

# Trainings



**Bosch Rexroth**

**Academy**



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# Our knowledge for your application

Both our customers and our company must be able to successfully adapt to the current and future changes of the world. Challenges often come from the fields of climate change, energy supply, demographic change and digital transformation. People are and will remain an essential factor in ensuring the long-term competitiveness of companies. Ideally qualified experts are increasingly difficult to find. New occupations are emerging and older ones are changing in the requirements placed on them. This development, e.g., the increasing share of IT or the new and disruptive technologies, can therefore only be mastered with a successful qualification of the employees. In addition, people have more possibilities, the occupational fields are becoming more individual and require new skills. This can only be covered by equally flexible, modern and comprehensive qualification measures.

Our Academy builds on Bosch Rexroth's decades of experience as a technology leader and realization partner. We are already working today on solving the problems of tomorrow in our global network of factories or for our international customers.

Our training portfolio starts with essential basic knowledge for existing and new fields of learning and offers continuously optimized learning paths. We respond flexibly to your needs and requirements - whether face-to-face, online or in hybrid learning formats such as blended learning. A special highlight are our expert trainings, in which we demonstrably ensure the competence and implementation capabilities of our course participants for the operational application. This in one of our modern training locations or on site at your place. In our training brochure you will find a compact summary of our competencies and the associated learning paths and trainings as well as the latest highlights.

# Bosch Rexroth Academy

## Innovations and trends from the industry for the educational market

### Welcome to the Bosch Rexroth Academy

With more than 225 years of experience as a global industrial enterprise and leading expert in drive and control technology, we have sound product, technology, and process know-how. We are happy to share this knowledge with you and assist you as your training partner for demanding technical education on the exciting path of digital change.

**WE MOVE. YOU WIN.**



### Trainings

Experience high-quality training with digital learning methods and content for your personal basic and advanced training. Choose your technology and learn from the basics right up to expert knowledge.

[www.boschrexroth.com/academy-trainings](http://www.boschrexroth.com/academy-trainings)

### Systems

Technology at your fingertips: Get hands-on experience at our workstations equipped with standard industrial components and gain technology know-how as well as with solution competence!

[www.boschrexroth.com/academy-systems](http://www.boschrexroth.com/academy-systems)



### Media

An ideal combination of analog and digital: Immerse yourself in the extensive media offer and use our media for the modern and digital transfer of knowledge.

[www.boschrexroth.com/academy-media](http://www.boschrexroth.com/academy-media)





# Trainings

## Always one step ahead with the training courses from the Bosch Rexroth Academy – Our knowledge offer for you

As a global partner, Bosch Rexroth supports customers in mastering mechanical and plant engineering challenges around the world with its cutting-edge technology and unique industry knowledge. Thus, Bosch Rexroth Academy has established itself as a competent partner for basic and advanced training for numerous companies and institutions. With their various training methods, our trainers guarantee a knowledge transfer which is always oriented at the learning target and in accordance with the state of the art. The Bosch Rexroth Academy is certified according to DIN EN ISO 9001:2008 and thus supports the claim of delivering utmost quality in knowledge transfer.

### Ideal learning paths for your job role

The presentation of our knowledge offer is focused on the essentials in the new training brochure: On your ideal learning path! Put together your individual learning program that will allow you to acquire the desired skills and abilities for your job role and to optimally equip yourself for your professional future.

### Competent and qualified trainers

Our trainers have long-term experience in numerous units of our company and go through an additional certified trainer education in their specialist fields and soft skills. Benefit from our industrial experts who will lead you to learning success with the training method of your choice!



### Face-to-face training

Face-to-face and practical training with personal contact. Direct communication and, above all, "handling" the components reinforce the theoretical content.



### Online training

Online knowledge transfer (live or as a recording) by our trainers in the virtual classroom (global).



### eLearning

Independent learning on a computer is an integral part of knowledge transfer. Learning contents, e.g., on technology basic knowledge are made available in the form of presentations, clearly divided into online learning modules.



### Blended learning

The interaction of eTraining, eLearning and face-to-face training.



# Training finder online

## Training availability and registration

Use the Bosch Rexroth Academy training finder to explore our versatile range of training offers. Here you will find detailed descriptions of each technology, your desired training type, dates, training locations and the possibility of direct registration.



**YOU CAN FIND OUR TRAINING PROGRAM  
WITH AVAILABILITY INFORMATION HERE:**

[https://academy.boschrexroth.com/en\\_de/](https://academy.boschrexroth.com/en_de/)

**Face-to-face training**

**Online training**

**Practical training**

**Blended learning**

**eLearning**

RT13-007

# Basics for Digital Transformation (eLearning)

The ongoing digital transformation is fundamentally changing the framework conditions and the entire industry landscape.

Companies face massive challenges in the targeted design and implementation of the digital transformation from individual, practical, and economic aspects. This eLearning course and the learning nuggets convey essential basic knowledge for the digital transformation, for example on digital technologies, Industry 4.0, artificial intelligence and real application cases from practice.



## CONTENTS

- ▶ Introduction to Industry 4.0, opportunities and strategies of the countries
- ▶ What is behind the digital transformation?
- ▶ Automation pyramid and networking (MES, ERP, IT, OT)
- ▶ Cyber-physical systems and digital twins
- ▶ Data, information and knowledge
- ▶ Cloud, big data, data storage and tools
- ▶ Business intelligence, analytics, IoT and AIoT
- ▶ Factory of the future, technologies and megatrends
- ▶ Artificial intelligence, machine learning and use cases
- ▶ HMI, collaboration and cobots
- ▶ Status quo of digital transformation in the industry landscape
- ▶ Numerous i4.0 use cases from practice

## LEARNING TARGET

- ▶ Good understanding of the digital transformation, its technologies, possibilities, and challenges
- ▶ Basic understanding of digitization, networking, automation, and related tools
- ▶ Background knowledge on future topics such as artificial intelligence, machine learning, and digital twins
- ▶ Understanding of i4.0 implementation through intensive practical examples and their potentials as well as K.O. criteria

## PREREQUISITE

none

Do you have  
any questions?



Register  
now!

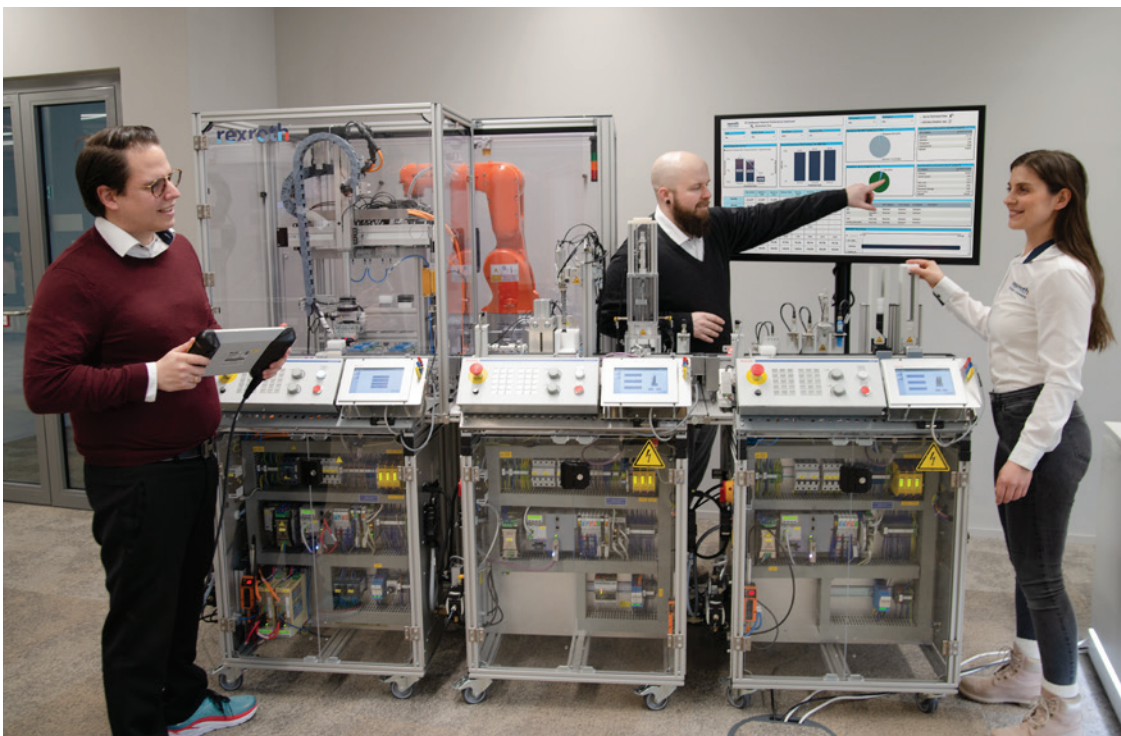




RT13-011

# Certified Expert Machine Connectivity (TÜV)

This intensive practical training is aimed at implementers in the companies such as maintenance personnel, planners, and production IT managers who want to network the machinery in their company in order to achieve more transparency in production and thereby reduce standstill time and increase plant availability. The necessary hardware and software competence is taught at and with industrial systems with a view to prepare the participants for the economic production networking in practice.



## CONTENTS

- ▶ Inventory of existing machinery
- ▶ Theory of different operating systems, interfaces, and protocols (e.g., OPC UA, MPI)
- ▶ Wiring a machine with OPC UA, and MPI
- ▶ Installation of MQTT via Solace
- ▶ Installing sensors
- ▶ Configuration of the IP addresses of the machine
- ▶ Setup of machine networking in various ways; Node RED, device bridge, and universal
- ▶ Connector to database
- ▶ Data cleansing and saving/storage of machine data
- ▶ Final examination and certification TÜV certificate

## LEARNING TARGET

- ▶ Analysis of brownfield and machinery to identify suitable systems for networking
- ▶ Industrial competence for connecting and networking machines and production plants
- ▶ Selection and use of appropriate data to increase transparency and productivity

## PREREQUISITE

Technical training (academic degree or vocational training) as well as basic knowledge in network technology and data processing desirable

Do you have  
any questions?



Register  
now!

