

Trainings

Bosch Rexroth

Academy



Table of contents

Competence for industry	3	Industrial hydraulics	28
Highlights	8	Linear motion technology	31
Digital transformation	16	Mobile hydraulics and electronics	32
Assembly technology	17	Tightening technology	37
Electric drives and controls	18	Resistor welding	38



Competence for industry

As a leading provider of industrial training programs, our Academy is the partner of choice for goal-oriented and sustainable advanced training. The focus here is primarily on the ability of our global customers to act, for whom the shortage of skilled personnel is today's greatest challenge and, at the same time, an opportunity to position themselves competitively in the market through the effective implementation of future-proof technologies. We ensure all of this through customizable and adaptive training programs based on extensive application experience, which we derive specifically for your company on the basis of learning needs analyses.

Our future-oriented training program sets standards in further education for the dual transformation of the industry – digital and sustainable. In this brochure, you will find examples of common learning paths for various technologies that

we teach in our state-of-the-art training centers or directly on site at your plants. Do not hesitate to contact us with your individual challenges in order to find an optimal solution.

Stay competitive –
with the Bosch Rexroth Academy

Award-winning!

We have won the Factory Innovation Award in the Training and Further Education category for our "Smart Factory Campus" holistic training concept!



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 accompany you on the exciting path of digital transformation as your educational partner for challenging technical education.

WE MOVE. YOU WIN.



Training portfolio

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

<https://www.boschrexroth.com/en/de/academy/training/>



Training systems, laboratory concepts and learning media

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

Perfect synergy of analog and digital: Discover our comprehensive range of media and use our solutions for contemporary and digital knowledge transfer.

<https://www.boschrexroth.com/en/de/academy/training/>



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 construction challenges around the world with its cutting-edge technology and unique industry sector knowledge. Thus, the 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 that is consistently aimed 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 representation 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 competences and capabilities for your job role and to optimally equip yourself for your professional future.

Competent and qualified trainers

Our trainers have long-term experience in various areas of our company and go through an additional certified trainer education in their specialist fields and soft skills. Benefit from our industry 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 content, e.g., on basic technology knowledge, is made available in the form of presentations, clearly divided into online learning modules.



Blended learning

The interplay 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 varied range of training offers. Here you will find detailed descriptions of each technology, your desired training type, dates, training locations, and a direct registration option.



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

https://academy.boschrexroth.com/en_de/

eLearning

Face-to-Face Training

Online Training

Blended Learning

Practical Training



Individual training

In addition to the Rexroth standard training courses in the training program, which we can also implement directly in your company if needed, we offer individual training courses for the qualification of your employees. We are happy to create a complete qualification concept for you that is tailored to your applications and company-specific interests.



Your benefits

- ▶ Training courses tailored to your systems and machines
- ▶ Training preparation, consulting, and implementation by competent and experienced trainers
- ▶ Detailed training documents specifically tailored to your application and the components and systems you use
- ▶ Customer-specific questions answered during the training
- ▶ Adapted to suit your business needs: training location, dates, duration, and break times
- ▶ Travel times and expenses of participants are reduced or even eliminated
- ▶ Use of Rexroth infrastructure in your vicinity as a further variant

Requirement

Appropriate facilities and media

Group of participants

We would be happy to adapt our seminars to your individual target group. The success of training depends greatly on advance coordination.

HAVE WE SPARKED YOUR INTEREST IN AN INDIVIDUAL TRAINING COURSE OR QUALIFICATION CONCEPT?

We would be happy to provide you with an individual quotation.

Contact:

training@boschrexroth.de

Phone: +49 9352 18-1920

RT13-018

Modern hydraulics and sustainability

The training combines classic hydraulics with modern control technology to demonstrate the full potential of data acquisition. It offers technicians, maintenance personnel, service managers, and developers the opportunity to obtain a comprehensive picture of the hydraulic system from the collected data. Using practical examples, various scenarios are discussed and the corresponding work processes are examined in order to reduce down times, plan maintenance with foresight, and increase overall equipment effectiveness (OEE).



CONTENTS

- ▶ Raising awareness of sustainability and identifying the potential in existing and new hydraulic systems
- ▶ Creation of an application-oriented hydraulic system
- ▶ Installing sensors
- ▶ Optimization of the hydraulic system using various examples
- ▶ Identification of errors and their causes using a case study
- ▶ Recognizing correlations in the recorded data
- ▶ Overview of modern control technology
- ▶ Integration of the control system into the test set-up
- ▶ Economic impact of errors in the system

LEARNING TARGET

- ▶ Set-up of an application-oriented hydraulic system
- ▶ Retrofitting of sensors and measurement technology
- ▶ Application of simple control technology in connection with Automax 105
- ▶ Evaluating and interpreting measured values and diagrams

REQUIREMENT

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!



RT04-020

Developing and optimizing hydraulic control systems DE-S

In this training course, you will develop circuit diagrams according to functional specifications and optimize them during commissioning. One feature of this training course is the oil cleanliness analysis that you will carry out independently. Also very interesting for experienced practitioners. The topic of sustainability is another new training highlight. Possibilities are illustrated for systematic consideration of energy saving potential in hydraulic systems.



CONTENTS

- ▶ Developing, setting up, and commissioning complex circuit diagrams
- ▶ Determining the optimization potential of a hydraulic control system
- ▶ Closed-loop control circuits and use of a controlled axis
- ▶ Use of analog and digital control electronics
- ▶ Carrying out and evaluating particle counting in hydraulic fluids
- ▶ Systematic analysis of potential energy savings in hydraulics

LEARNING TARGET

- ▶ Knowing how to build and commission control sequences using the parts list and functional description
- ▶ Being able to optimize specified functional sequences used in the industry
- ▶ Recognizing energy saving opportunities in hydraulic systems

REQUIREMENT

Completion of RT04-005, RT04-006, and RT04-002 training courses

Do you have
any questions?



Register
now!



RT13-020

Certified application expert in artificial intelligence & machine networking

This intensive practical training is aimed at implementers in companies such as maintenance personnel, planners, and IT managers who want to network the machinery in their company in order to achieve more transparency in production and thereby reduce downtime and enable AI-supported early recognition of any problems. The required hardware and software competence is taught at and with industrial systems with a view to preparing the participants for holistic production networking and data-driven solutions 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
- ▶ Installing sensors
- ▶ Configuration of the IP addresses of the machine
- ▶ Setup of machine networking in various ways; Node-RED, device bridge
- ▶ Data editing and saving/storage of machine data
- ▶ Identification of possible applications for artificial intelligence
- ▶ Application of AI to analyze production data
- ▶ Setting up AI models for early recognition of problems

LEARNING TARGET

- ▶ Analysis of brownfield and machinery to identify suitable systems for networking
- ▶ Industrial competence for connecting and networking machines and production plants
- ▶ Application of AI processes for analysis of production data in order to increase transparency and boost productivity

REQUIREMENT

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!



RT06-057

First steps in mobile hydraulics

Mobile hydraulics you can touch and discover – that's what is waiting for you in this practical training course. You will gain initial insight into the broad spectrum of mobile hydraulics, from physical principles to the Rexroth components and systems used and various applications. You will experience all this in theory and practice at the workbench, a hydraulic training system, and directly on various machinery that is available for testing.



CONTENTS

- ▶ Physical principles of hydraulics
- ▶ Basics of load-sensing systems
- ▶ Presentation of hydraulic pump and hydraulic motor
- ▶ M4 control block functions
- ▶ Mobile electronics components
- ▶ Introduction to CAN bus communication
- ▶ Experience hydraulics in mobile applications
- ▶ Practical exercises at construction machinery

LEARNING TARGET

You have acquired basic knowledge of mobile hydraulics and mobile electronics and are familiar with the main components and their range of applications in mobile machinery

REQUIREMENT

Technical understanding

Do you have
any questions?



Register
now!



RT06-038

"Experience" mobile hydraulics

In this intensive practical training, you will learn about suitable components for various applications through intensive product training (layout, function, and technical special features). Take this opportunity to operate and work on various machines. By testing, measuring, and adjusting, you will find the best settings for the machine and recognize and correct any system errors.



CONTENTS

- ▶ Function and layout of systems and components for load-dependent and load-compensated systems with practical layout (DS, LS, LUDV)
- ▶ Adjustment work on selected construction machinery (open and closed circuit)
- ▶ Measurements on equipment, evaluation, and review of measurement protocols
- ▶ Identification and correction of errors

LEARNING TARGET

- ▶ Application-based selection of the suitable components for drive and work hydraulics, with derivation from the examples of wheeled loaders and mobile excavators.
- ▶ Detailed knowledge about the different components, such as characteristic curves, limits of application, adjustment options
- ▶ Being able to carry out measurements incl. evaluation and detection of measuring errors
- ▶ Optimization of hydraulic systems with regard to output balance and controllability

REQUIREMENT

Completion of RT06-039, RT06-041 training courses or comparable knowledge

Do you have
any questions?



Register
now!



RT02-124-1-EL-12

ctrlX CORE II-EN

After completing the eLearning module, you will have gained fundamental knowledge in ctrlX I/O Engineering and ctrlX PLC Engineering, enabling you to commission a small machine. You will understand the relationship between ctrlX Data Layer, ctrlX I/O Engineering and ctrlX PLC Engineering within ctrlX AUTOMATION. At the end of the eLearning module, you will independently create a PLC program using a ctrlX COREvirtual or existing hardware.



LEARNING TARGET

- ▶ Know how to add an EtherCAT Master on the web interface of the ctrlX CORE.
- ▶ Be able to configure ctrlX I/O modules manually or via the scan function in the ctrlX I/O Engineering.
- ▶ Be able to perform an I/O check within the ctrlX Data Layer, ctrlX I/O Engineering or ctrlX PLC Engineering.
- ▶ Know how to map I/O channels to project variables.
- ▶ Understand the diagnostic system of the ctrlX CORE, EtherCAT Master and PLC apps.
- ▶ Know how app data is managed.
- ▶ Be able to implement a simple PLC program and test its functions on the ctrlX CORE^{virtual} or existing hardware.

