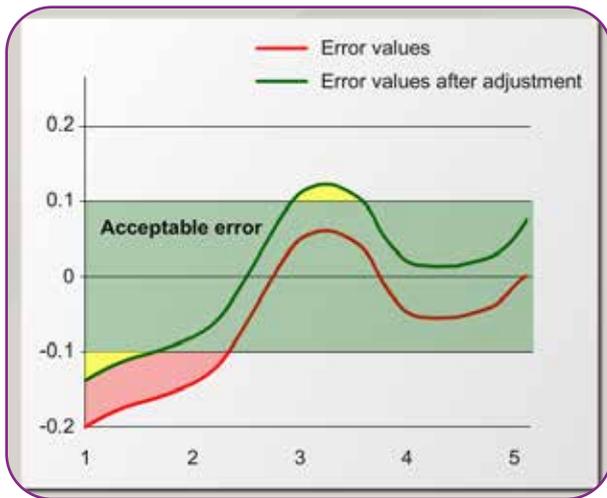
- Introduction and history
- Introduction to digital electronics
- Types and functions of PLCs
- General structure of PLC hardware
- Physical integration of PLCs
- Internal structure of the CPU
- Basic concepts of PLC programming
- Common PLC applications





### ■ SMC-110 – Process controls

This course introduces the user to Process Control systems. The different control types are analysed, looking more closely at the different blocks making up a closed loop controller, finishing off with an introduction to multi-variable control systems.



#### CHAPTERS

Introduction to Process control

Process control systems

Set point / Comparator

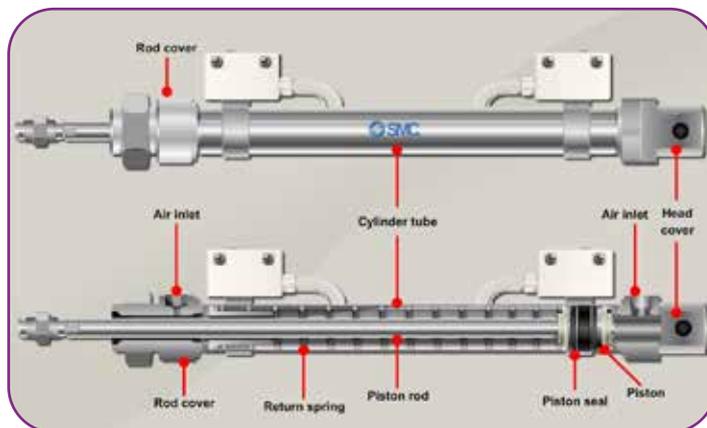
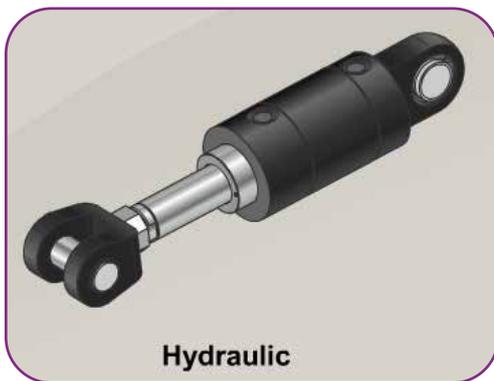
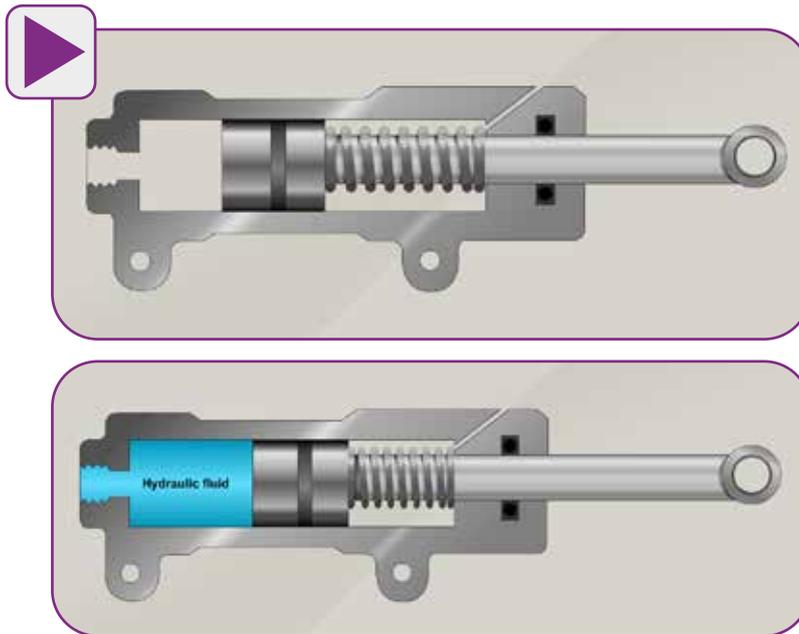
Controller (PID Control)