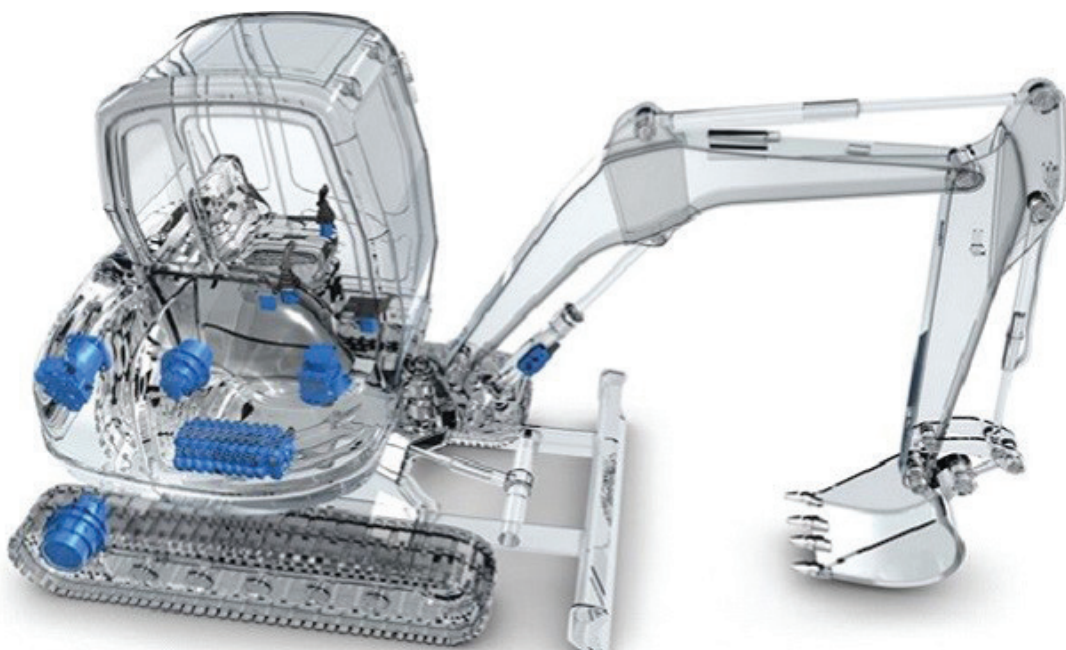




RT06-046

# Mobile Hydraulics – Controls and Components in open-loop Circuits

The training course provides information on controls and components in open-loop circuits. It focuses on the design, function, and properties of relevant components and systems. Learn everything about load pressure-independent flow distribution and the differences between throttle and load-sensing control systems. You will carry out adjustments and tests on the training test bench and receive information on function and troubleshooting.



## CONTENTS

- ▶ Function and design of axial piston units in open-loop circuits (A11VO, A10VO, A6VM) incl. adjustment types for load sensing, LUDV, and positive control
- ▶ Energy balances and features of throttle and load-sensing control systems in conjunction with the relevant pump control
- ▶ Setup, function, and options for using Rexroth control blocks and subsystems: SM...; MO...; M8...; M9...; SP08...; M4...; SB...; RS...; M6...; M7...; stabilization module RSM2...; Safety valves MHDB...; Pre-control unit TH...

## LEARNING TARGET

- ▶ Obtaining knowledge about control systems for axial piston units and how they interact with the valve components
- ▶ Obtaining knowledge about the various control types, their features, and variants
- ▶ Learning to recognize malfunctions and localizing the affected components

## PREREQUISITE

Basic knowledge of hydraulics, RT06-012 or comparable knowledge

Do you have  
any questions?



Register  
now!



RT06-014

# Electronics in Mobile Applications

This training course is intended to provide experienced and new employees with insights into the electronification of hydraulic applications and systems. You will become familiar with the components used. Participants will be taught how to use project planning tools and application software.



## CONTENTS

- Overview of the BODAS environment (BODAS toolkit)
- Project planning tools
- Overview of application software
- Exercises on the topics presented

## LEARNING TARGET

- Getting to know the basics of the electronification of hydraulic systems

## PREREQUISITE

Technical understanding

Do you have  
any questions?



Register  
now!





RT02-102

# ctrlX CORE – Commissioning and Project Planning

In this training course, we will provide you with useful background information regarding the commissioning and project planning of ctrlX AUTOMATION. Your learning target will be the commissioning of a machine with several axes, controlled via ctrlX WORKS, REST IP and ctrlX PLC (PLC program).



## CONTENTS

- ▶ CtrlX AUTOMATION system overview
- ▶ CtrlX CORE commissioning
- ▶ Working with the ctrlX Data Layer
- ▶ Getting to know ctrlX WORKS and engineering tools and implementing the configuration of components
- ▶ Parameterizing ctrlX for use with a ctrlX CORE
- ▶ Getting to know and configuring EtherCAT and creating diagnoses
- ▶ Creating and commissioning ctrlX MOTION axes and kinematics
- ▶ Configuring the ctrlX PLC and activating axes
- ▶ Authorizing and managing access to the ctrlX CORE

## LEARNING TARGET

- ▶ Getting to know the system design of the ctrlX AUTOMATION series
- ▶ Configuration of the ctrlX DRIVE PLUS with ctrlX CORE
- ▶ How to get access to data and execute commands via the ctrlX Data Layer
- ▶ Providing data via OPC/UA and evaluating fault diagnostics

## PREREQUISITE

Basic knowledge of control technology

Do you have  
any questions?



Register  
now!



RT02-106

# Programming with ctrlX PLC Engineering (Online Training)

The training gives an overview of the use, application, and operation of the ctrlX PLC Engineering Software. It will discuss the interaction between the engineering software and the ctrlX CORE controls. You will learn about PLC configuration and creation of PLC programs within ctrlX PLC Engineering.



## CONTENTS

- ▶ Control settings
- ▶ Peripheral settings
- ▶ Configuration of a PLC Engineering controller
- ▶ Programming languages LD, FBD, SFC and SGT
- ▶ Data types
- ▶ Libraries (repository, manager)
- ▶ Troubleshooting

## LEARNING TARGET

- ▶ ctrlX PLC Engineering software setup
- ▶ Being able to create an I/O configuration
- ▶ Creating, loading, and testing PLC programs in ctrlX PLC Engineering
- ▶ Knowing how to back up and restore project data in ctrlX PLC Engineering

## PREREQUISITE

Basic knowledge of PLC technology

Do you have  
any questions?



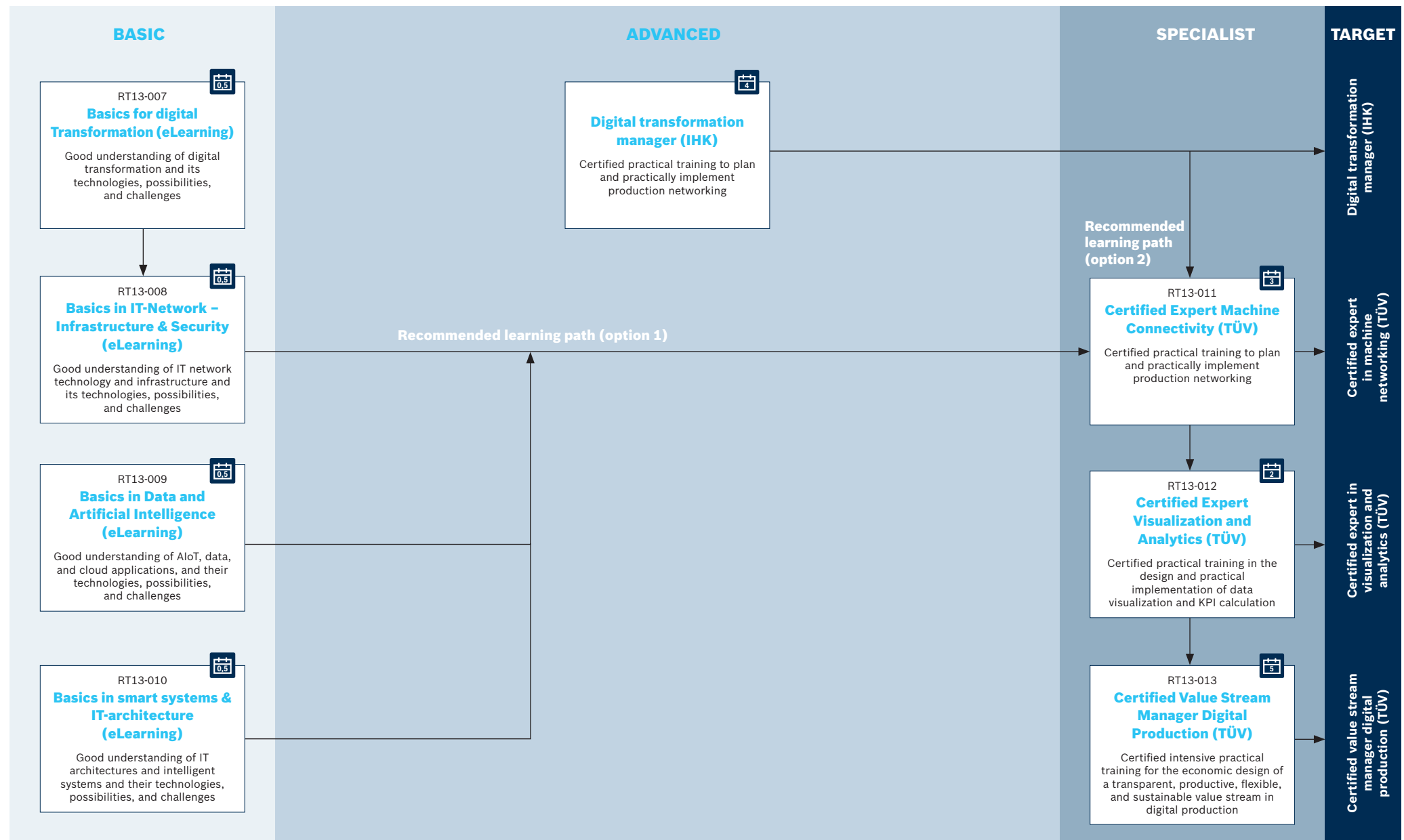
Register  
now!







# Learning Path Digital Transformation



# Learning Path Assembly Technology

BASIC

RT01-001

TS 2 plus

We have compiled a TS 2 plus training course with the contents from all modular units.

RT01-002

VarioFlow plus

We have compiled a VarioFlow plus training course with the contents from all modular units.