REQUIREMENT

eLearning ctrlX CORE I: Link to the eLearning

Do you have
any questions?



Register
now!



RT02-123-2-EL-EN

ctrlX AUTOMATION SDK II-EN

After completing the eLearning module, you will be able to program complex non-real-time apps that integrate into the ctrlX OS and utilize its interfaces. You will receive information about ctrlX Data Layer, package assets, essential files such as snapcraft.yaml, and much more. At the end of the eLearning module, you will extend a program code to meet specific requirements.



LEARNING TARGET

- ▶ Know which components make up a Snap and can interact with the system.
- ▶ Understand how a Snap is structured.
- ▶ Know what the ctrlX Data Layer is.
- ▶ Be able to accurately describe metadata.
- ▶ Know how the client-provider principle works.
- ▶ Be able to write a program for web server integration that outputs the permissions of the user.
- ▶ Be able to integrate Service-to-Service Authentication into your code.
- ▶ Be able to independently debug faulty code and identify the error.

REQUIREMENT

SDK I eLearning

Do you have
any questions?



Register
now!



RT02-113

ctrlX PLC – Workshop DE-A

Do you already have basic knowledge of PLC programming in structured text? Then you've come to the right place. The objective is to expand your PLC knowledge with ctrlX-specific contents to enable you to directly get started with our ctrlX controllers. In this workshop, we work as a team on a joint project. We start by programming a simple traffic circuit and then develop a complex traffic light intersection with control-to-control communication. For this purpose, we will integrate various ctrlX AUTOMATION apps into our project. In addition to programming, we will also create a visualization of the traffic light intersection. Are you ready to expand your knowledge of ctrlX PLC programming and explore new horizons?



CONTENTS

- ▶ PLC programming in ctrlX PLC Engineering
- ▶ Visualization in ctrlX PLC Engineering
- ▶ Control-to-control communication via Data Layer Remote
- ▶ Control-to-control communication via OPC UA Client-Server

LEARNING TARGET

- ▶ Realization of a PLC project as a team.
- ▶ Extension of simple PLC programming by additional functionalities
- ▶ Transfer of examples from various ctrlX AUTOMATION libraries to your own programming
- ▶ Realization of control-to-control communication in two ways

REQUIREMENT

- ▶ ctrlX CORE I-DE (eLearning)
- ▶ ctrlX CORE II-DE (eLearning)
- ▶ Programming with ctrlX PLC Engineering in Structured Text

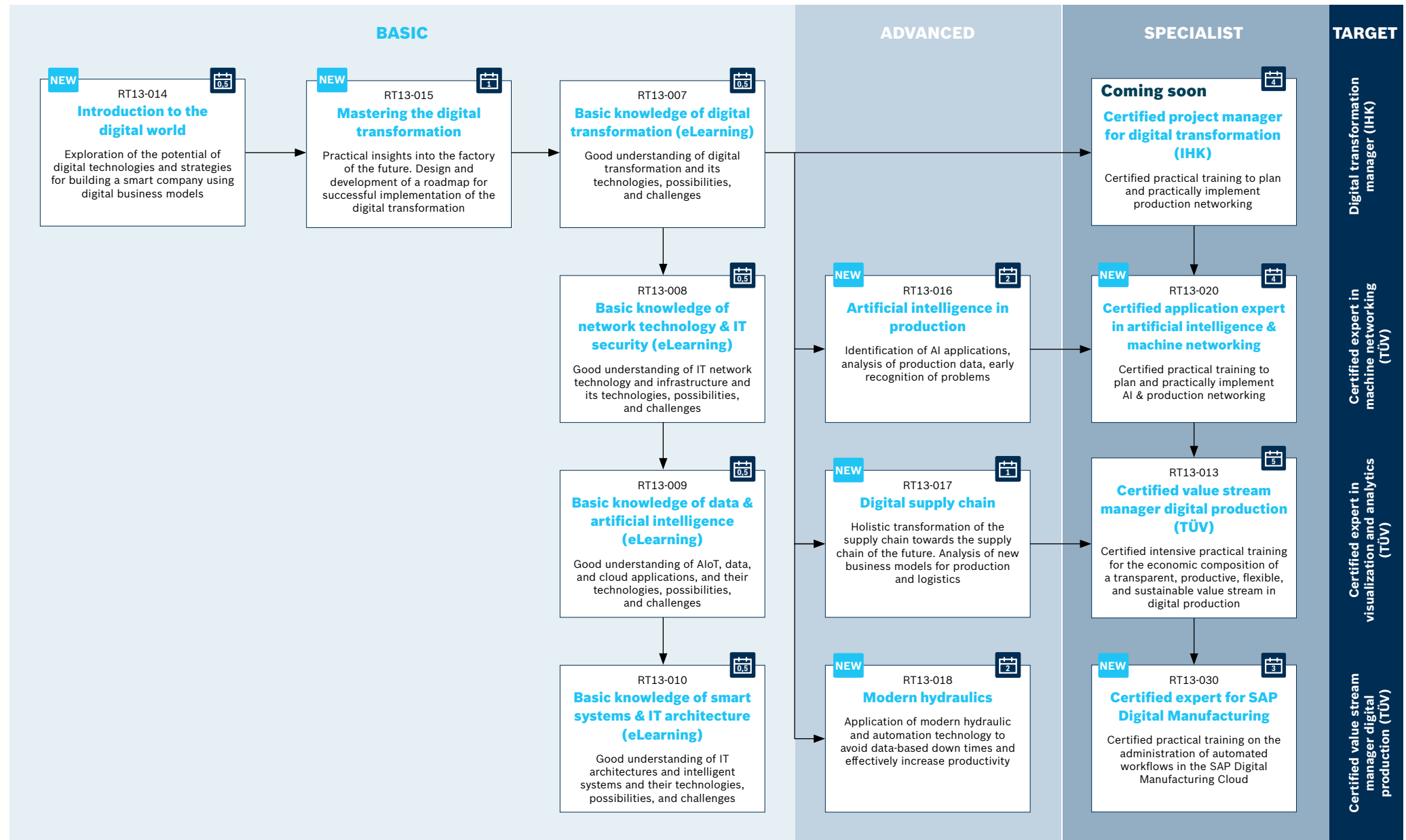
Do you have
any questions?



Register
now!



Learning path – digital transformation



Learning path – assembly technology

BASIC

ADVANCED

SPECIALIST

TARGET



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

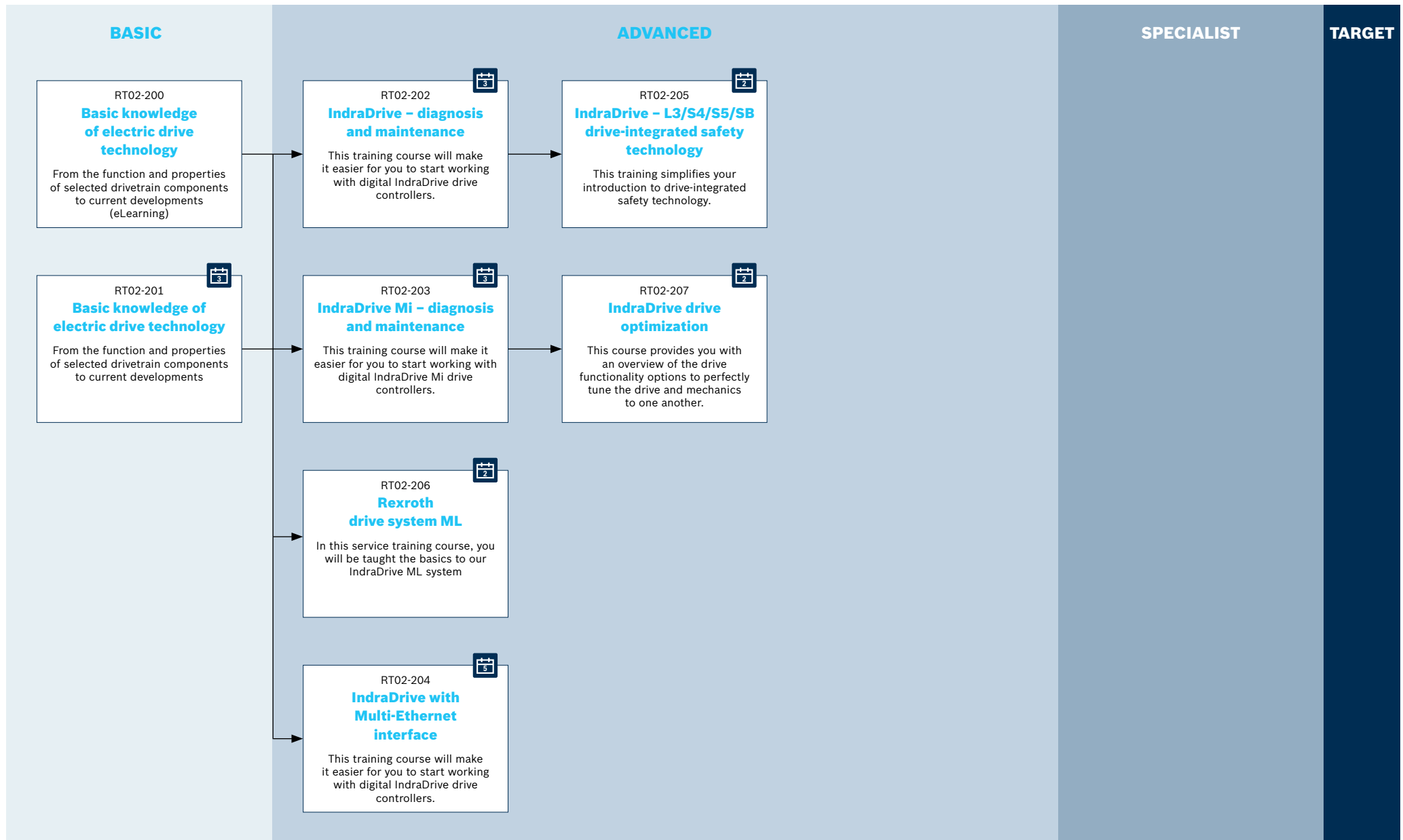
We have compiled a VarioFlow plus training course with the contents from all modular units.