Multivariable Processes



## ■ SMC-111 – Hydraulics / electro-hydraulics

The SMC-111 course focuses on studying the hydraulic systems used in automated industry. It explains the different components used in hydraulics, electro-hydraulics and proportional hydraulics, analysing their operating principles, applied physical laws and symbols.



### CHAPTERS

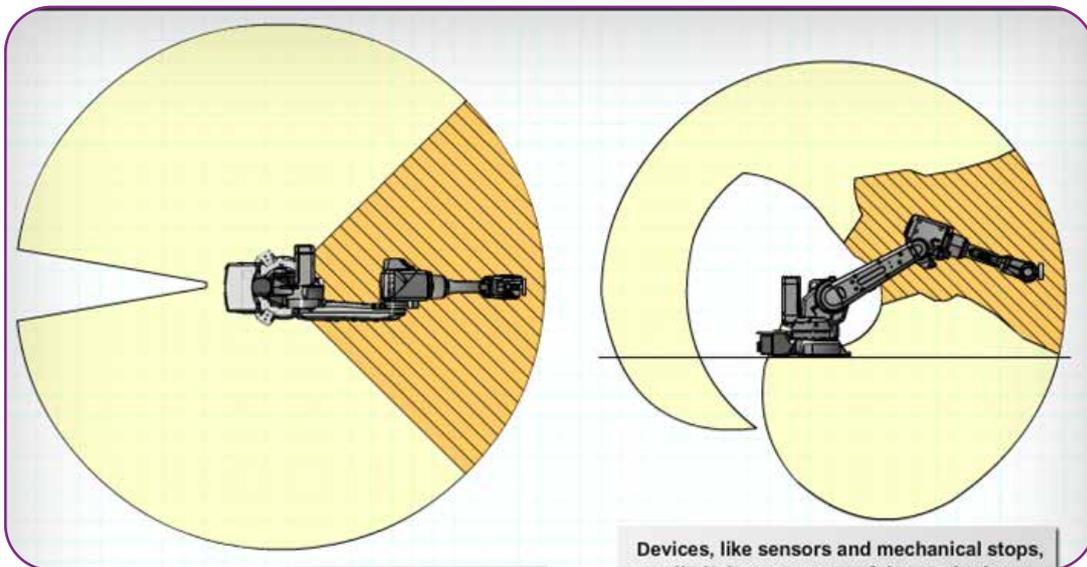
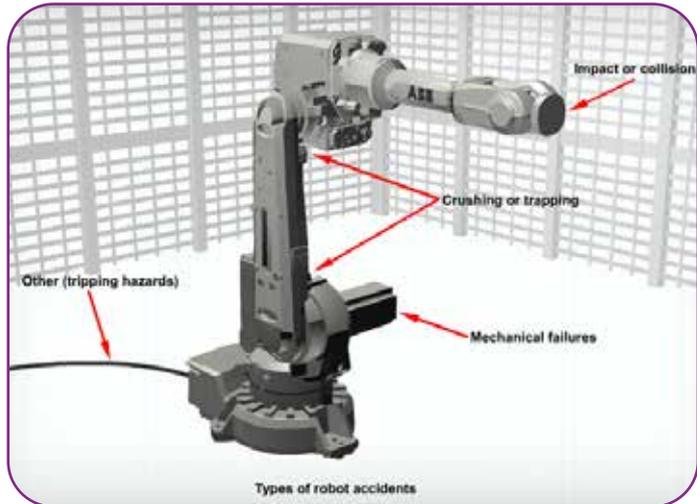
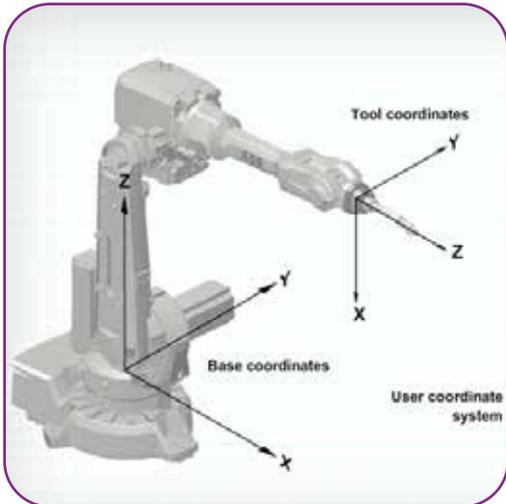
Introduction to Hydraulics	Hydraulic Actuators
Hydraulic Theory	Classifications of Hydraulic Valves
Hydraulic Fluids	Piping and Instrumentation
Hydraulic Systems	Hydroelectric Symbology and Circuits