RT01-003

TS 5

We have compiled a TS 5 training course with the contents from all modular units.

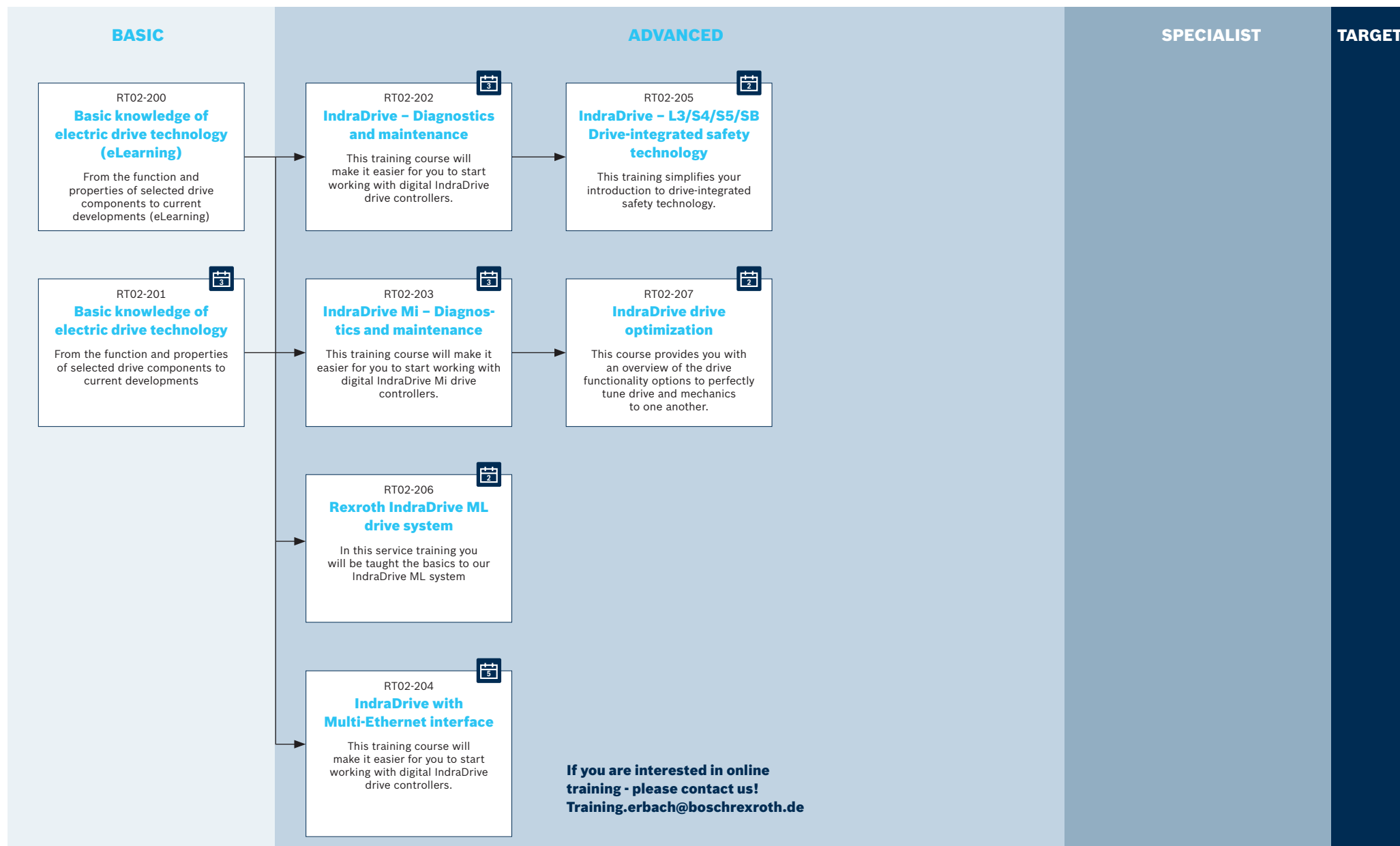
ADVANCED

SPECIALIST

TARGET



# Learning Path IndraDrive Drive Technology



# Learning Path ctrlX AUTOMATION

## BASIC

RT02-101

### ctrlX DRIVE – the compact drive system

We give you insight into the most  
compact drive system

RT02-102

### ctrlX CORE – Commissioning and project planning

In the course of this training, we will  
teach you useful background  
information surrounding the planning  
and commissioning of ctrlX  
AUTOMATION

RT02-103

### Software Development Kit Basic (Online Training)

In this training course, you will  
learn how to apply the software  
development kit of  
ctrlX AUTOMATION within  
a suitable IDE.

## ADVANCED

RT02-106

### Programming with ctrlX PLC Engineering

The training gives an overview of  
the use, application, and operation  
of the ctrlX Software PLC.

RT02-107

### Programming with ctrlX PLC Engineering in Structured Text (Online Training)

The training gives an overview of  
the creation of PLC programs in  
structured text.

RT02-104

### Software Development Kit Advanced

In this training course, you will  
learn how the examples of the  
software development kit for ctrlX  
AUTOMATION can be combined to  
form a dedicated app.

### IT security for mechanical engineering

RT02-105

### IT-security for mechanical engineering

This training provides insight into  
the subject of IT security within an  
industrial context.

## SPECIALIST

## TARGET

**If you are interested in online  
training - please contact us!**  
[Training.erbach@boschrexroth.de](mailto:Training.erbach@boschrexroth.de)

# Learning Path PLC – IndraWorks/IndraLogic





# Learning Path MPC/FTS

BASIC

RT14-032

MPC/YM – Engineering

In this practical training you will learn to work with the MPC/YM platform

RT14-033

FTS – Engineering

In this practical training you will get to know the Flexible Transport System (FTS)

ADVANCED

SPECIALIST

TARGET

# Learning Path MotionLogic MLD

## BASIC



RT02-301

### Basic knowledge of PLC technology (2nd generation)

This training is recommended for anybody who is considering working with control technology.



RT02-305

### Programming with IndraWorks/ IndraLogic 2G

The training gives an overview of the use, application, and operation of the IndraWorks engineering software.



RT02-204

### IndraDrive with Multi-Ethernet interface

This training course will make it easier for you to start working with digital IndraDrive drive controllers.

## ADVANCED



RT02-601

### Programming MLD-S and MLD-M 2G

From the function and properties of the drive PLC to programming according to IEC 61131-3

## SPECIALIST

## TARGET

# Learning Path CNC System MTX

## BASIC

RT02-507

### Basic NC programming with the Rexroth standard user interface

This training course helps you to become familiar with operation, memory structure, and programming.

RT02-301

### Basic knowledge of PLC technology (2nd generation)

This training is recommended for anybody who is considering working with control technology.

## ADVANCED

RT02-202

### IndraDrive – Diagnostics and maintenance

This training course will make it easier for you to start working with digital IndraDrive drive controllers.

RT02-504

### Maintaining and servicing the MTX system with Sercos II and Sercos III

This training conveys knowledge that is necessary for maintenance and servicing of the CNC system MTX.

RT02-506

### Operation with the Rexroth standard user interface

In this training, you will have the opportunity to work through and analyze exercises on a control.

RT02-507

### Basic NC programming with the Rexroth standard user interface

This training course helps you to become familiar with operation, memory structure, and programming.

## SPECIALIST

## TARGET



# Learning Path CNC System MTX

## BASIC

RT02-507

### Basic NC programming with the Rexroth standard user interface

This training course helps you to become familiar with operation, memory structure, and programming.

RT02-301

### Basic knowledge of PLC technology (2nd generation)

This training is recommended for anybody who is considering working with control technology.

RT02-201

### Basic knowledge of electric drive technology

From the function and properties of selected drive components to current developments

RT02-200

### Basic knowledge of electric drive technology (eLearning)

From the function and properties of selected drive components to current developments (eLearning)

## ADVANCED

RT02-204

### IndraDrive with Multi-Ethernet interface

This training course will make it easier for you to start working with digital IndraDrive drive controllers.

RT02-501

### Projecting of the MTX system by NC and PLC configuration with Sercos

This training course combines the courses RT02-502 and RT02-503.

RT02-503

### Commissioning and project planning of the MTX CNC system with Sercos III

The training course provides you with an overview of the second generation of the MTX CNC system (with Sercos III).

RT02-502

### Programming with IndraLogic 2G

In this training course, you will learn how to create and configure an IndraWorks project with the MTX CNC control.

RT02-308

### Visualization with WinStudio G2

This training course gives an overview of the creation of visualizations using WinStudio.

## Optimizing and increasing availability

RT02-507

### Basic NC programming with the Rexroth standard user interface

This training course helps you to become familiar with operation, memory structure, and programming.