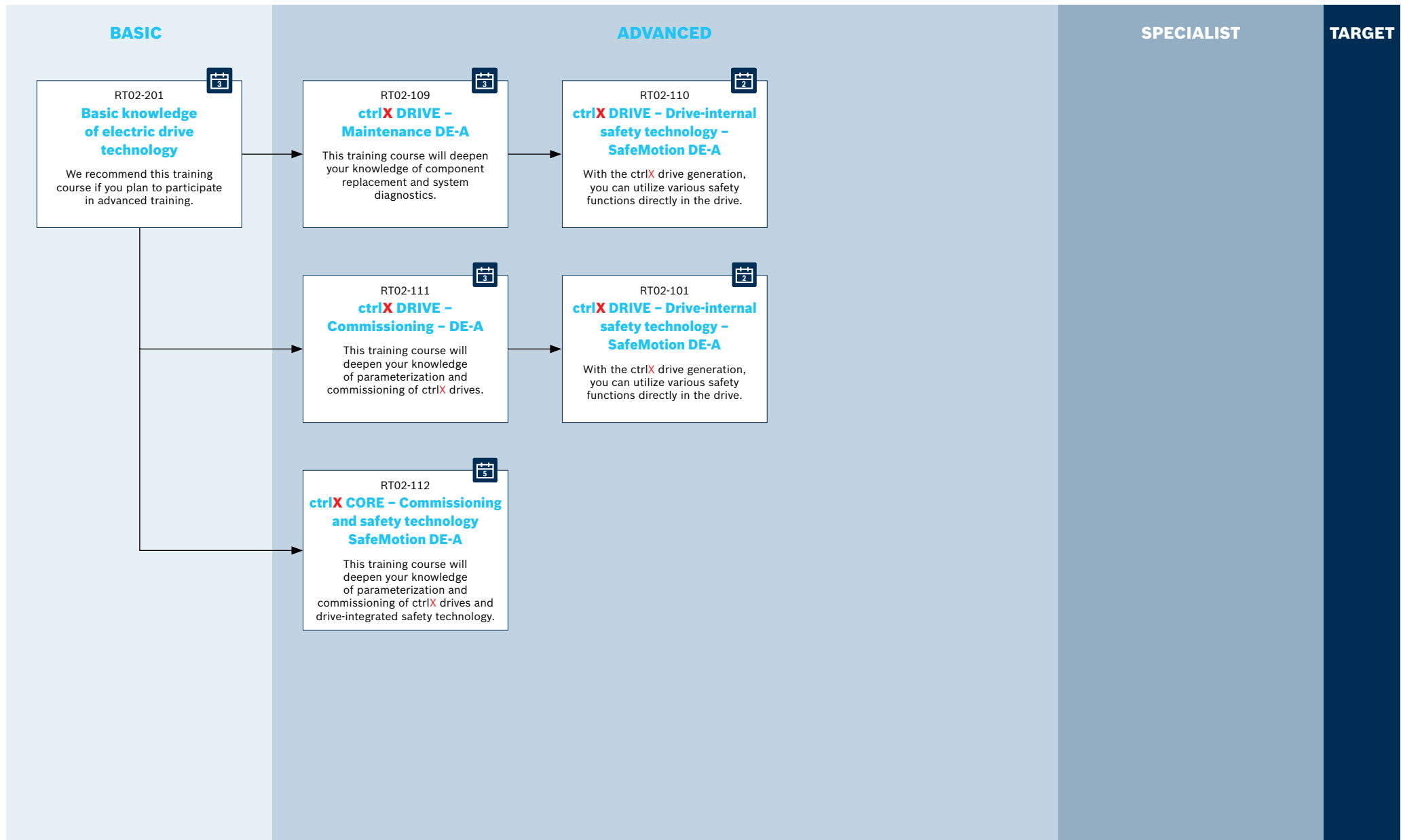
RT01-003 TS 5

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

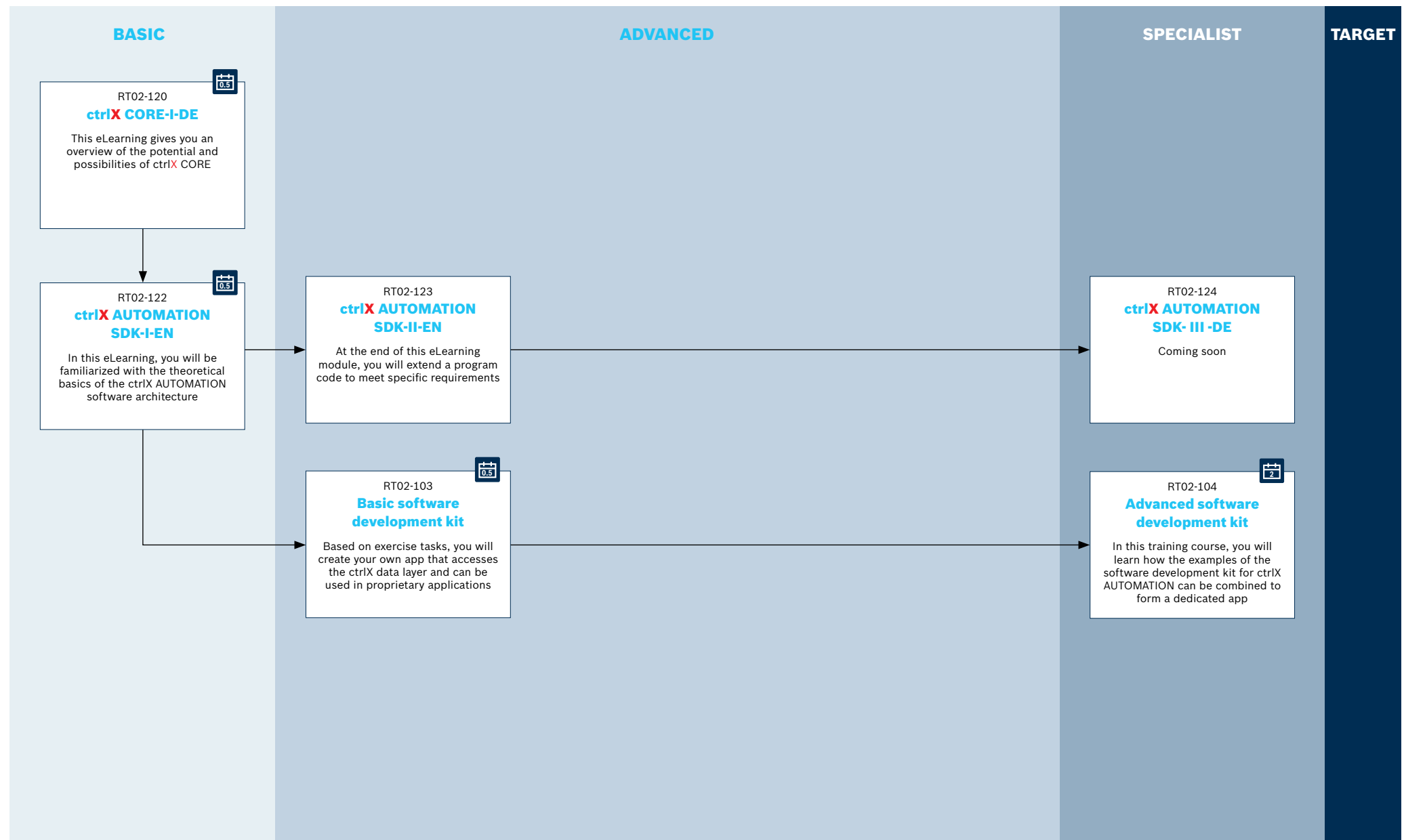
Learning path – IndraDrive drive technology