### ■ SMC-113 - Robotics

In this course, once the introduction to robotic systems is complete, we explore, in greater depth, these systems' security aspects, robot structure, programming and the most common industrial applications.



#### CHAPTERS

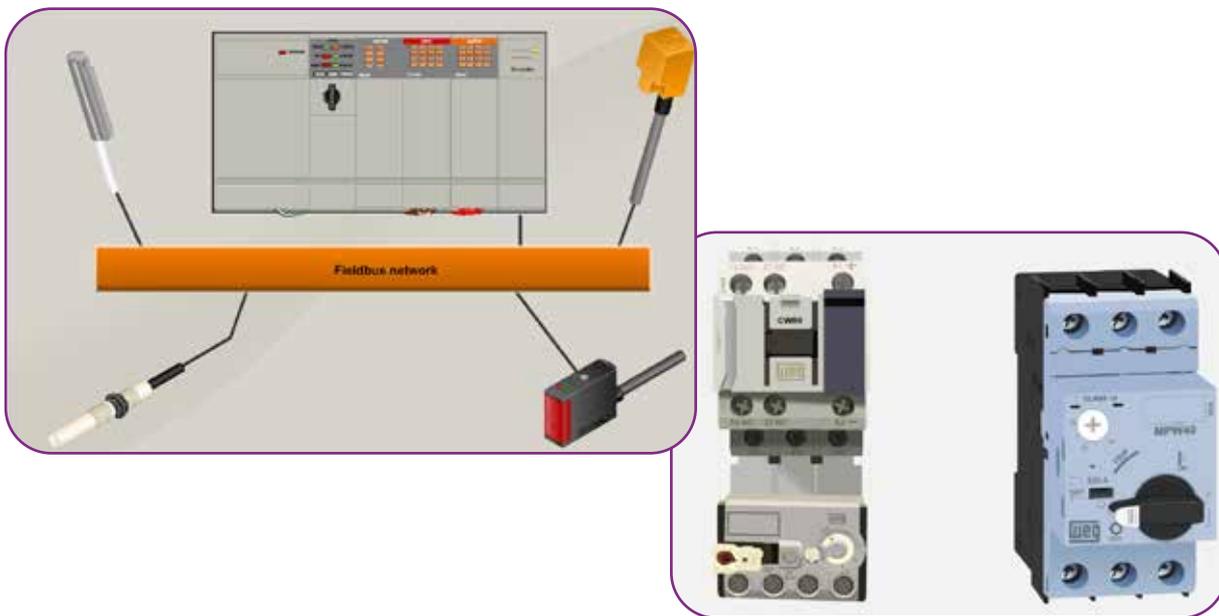
Introduction to robotics	Controller and End effectors
Robot safety	Robot programs
Robot axes	Industrial robot applications
Robot manipulator	



## ■ SMC-114 - Industrial Controls

This course provides a comprehensive introduction to industrial controls, covering everything from schematic interpretation to troubleshooting control circuits. Participants will learn about automatic switches, sensors, relays, contactors, overcurrent protection devices, and variable speed controllers, among other essential components.

\*Available in English and Spanish only



### CHAPTERS

Introduction to industrial controls	Control relay functions
Interpreting schematics	Timing relays
Indicators	Contactors
Pushbuttons	Overcurrent protection devices
Selector switches	Motor starters
Automatic controls switches	Soft starters
Sensors	AC variable speed drives
Control relays	DC variable speed drives
Control relay types	Troubleshooting control circuits