## SPECIALIST

RT02-508

### MTX – Cycle time analyzer

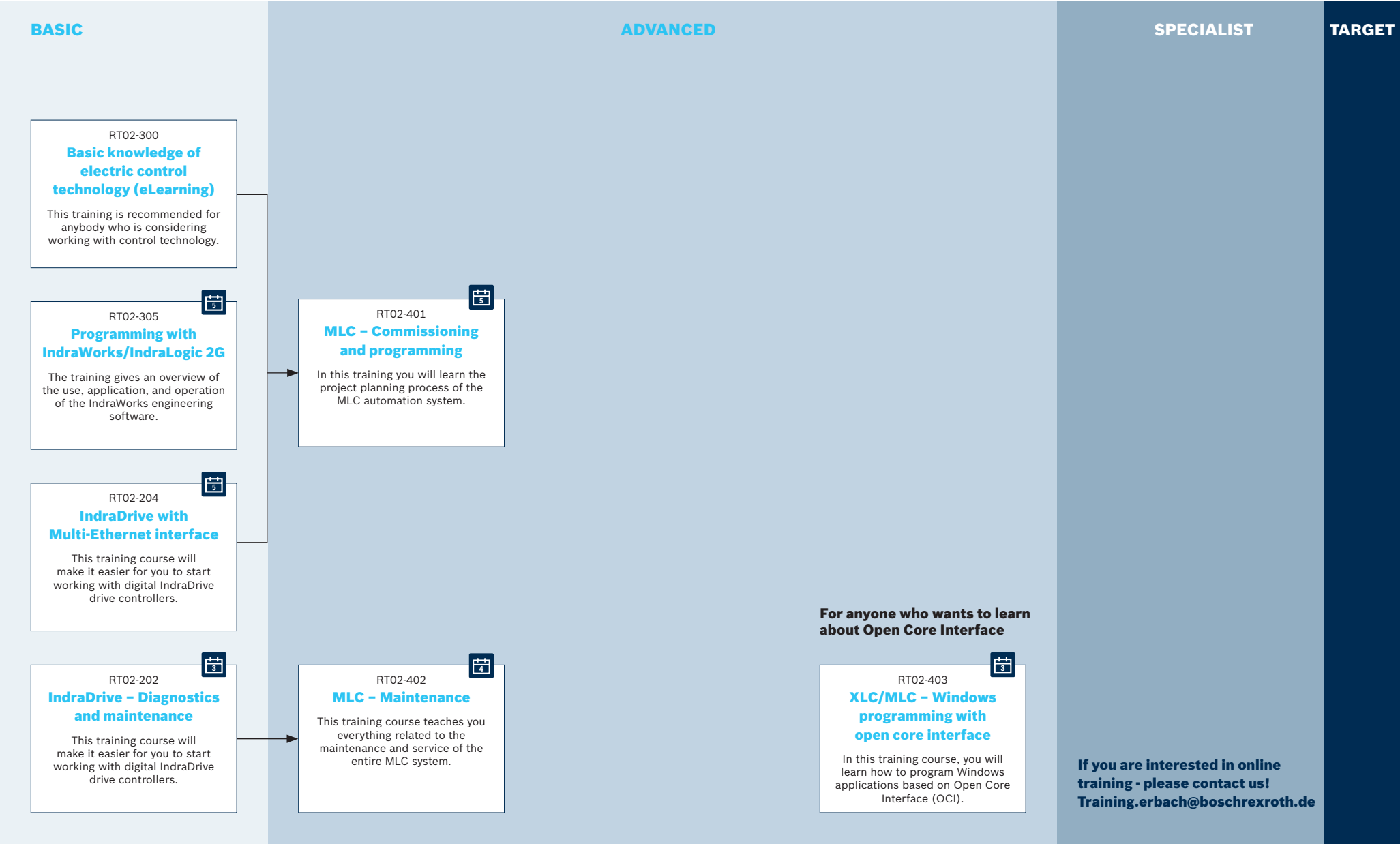
The cycle time analyzer is an important component of the MTX Efficiency Workbench.

RT02-509

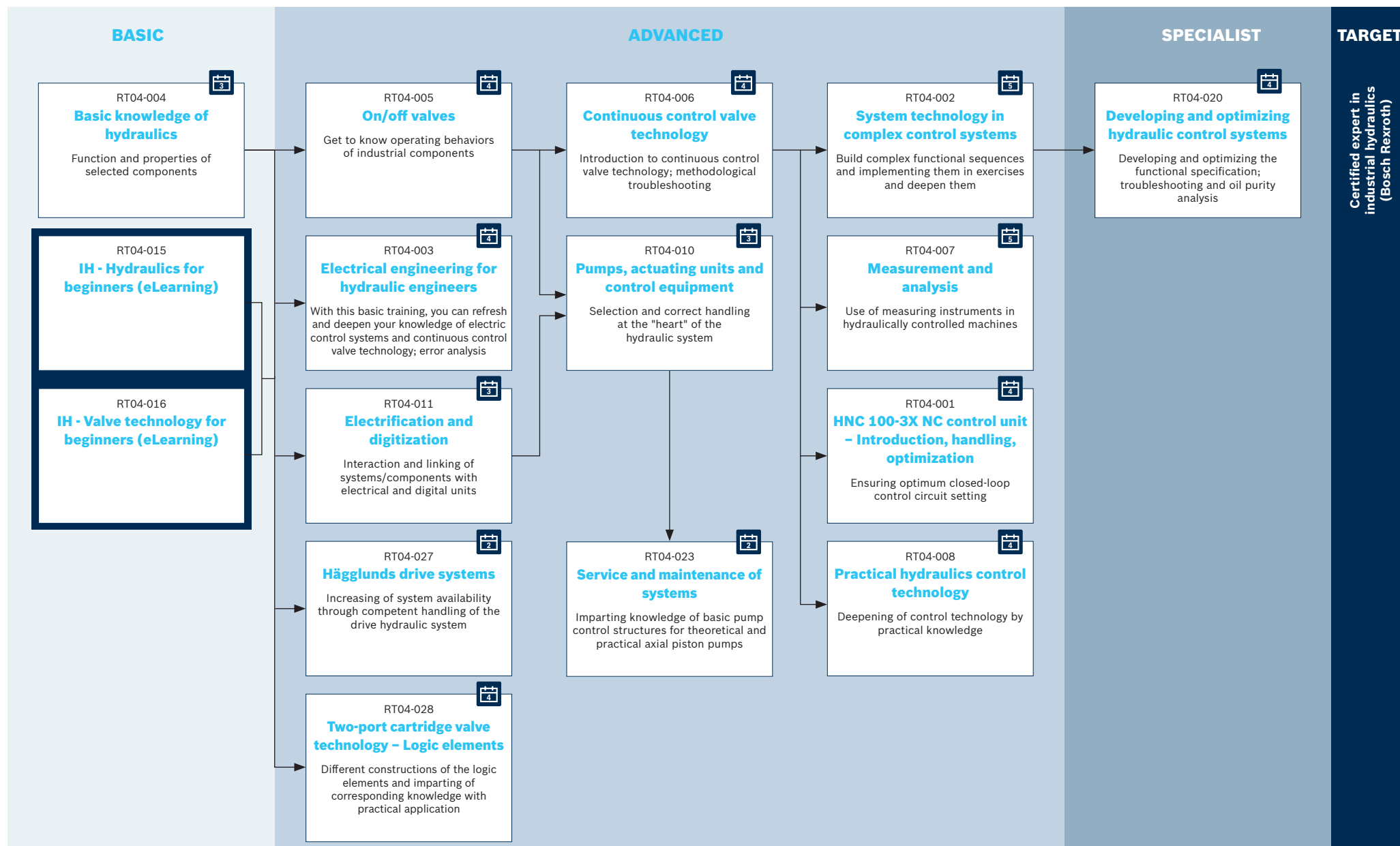
### MTX – Efficiency workbench

In this training course, you will become familiar with the functions of the MTX Efficiency Workbench.