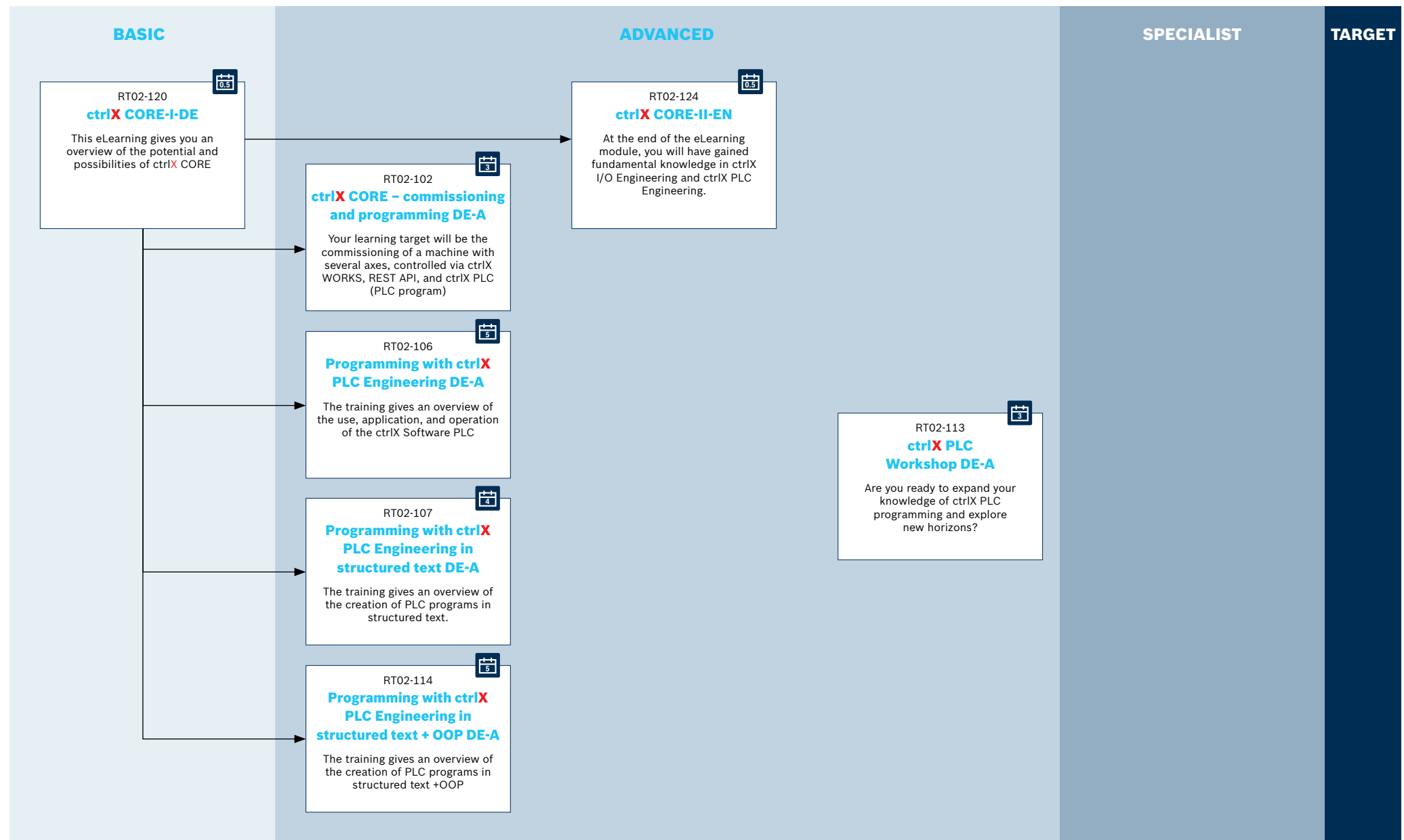
Learning path – ctrlX AUTOMATION – DRIVE



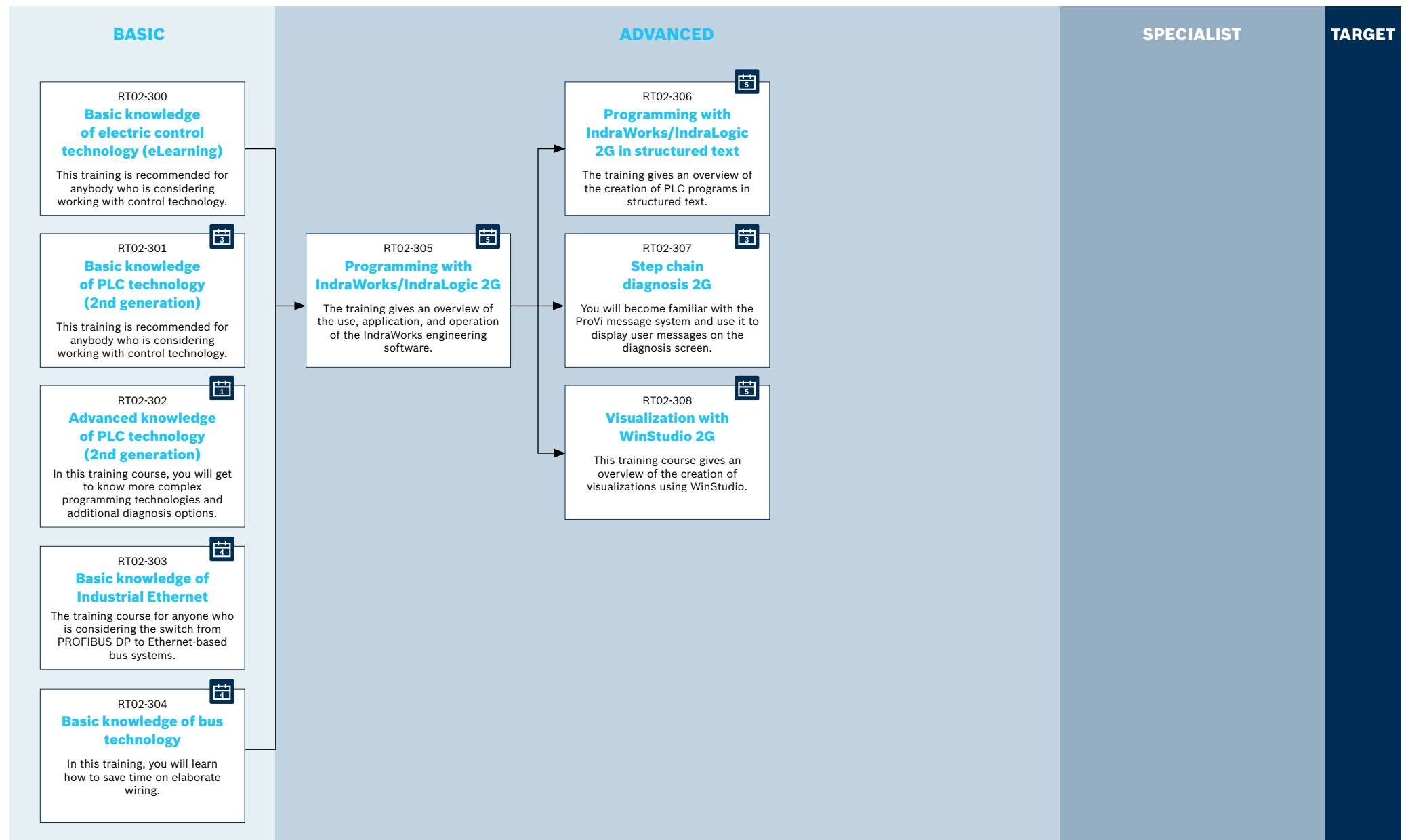
Learning path – ctrlX AUTOMATION – SDK



Learning path – ctrlX AUTOMATION – CORE



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)