# Learning Path XLC/MLC

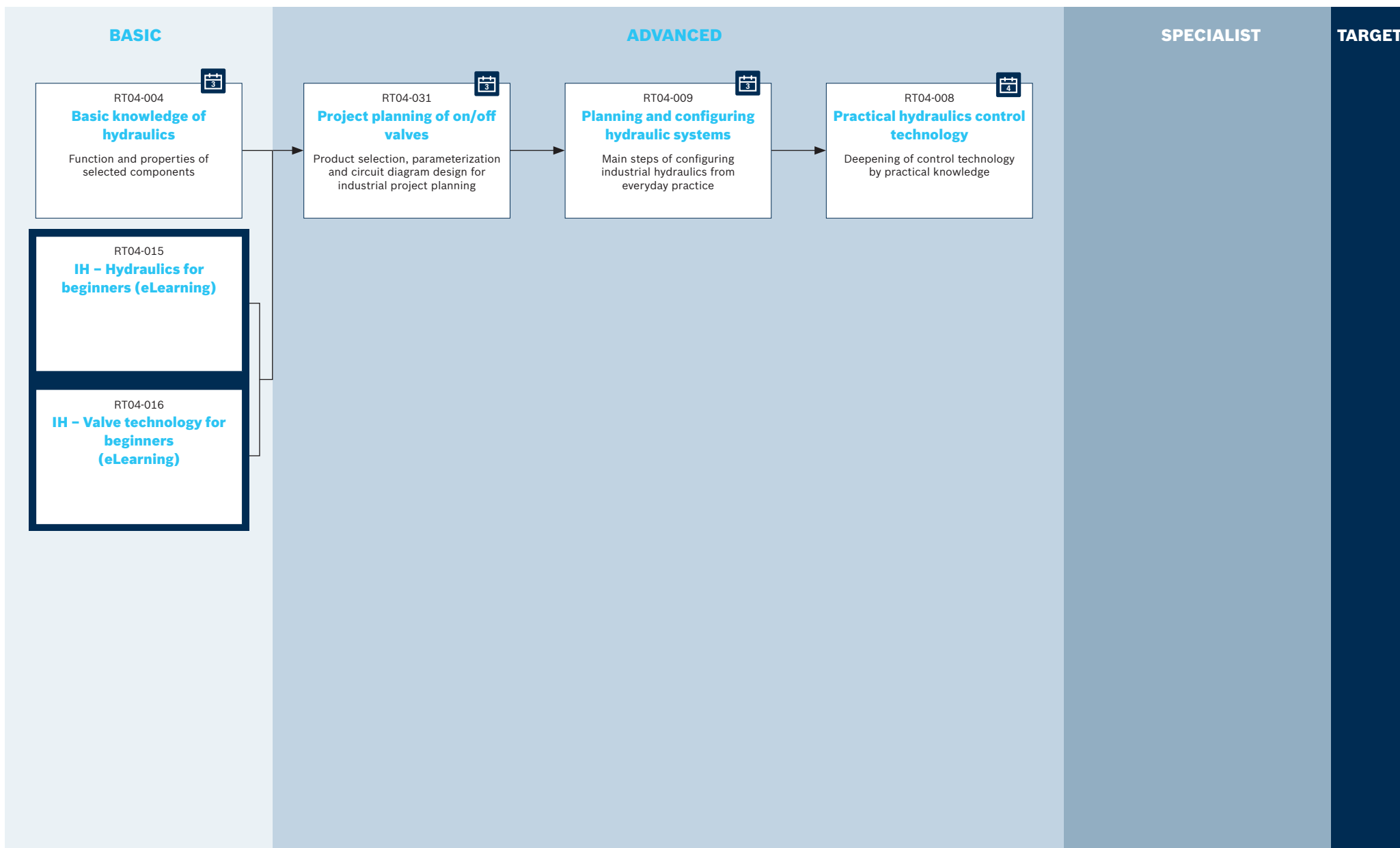


# Practical Error Analysis

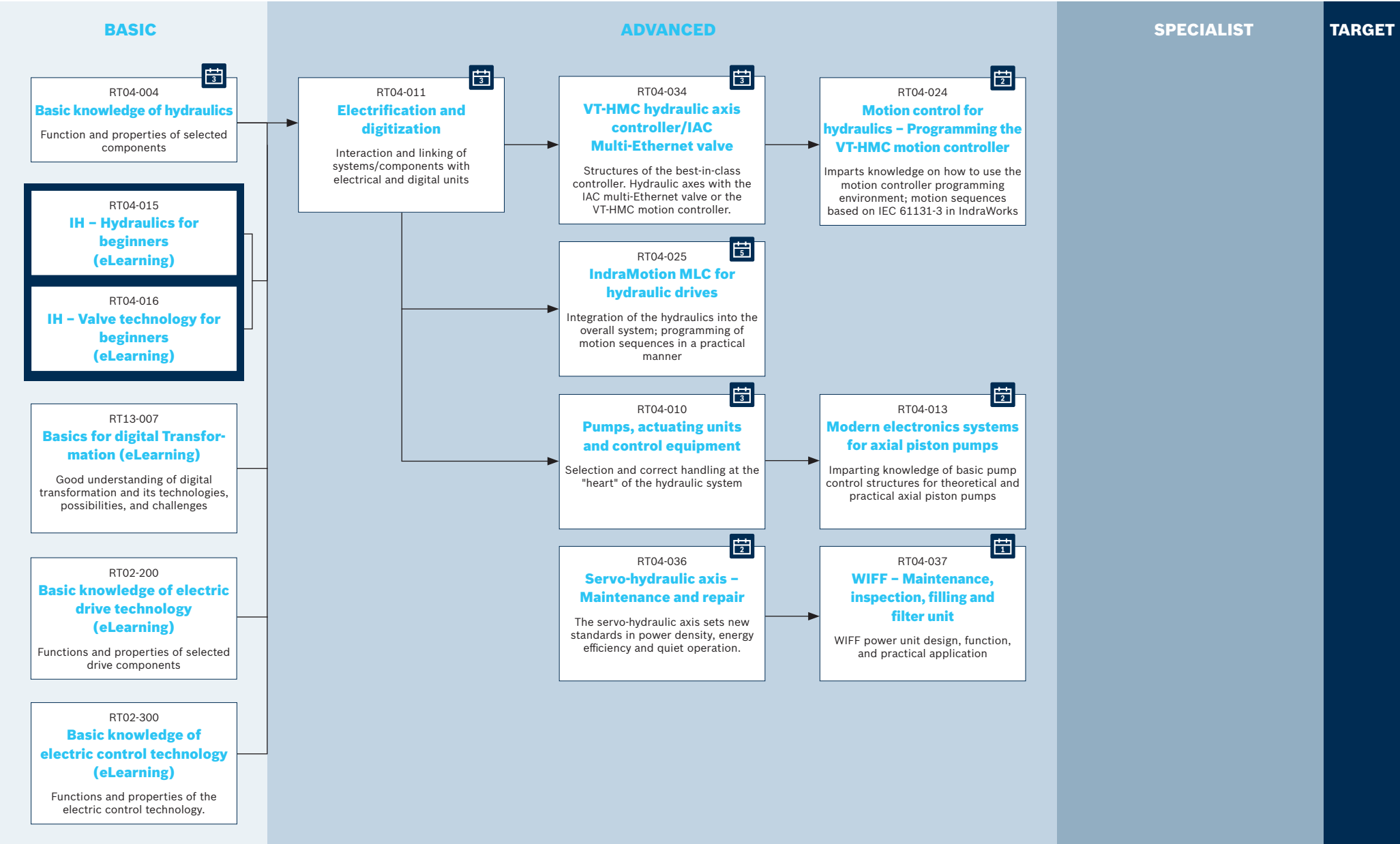




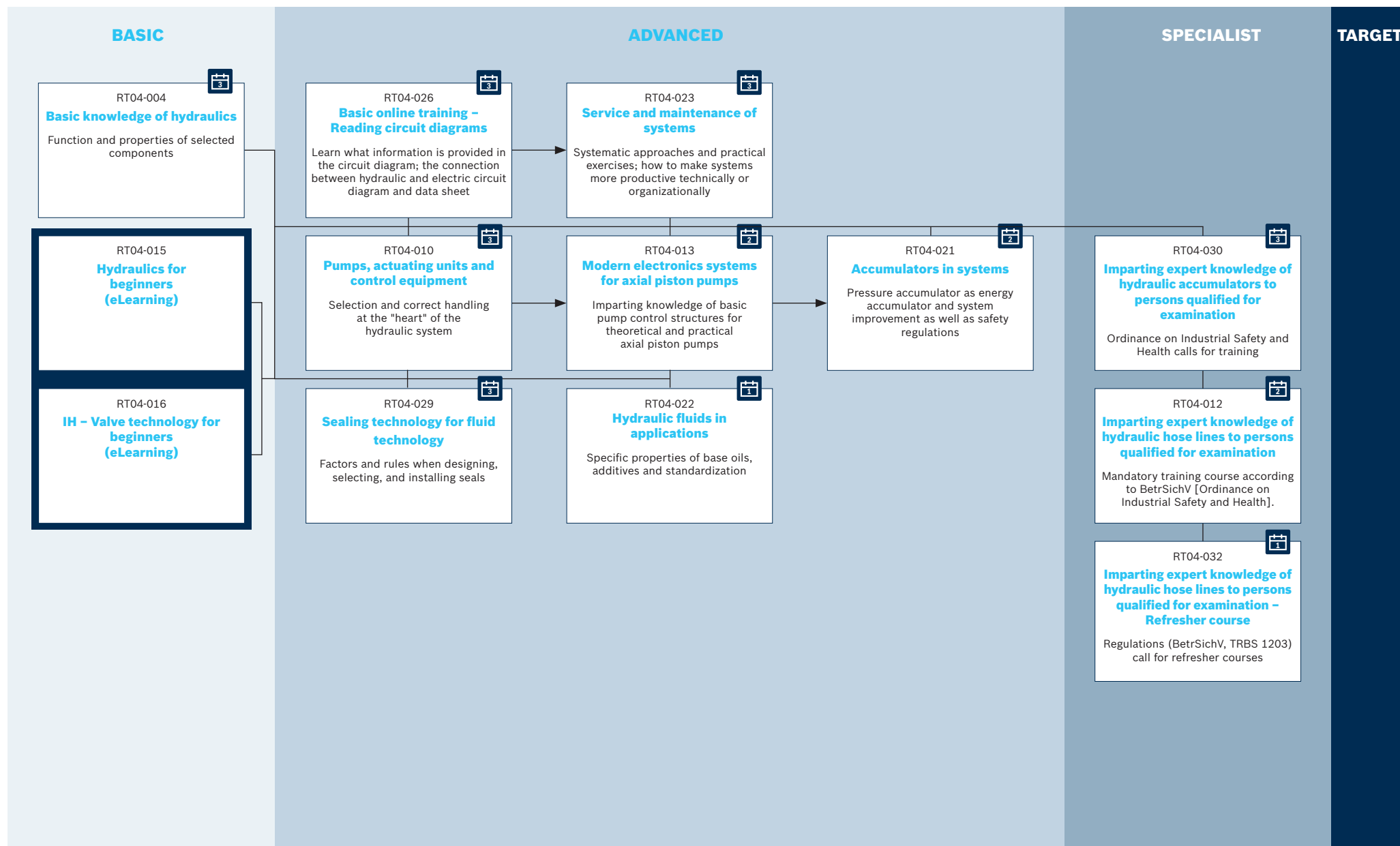
# Project Planning



# Learning Path Connected Hydraulics

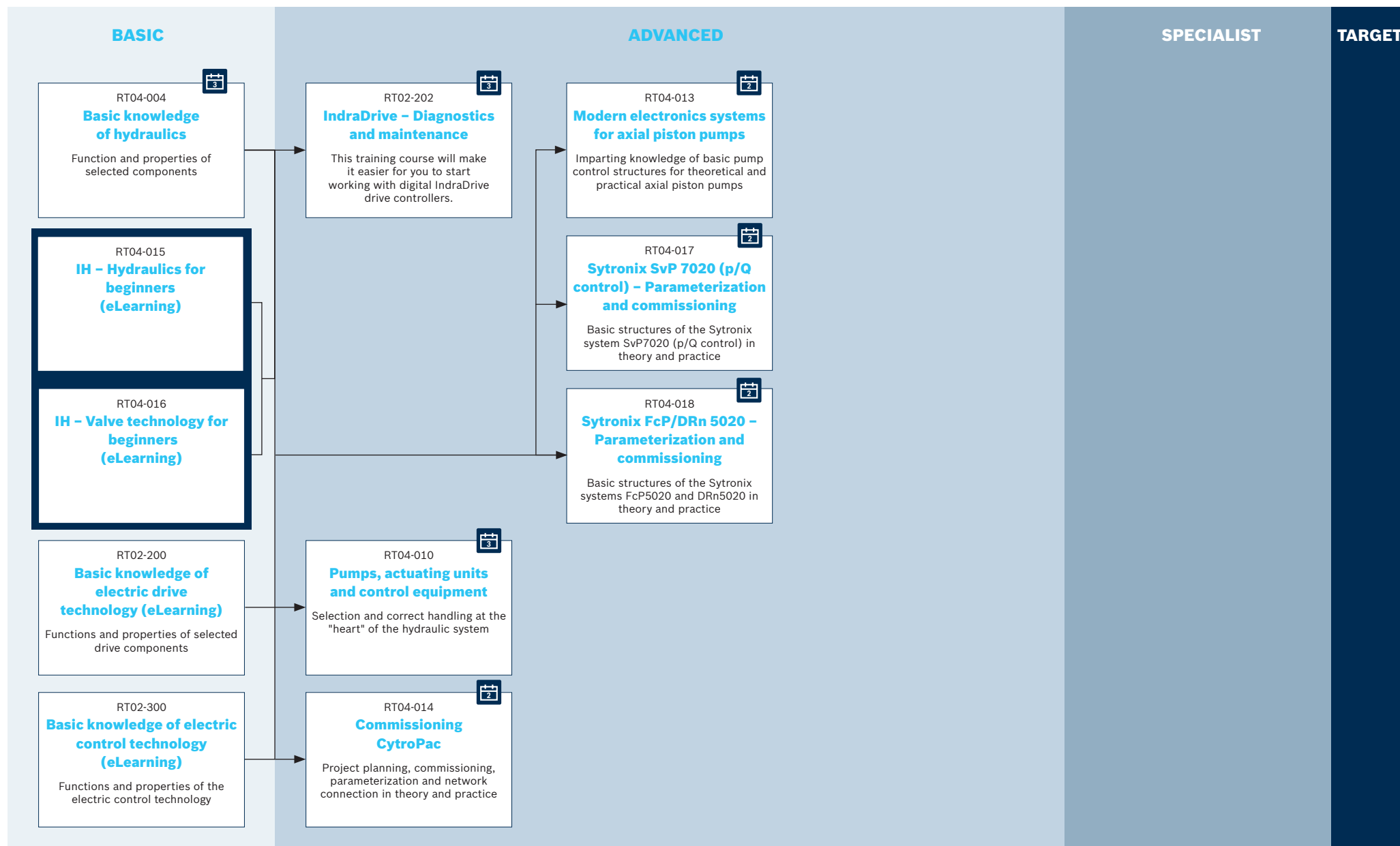


# Learning Path Special Topics

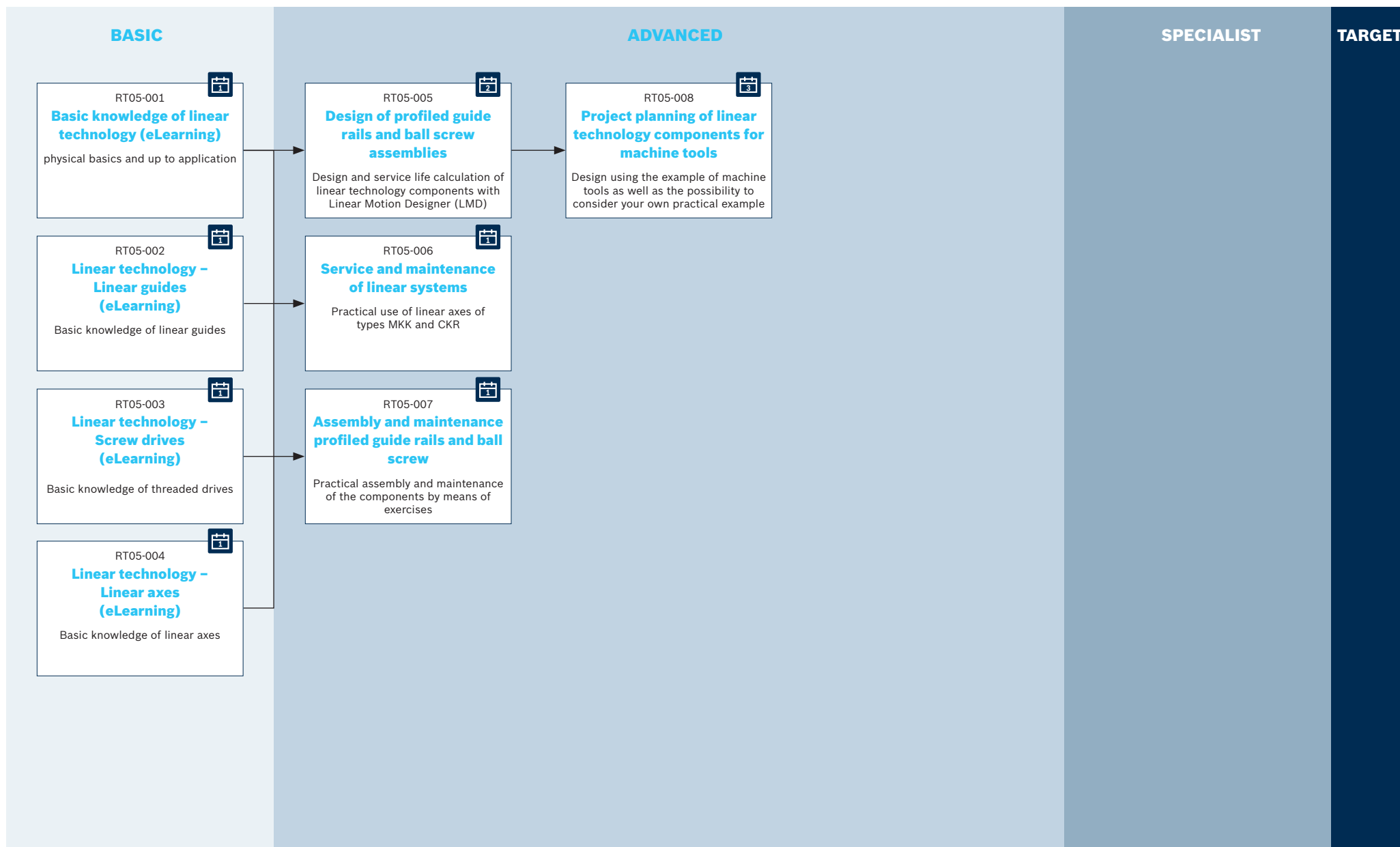




# Learning Path Sytronix

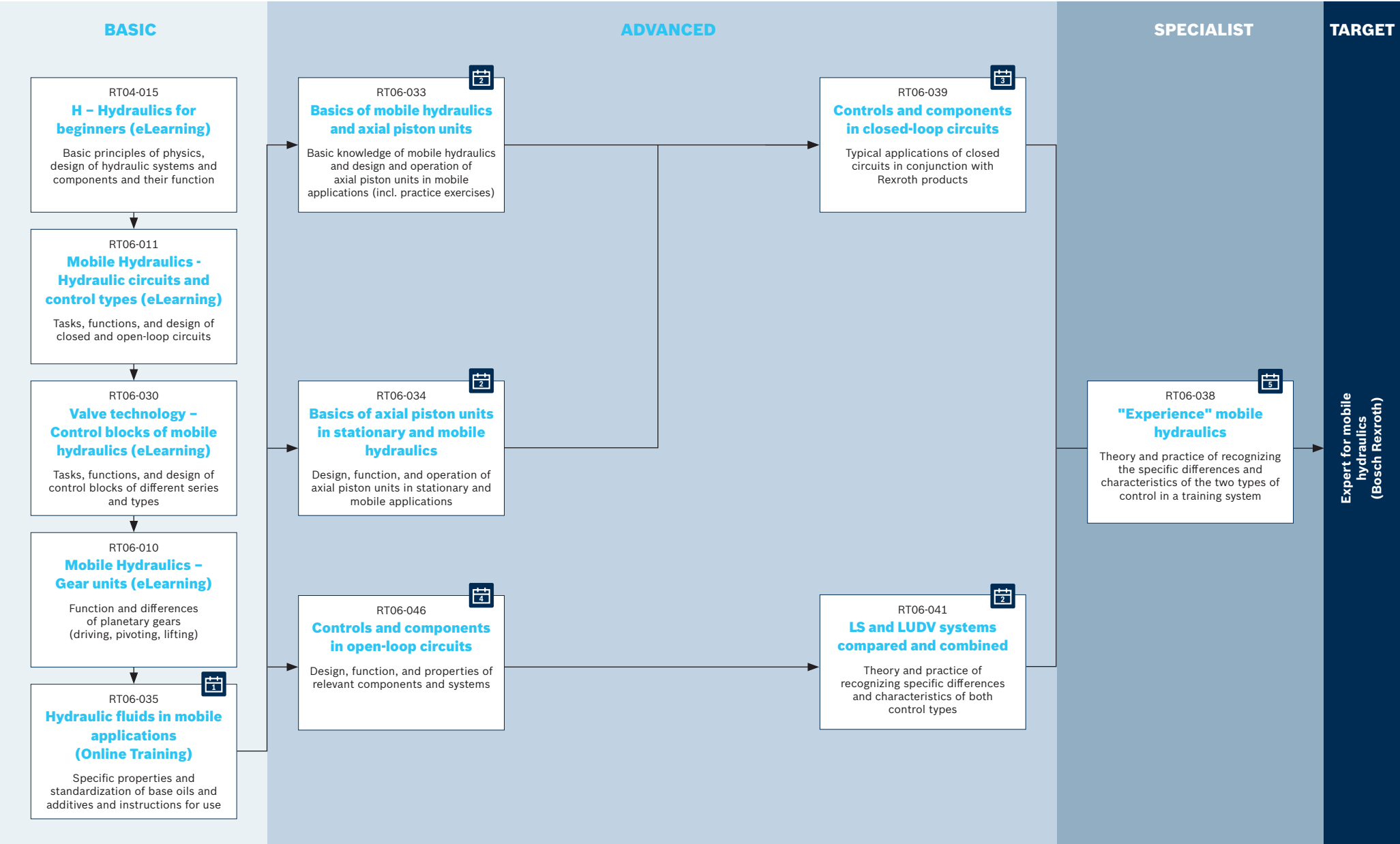


# Learning Path Linear Motion Technology





# Learning Path Mobile Hydraulics



# Learning Path Mobile Hydraulics

## BASIC

## ADVANCED

## SPECIALIST

## TARGET

### INDIVIDUALLY BOOKABLE PRODUCT TRAINING COURSES

RT06-031

#### Function and design of A10 and A1 axial piston units

Overview of the medium-pressure units A1VO, A10VSO, A10VZO, A10VM and their typical controllers (incl. practical aspects)

RT06-043

#### Function and design of the M4 control block

Detailed knowledge of the M4 product family – Design and functionality, characteristic curves, and limits of use as well as the flexibility of the M4 kit

RT06-032

#### Function and design of A4VSO and A15 axial piston units

Overview of the high-pressure units A15VSO, A4VSO, A4VSG, A4CSG, and A6VM and their typical controllers (incl. practical aspects)

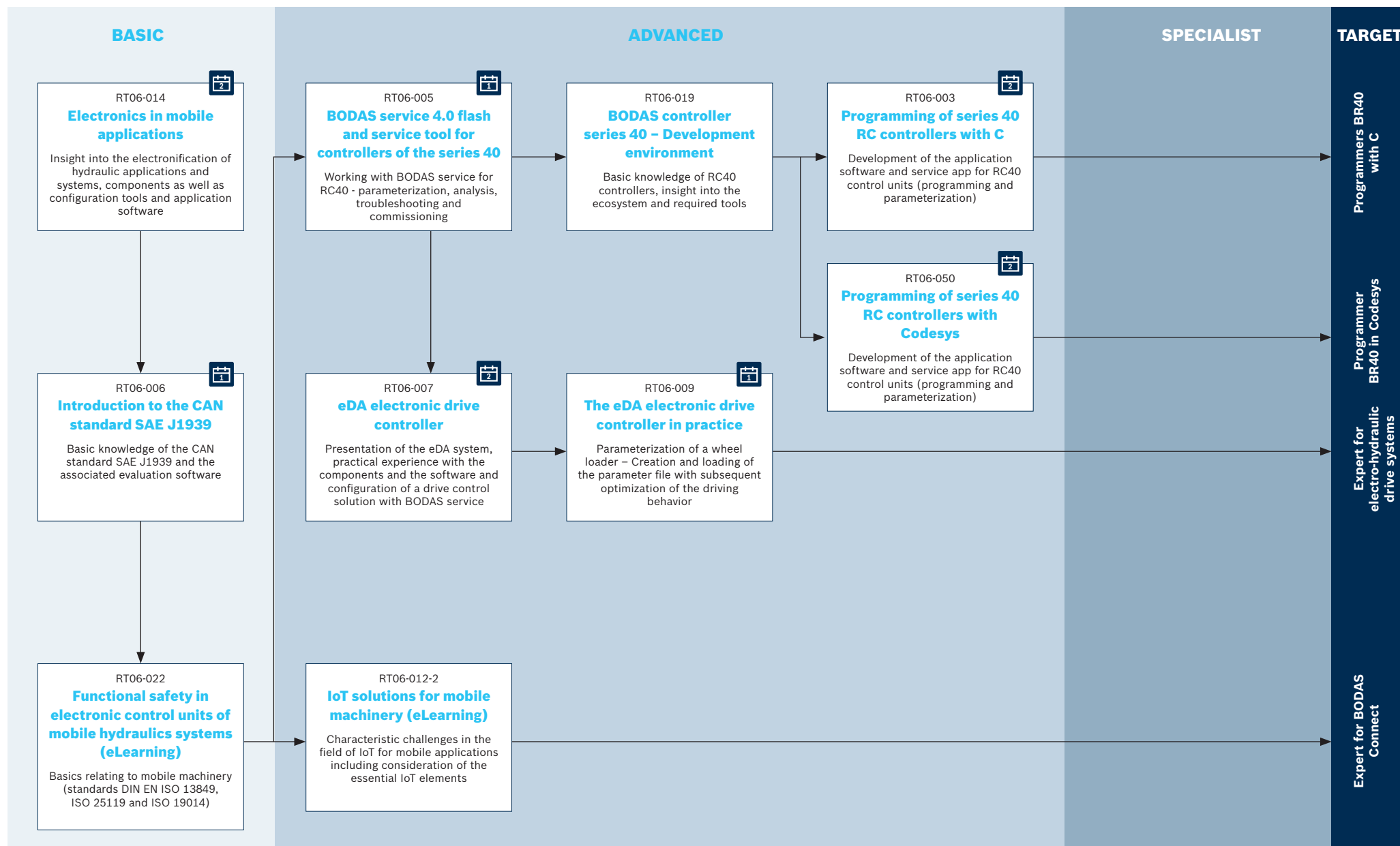
RT06-044

#### Function and design of the M7 control block

Detailed knowledge of the product M7 – Design and function, characteristic curves, and limits of use as well as flexibility of the M7 control block

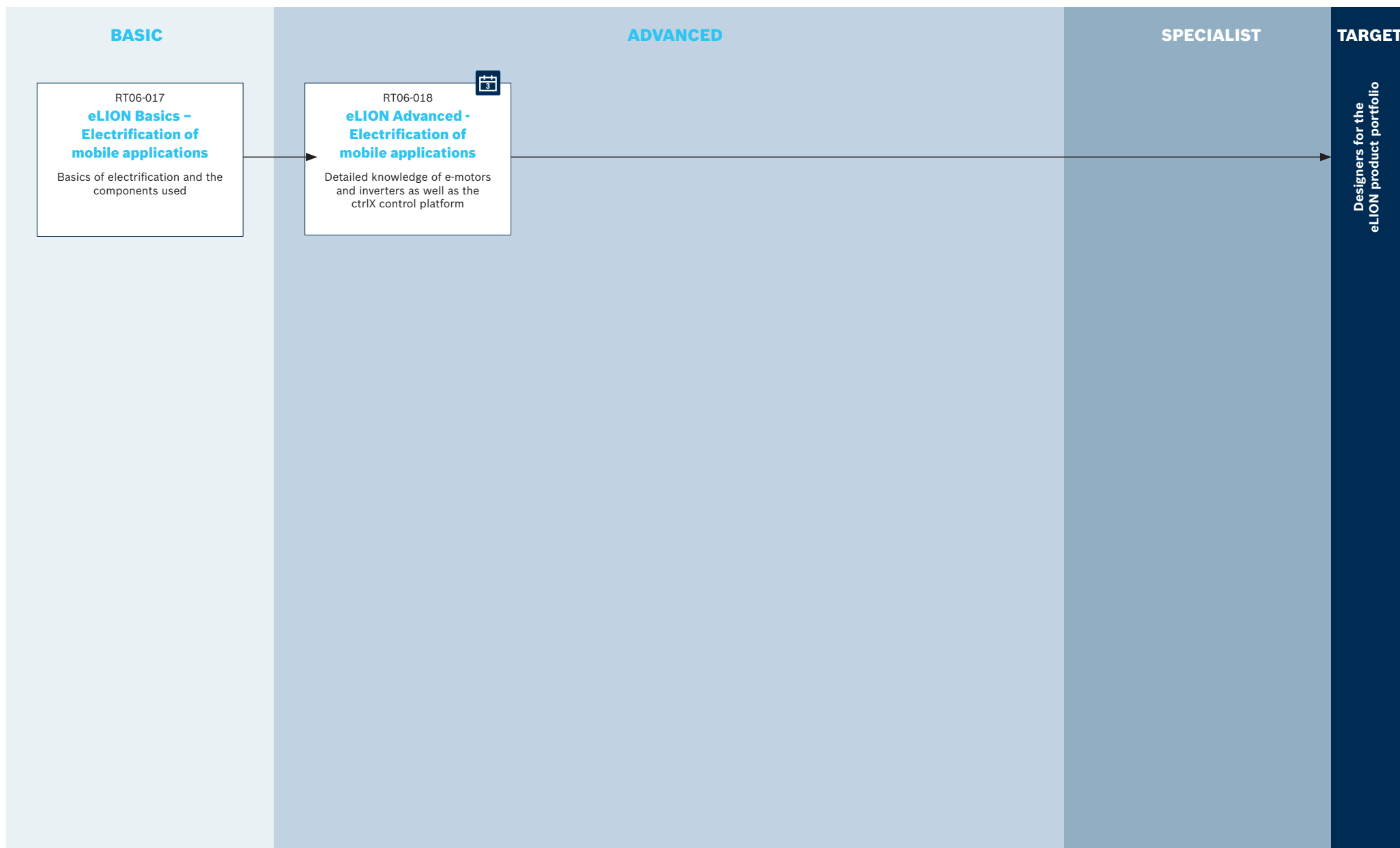


# Learning Path Mobile Electronics

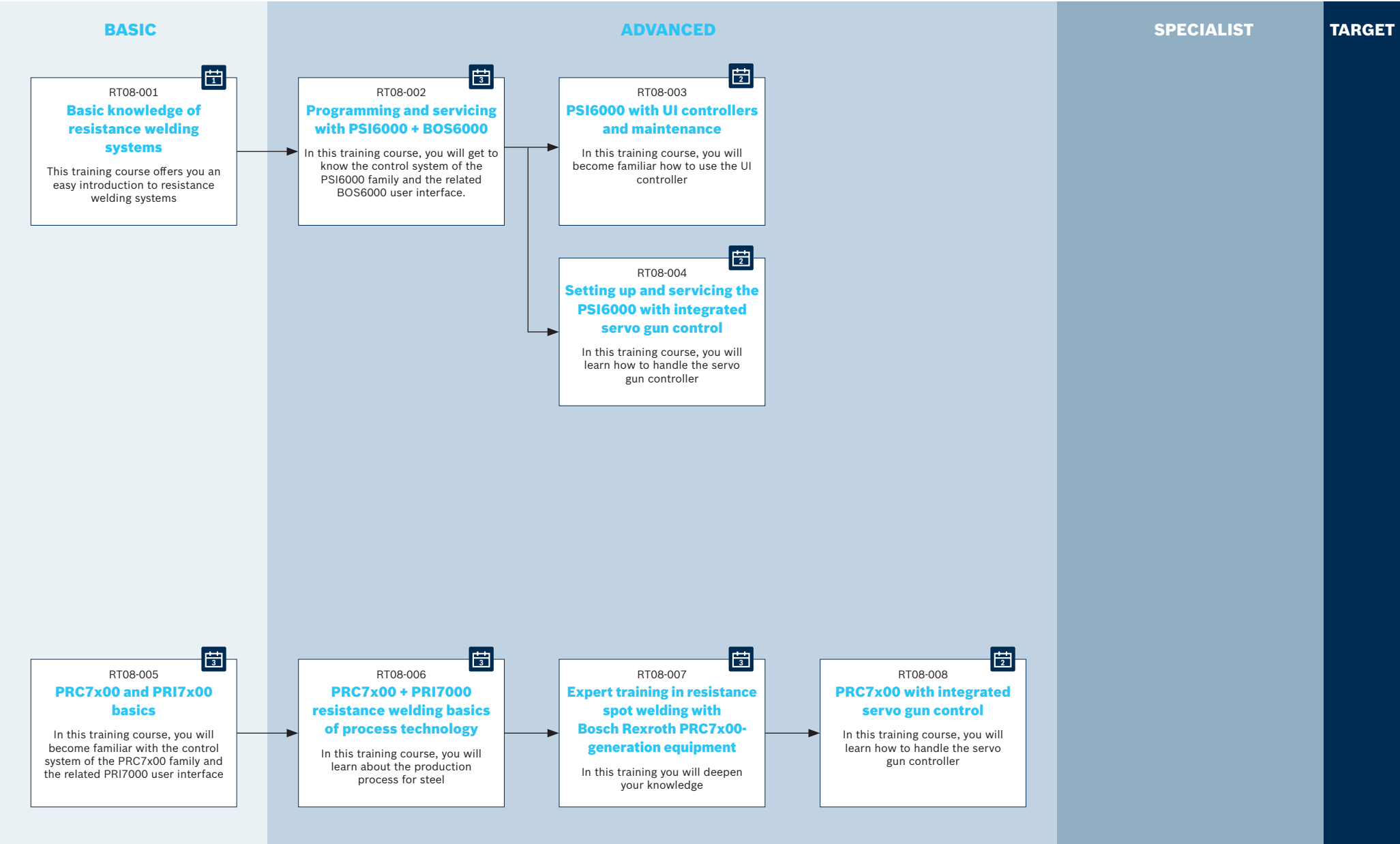




# Learning Path Electrics



# Learning Path Welding Technology



# Learning Path Tightening Technology

## BASIC

RT09-001

### Basic knowledge of tightening systems

This training course gives you an introduction to tightening systems

## ADVANCED

RT09-002

### SE350 tightening system – Transition course (CS351 compact system and 350 multi-channel system)

During this training course, you will get to know the differences between the 350 and 300/310 tightening systems.