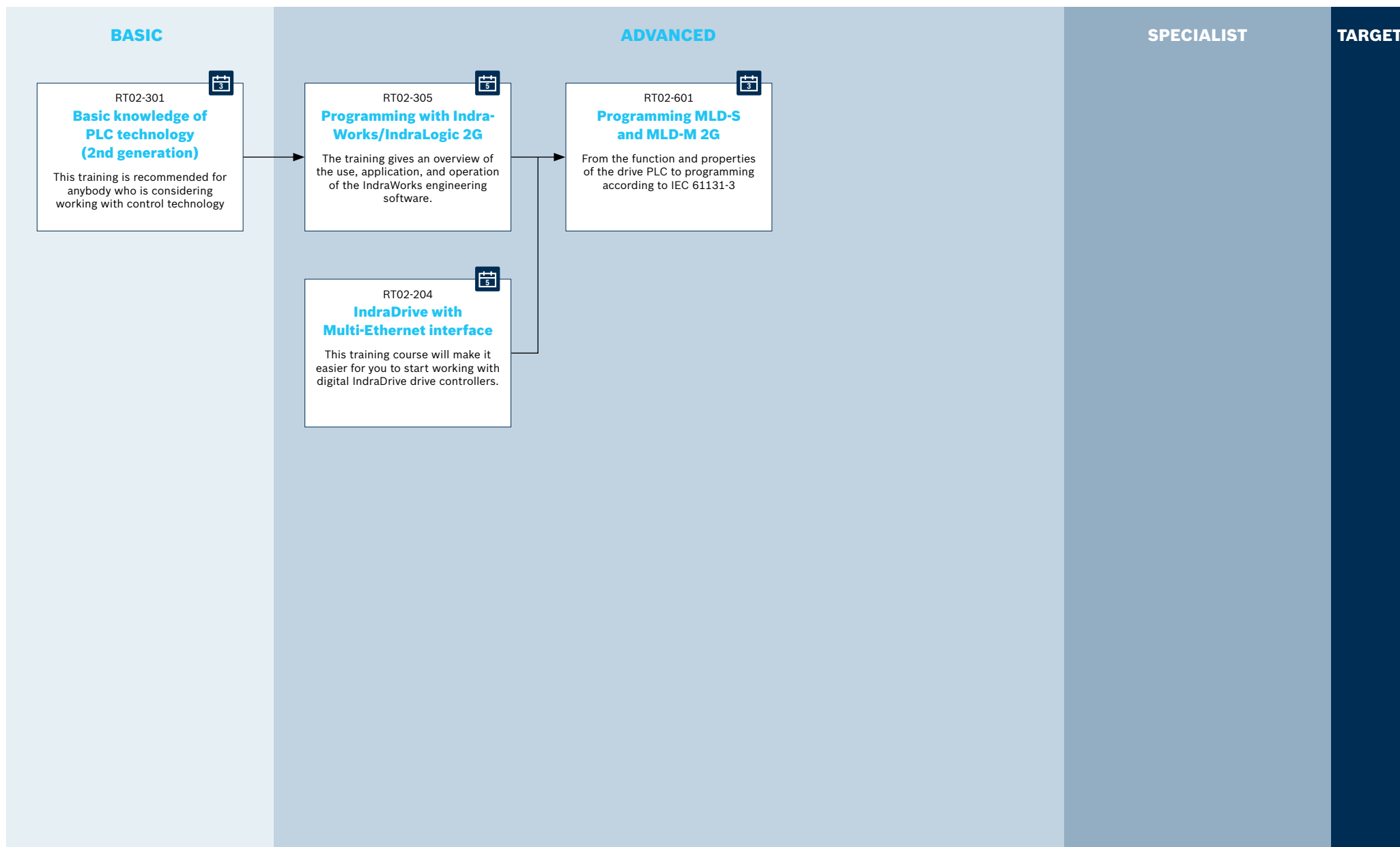
ADVANCED

SPECIALIST

TARGET

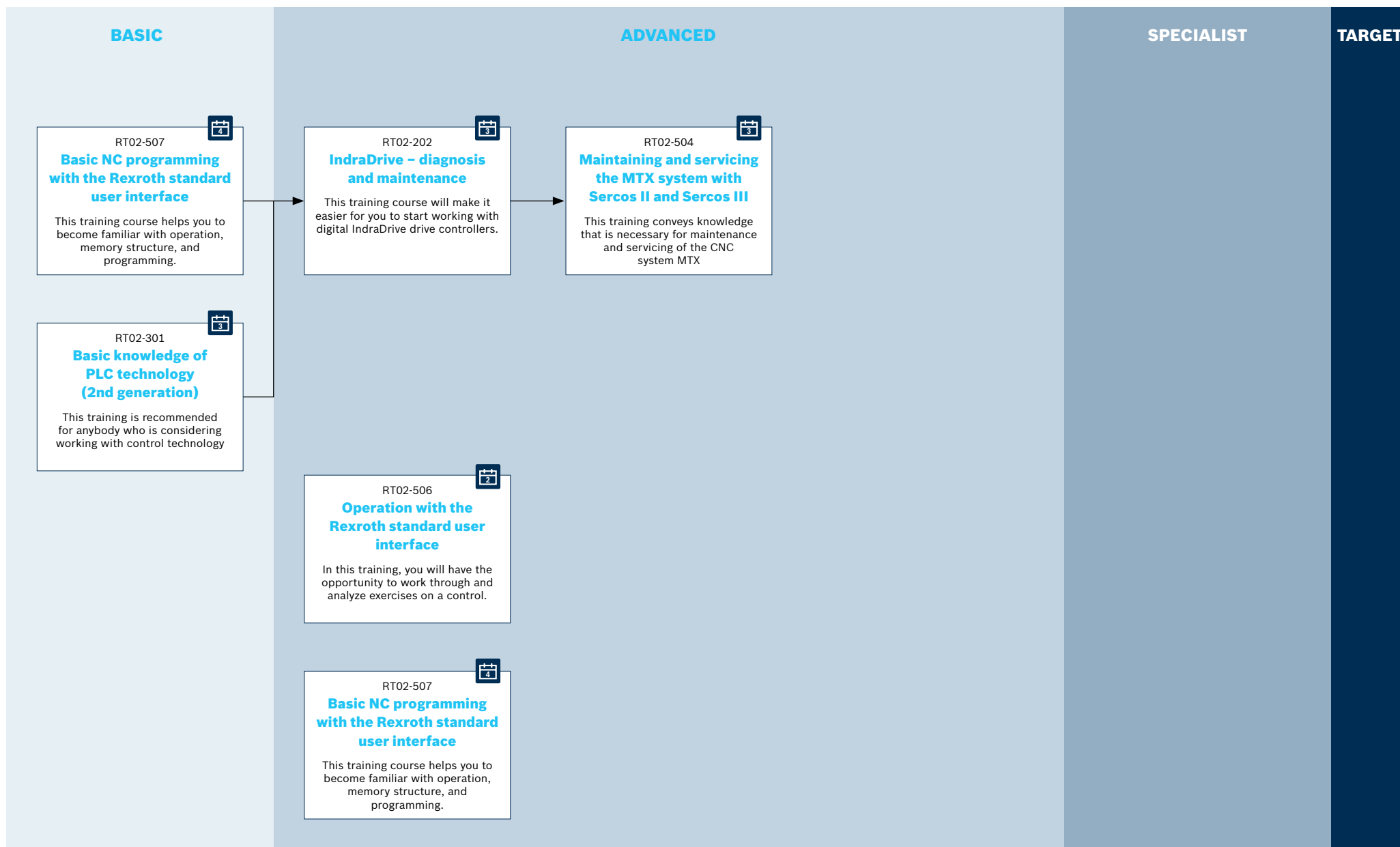


Learning path – MotionLogic MLD

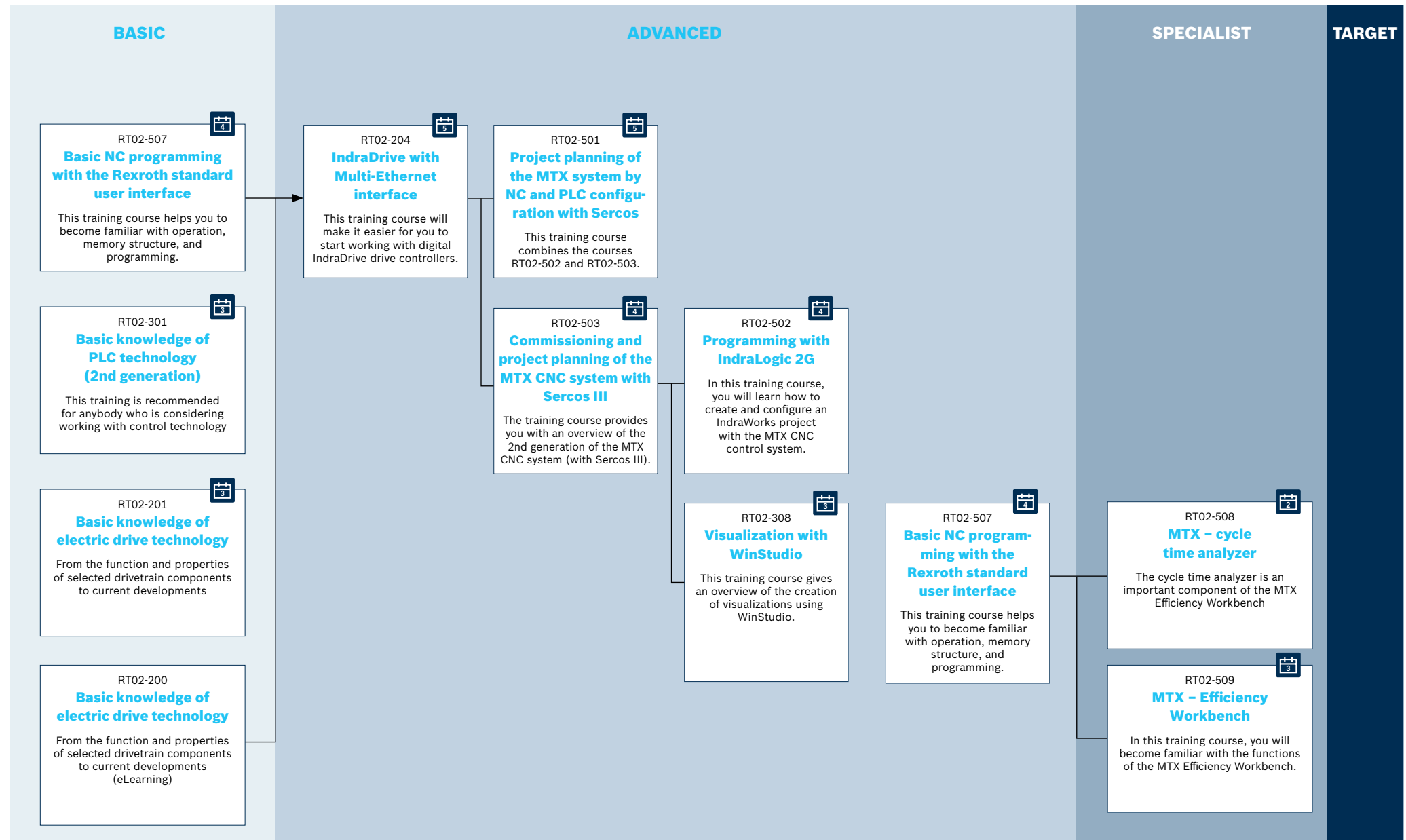




Learning path – CNC system MTX



Learning path – CNC system MTX



Learning path – XLC/MLC

BASIC

RT02-300

Basic knowledge of electric control technology (eLearning)

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.

RT02-202

IndraDrive – diagnosis and maintenance

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

ADVANCED

RT02-401

MLC – Commissioning and programming

In this training, you will learn the project planning process of the MLC automation system.

RT02-402

MLC – maintenance

This training course teaches you everything related to the maintenance and service of the overall MLC system.

RT02-403

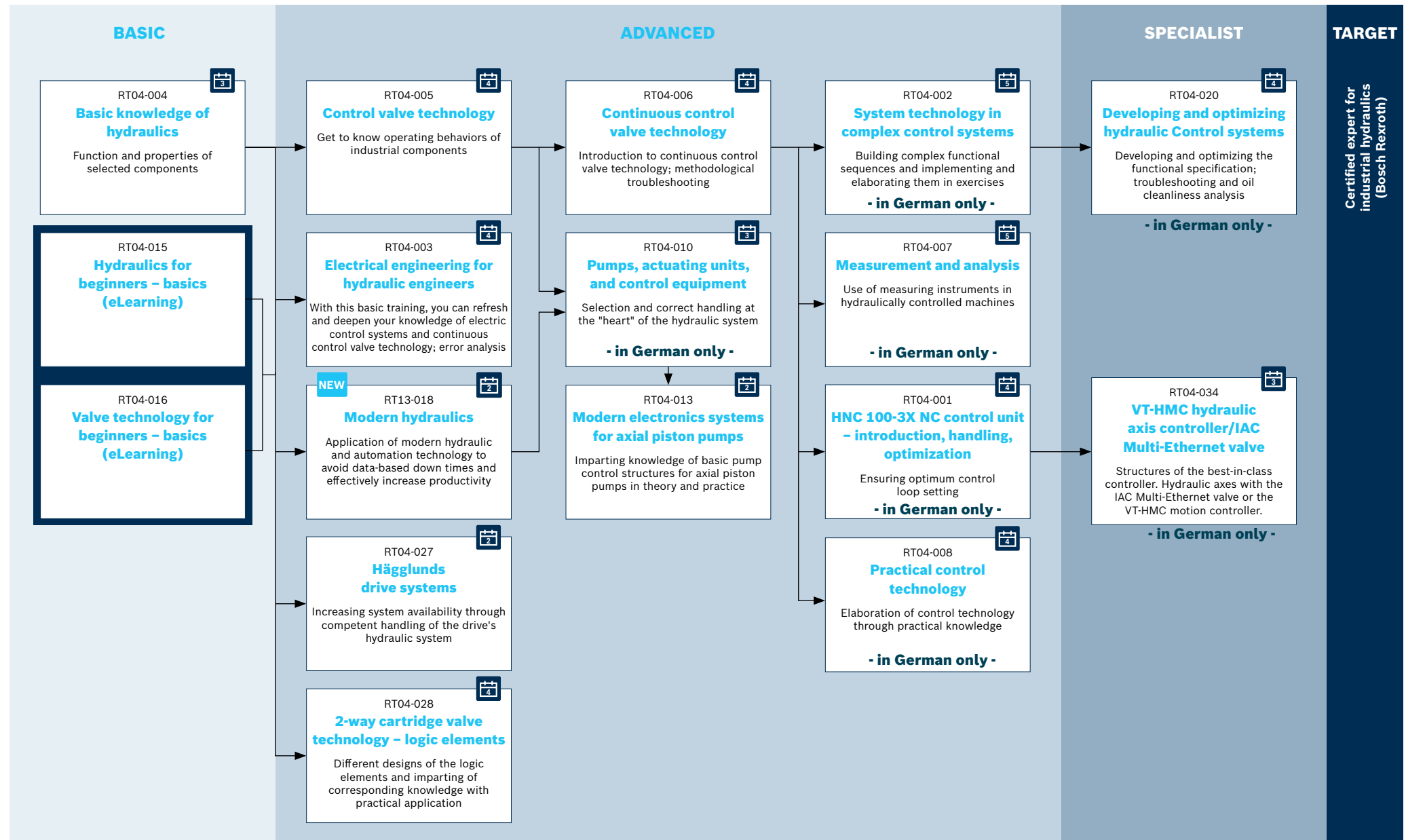
XLC/MLC – Windows programming with open core interface

In this training course, you will learn how to program Windows applications based on Open Core Interface (OCI).

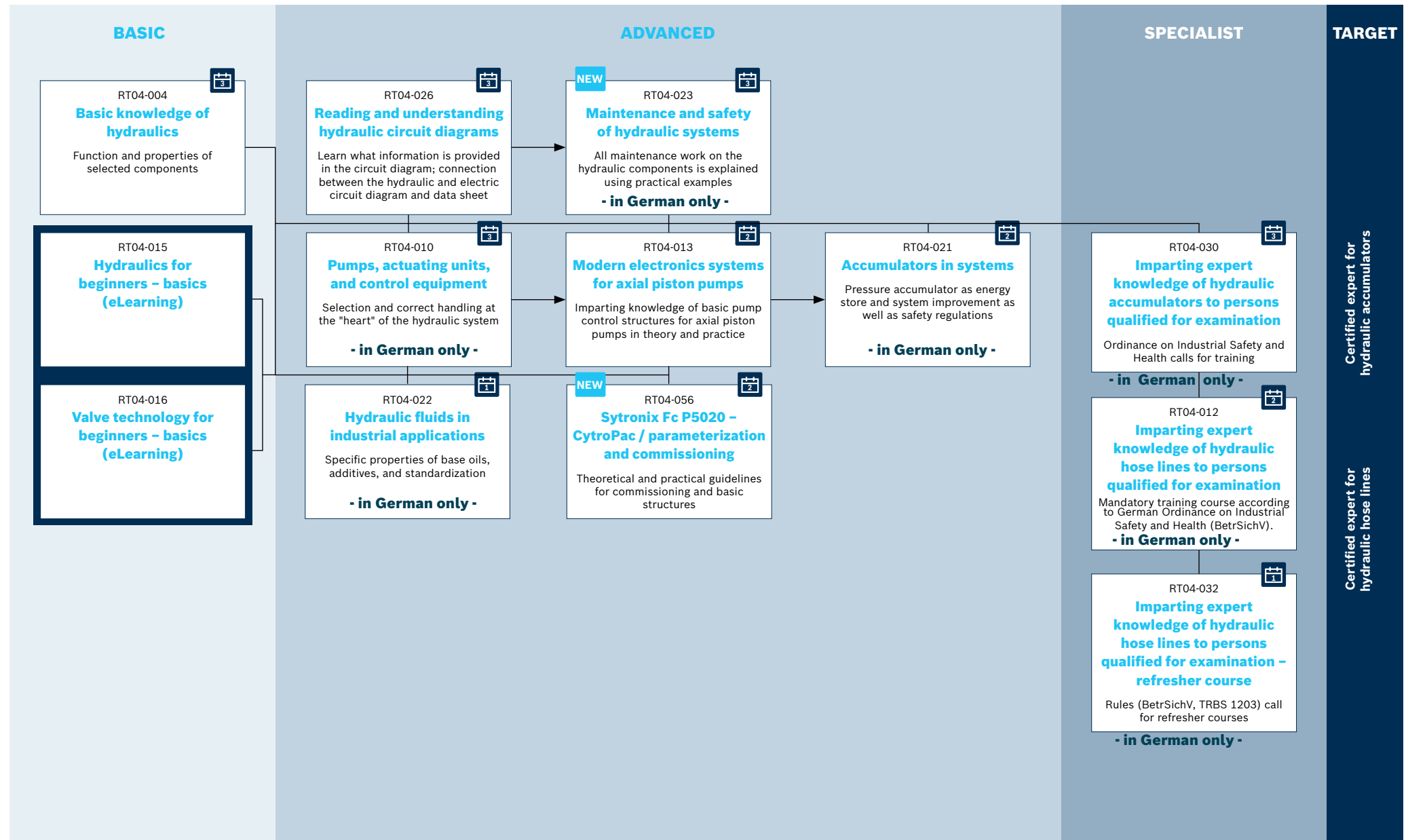
SPECIALIST

TARGET

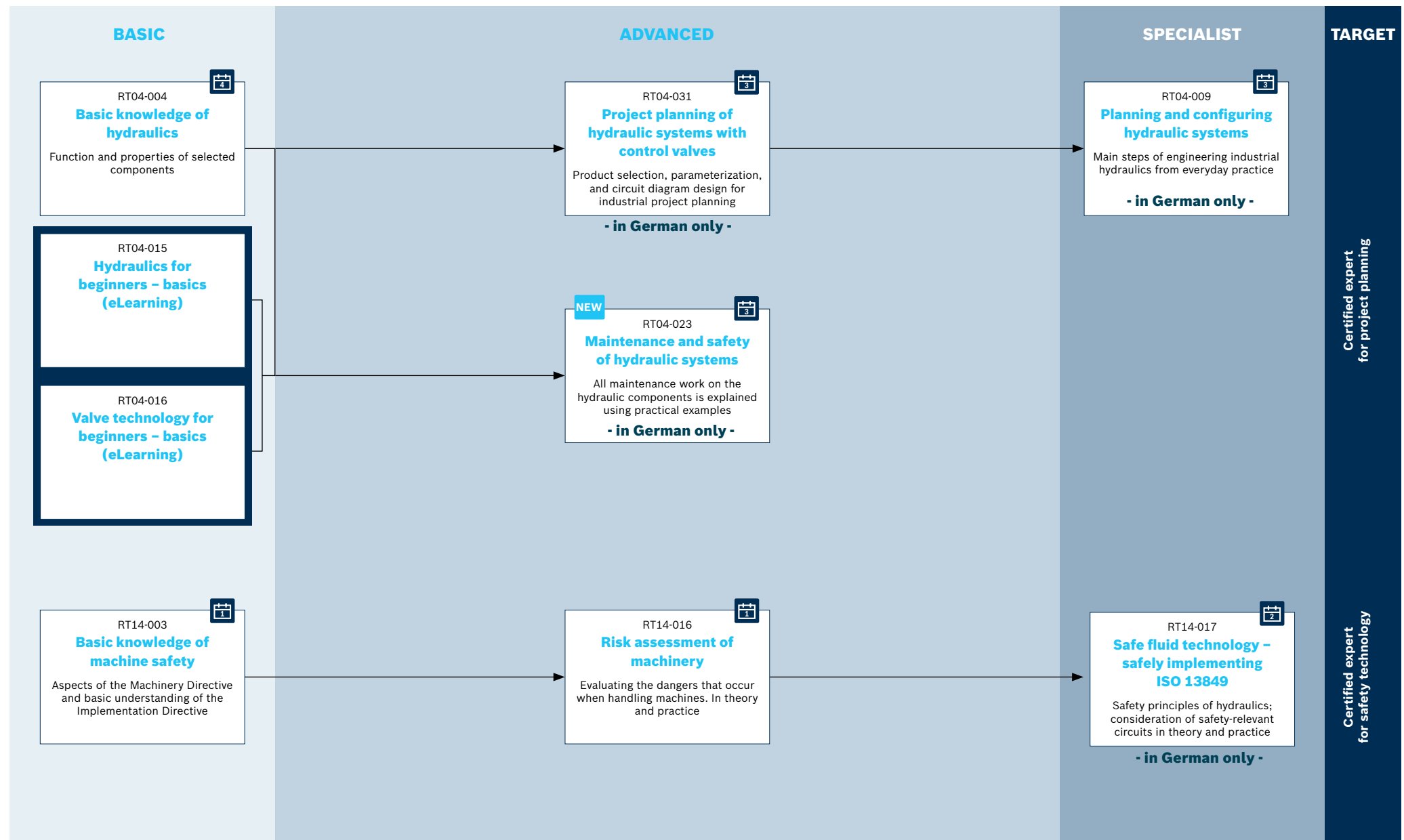
Learning path – practice with error analysis