RT09-003

### 350 tightening system – Hardware, commissioning, programming (single-channel and multi-channel system)

You will become familiar with the hardware of the 350 modular tightening system and the CS351 compact system.

RT09-004

### CS351 tightening system (single-channel system)

This training course introduces you to different versions of the CS351 compact system (single-channel system).

## SPECIALIST

## TARGET



# Learning Path Pneumatics

## BASIC

RT12-002

### Basic knowledge of pneumatics and electro-pneumatics

the function and properties of components; circuit diagram design

RT12-001

### Basic knowledge of pneumatics (eLearning)

the function and properties of components; circuit diagram design

## ADVANCED

RT12-004

### Electro-pneumatics and bus systems

Basic principles of electro-pneumatics in conjunction with bus-controlled valve manifold systems.

RT12-003

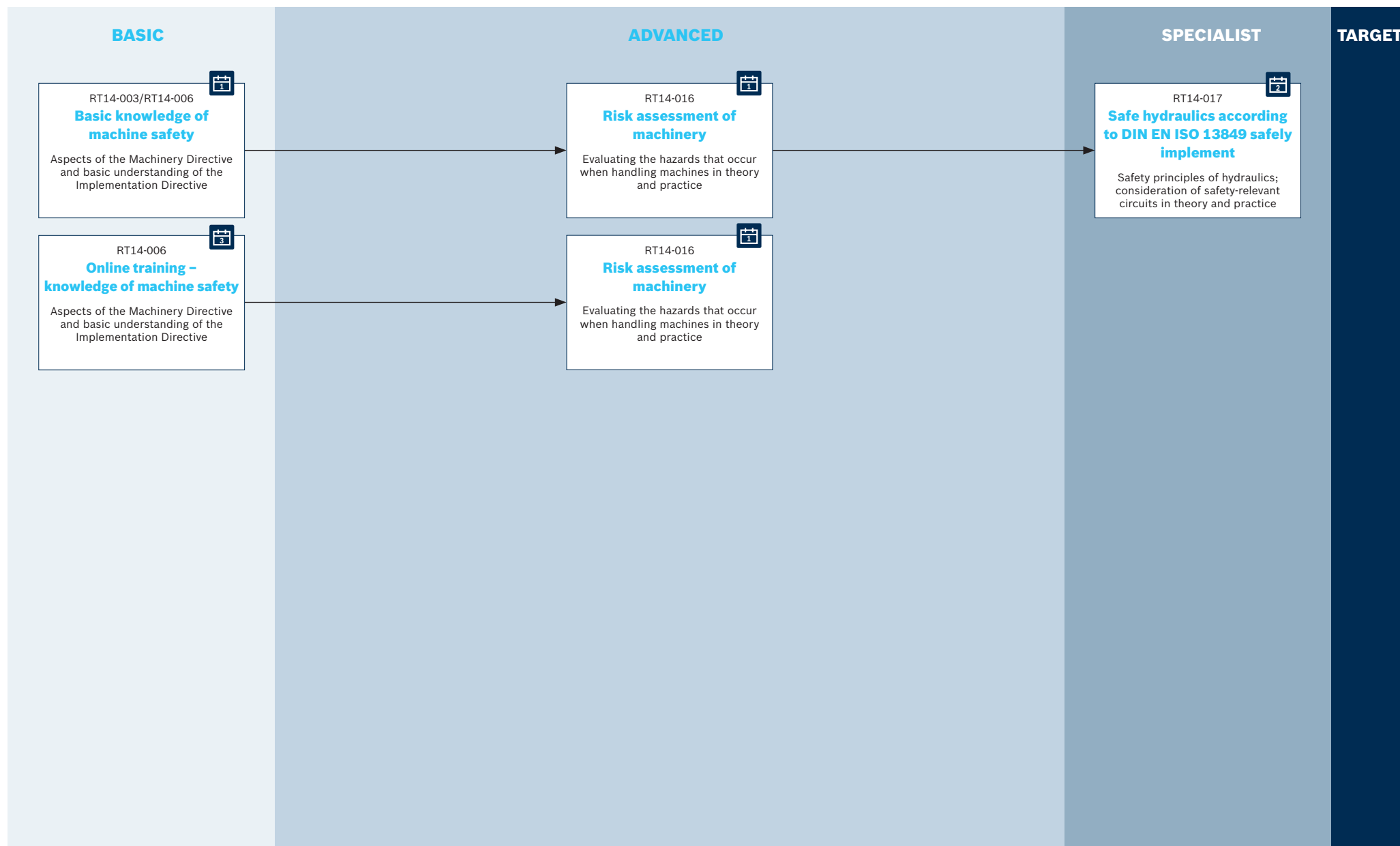
### Pneumatics – Maintenance and troubleshooting

Refresher course electro-pneumatics with focus on fault analysis

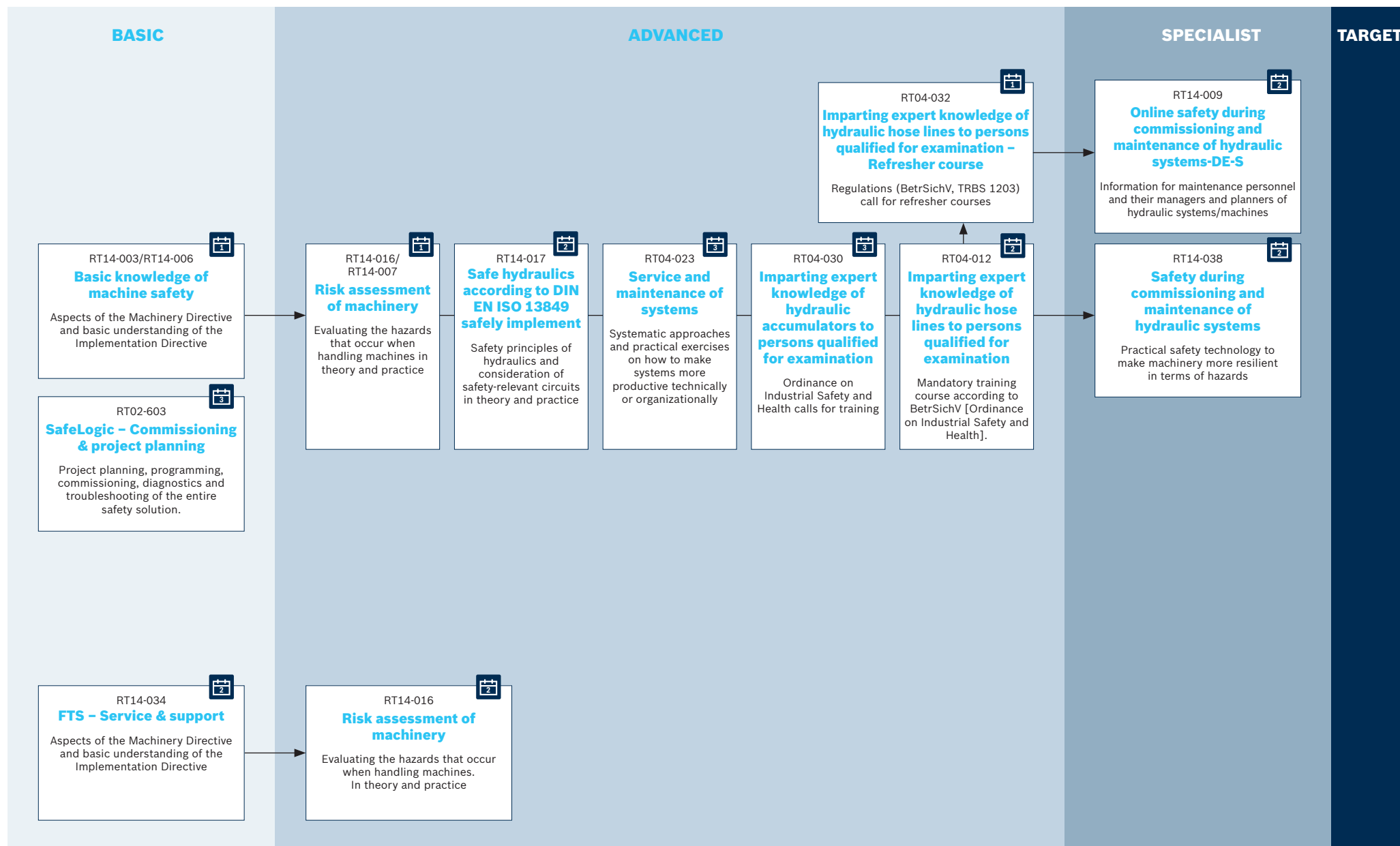
## SPECIALIST

## TARGET

# Learning Path Safety Technology



# Learning Path Safety Technology





# Please contact us:

**Do you have any other questions  
about our training courses?**

We would be happy to advise you.

+49 9352 18-19-20  
training@boschrexroth.de

**CONTACT FORM**