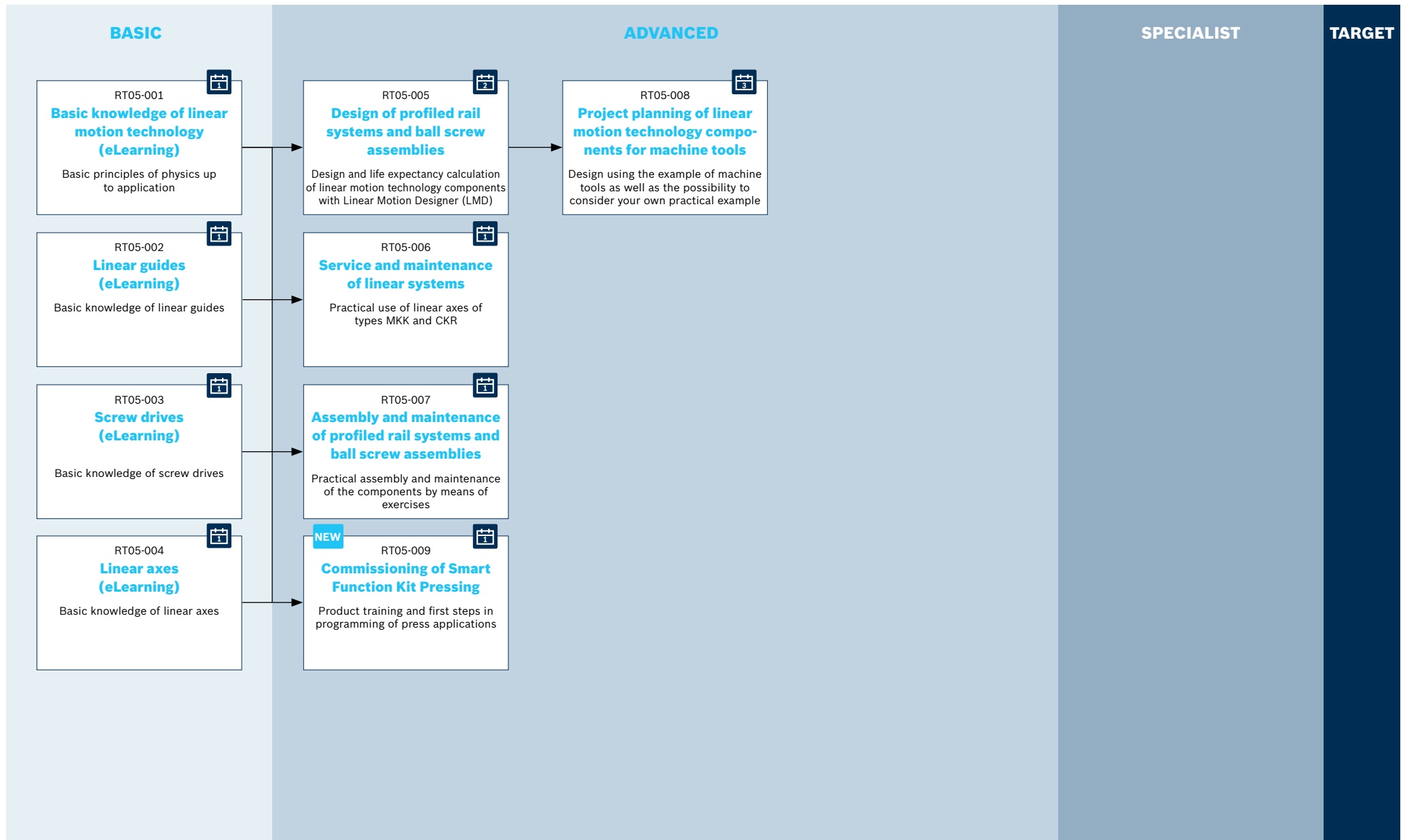
Learning path – special topics



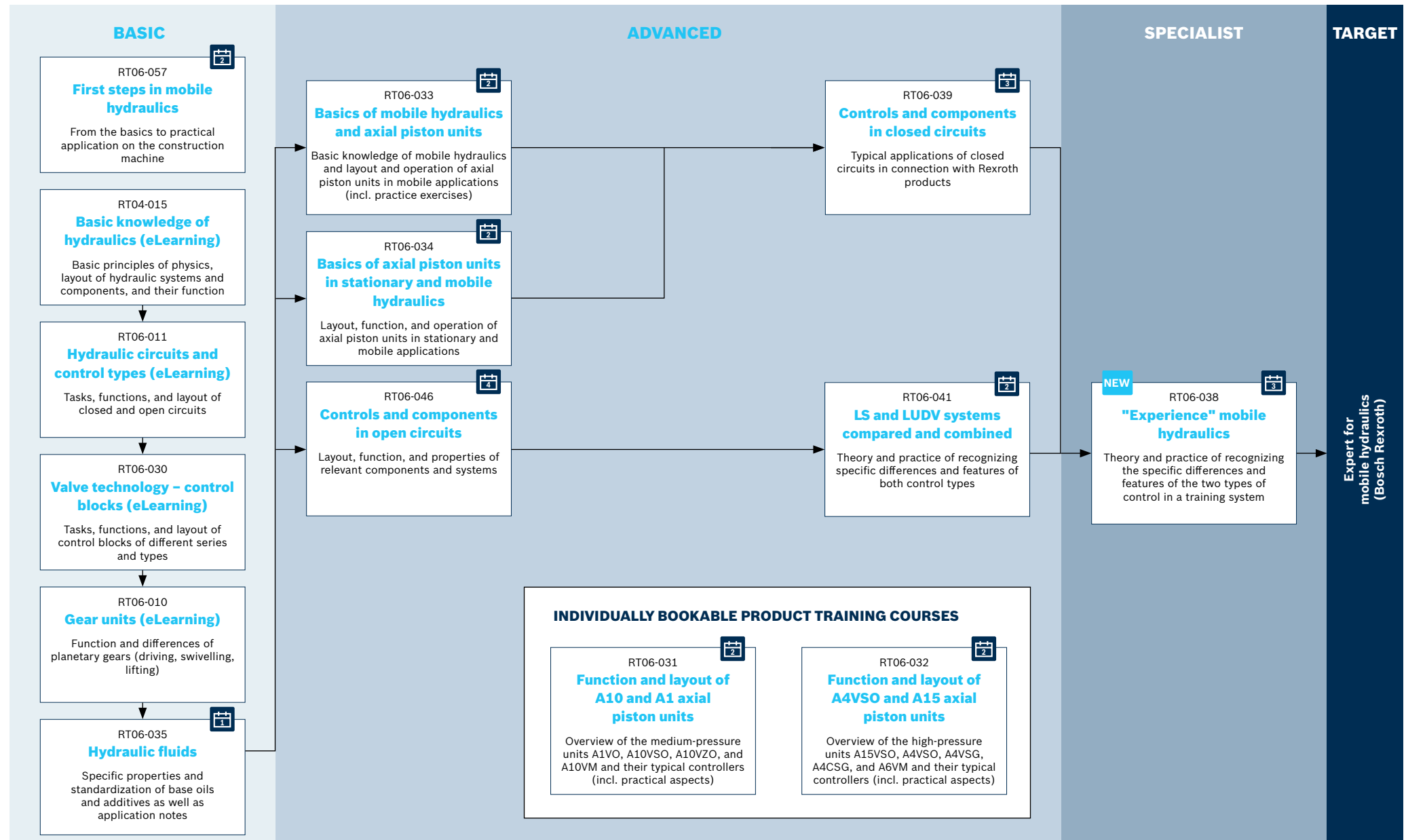
Learning path – project planning and safety technology



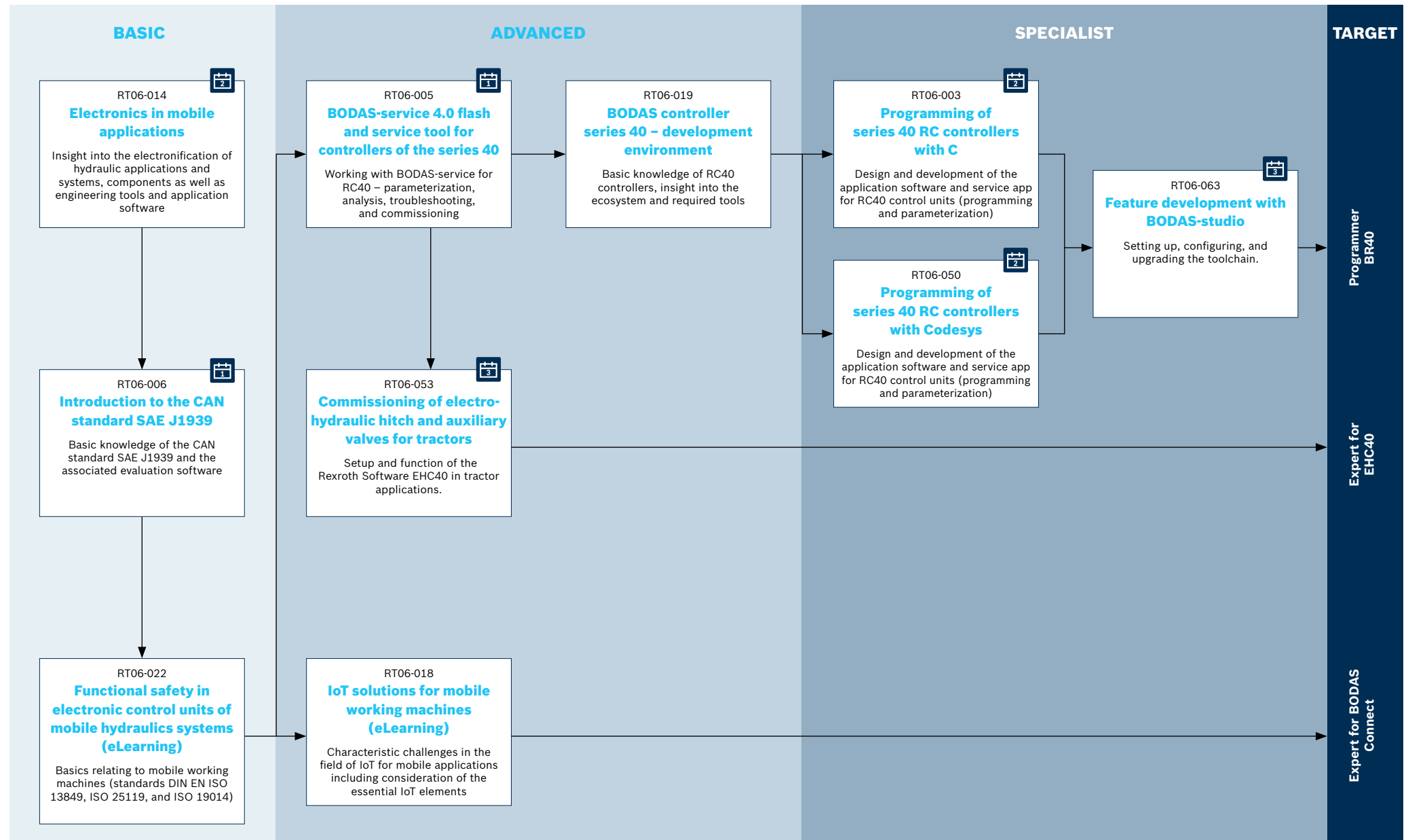
Learning path – Linear Motion Technology



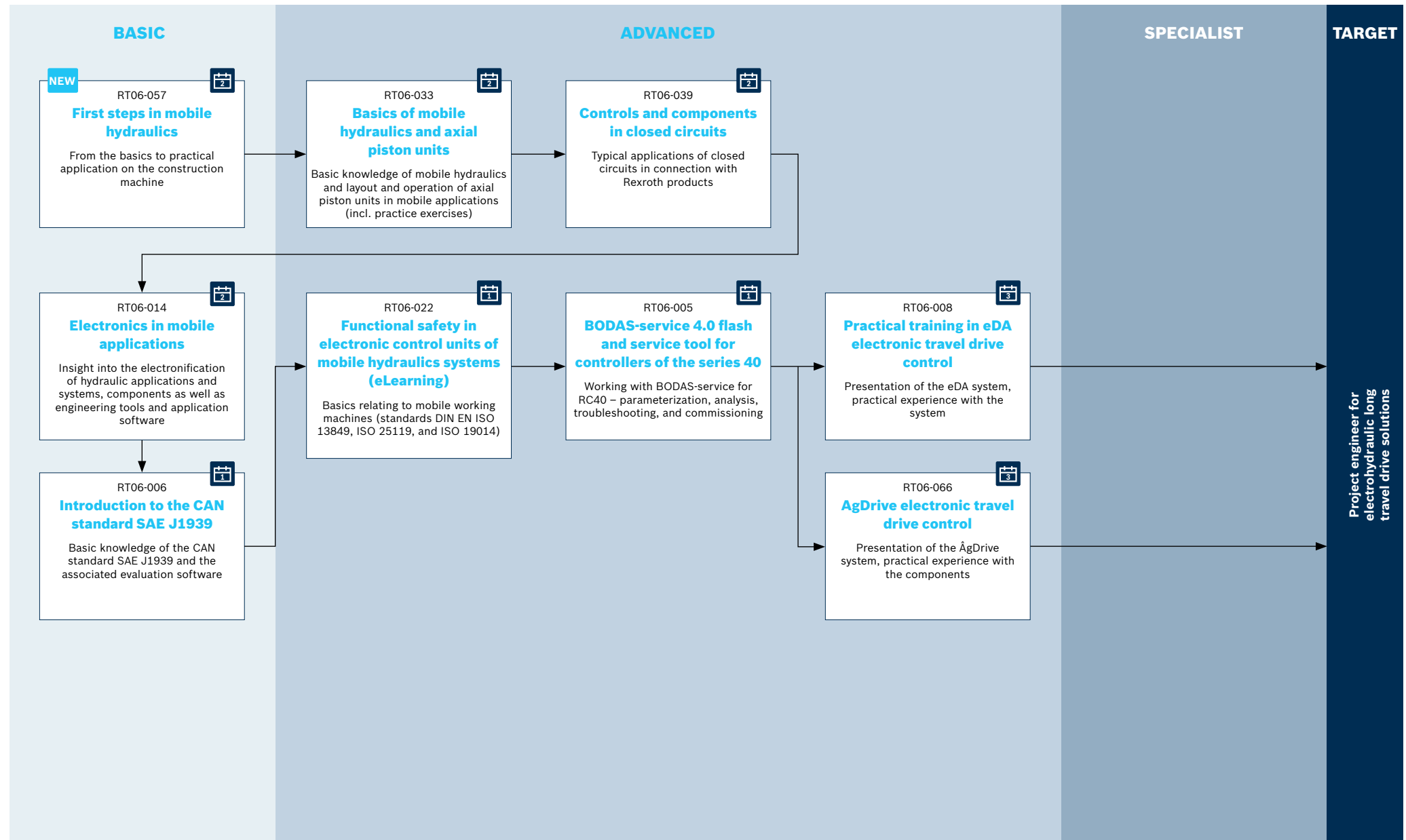
Learning path – mobile hydraulics



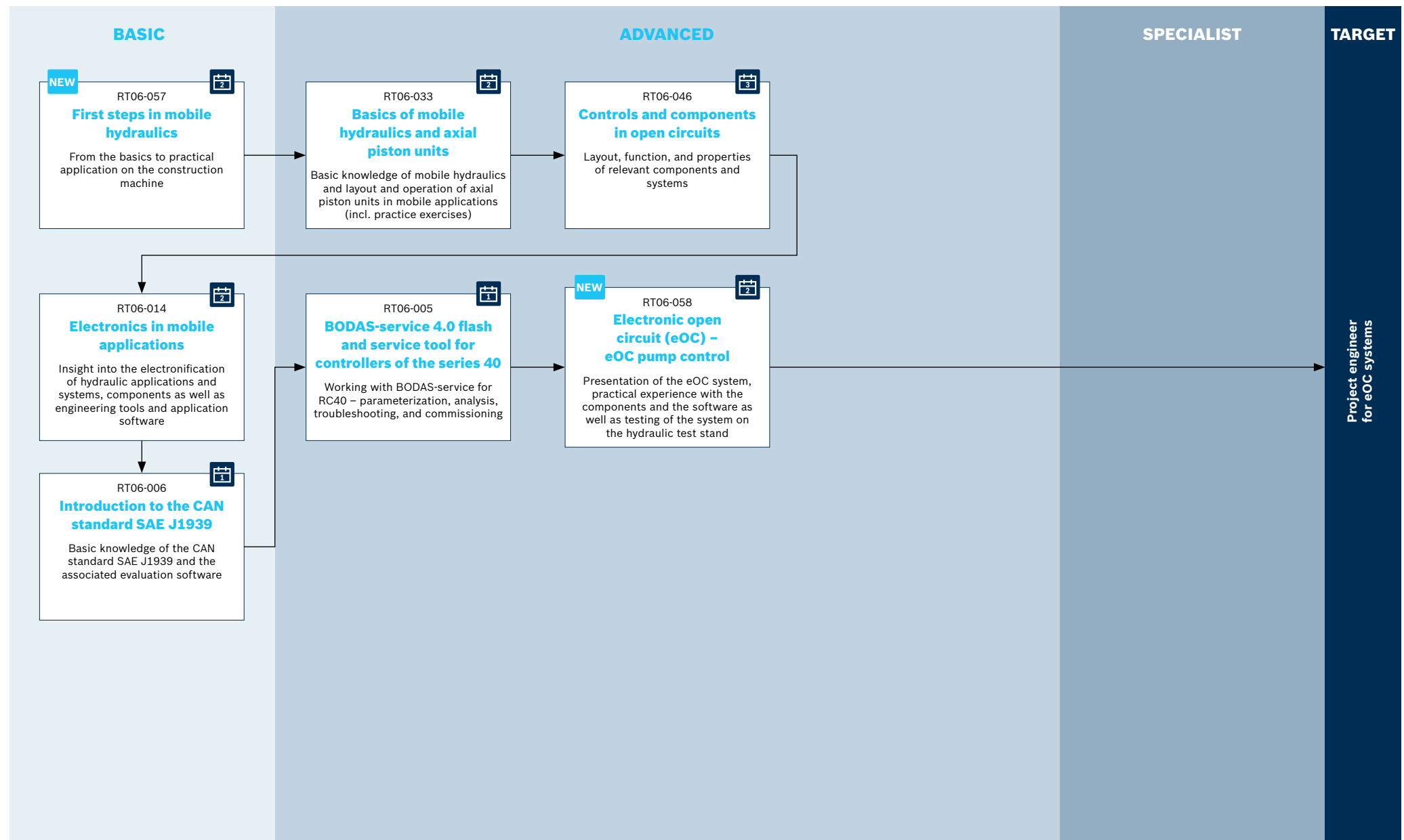
Learning path – mobile electronics



Learning path – electrohydraulic travel drives

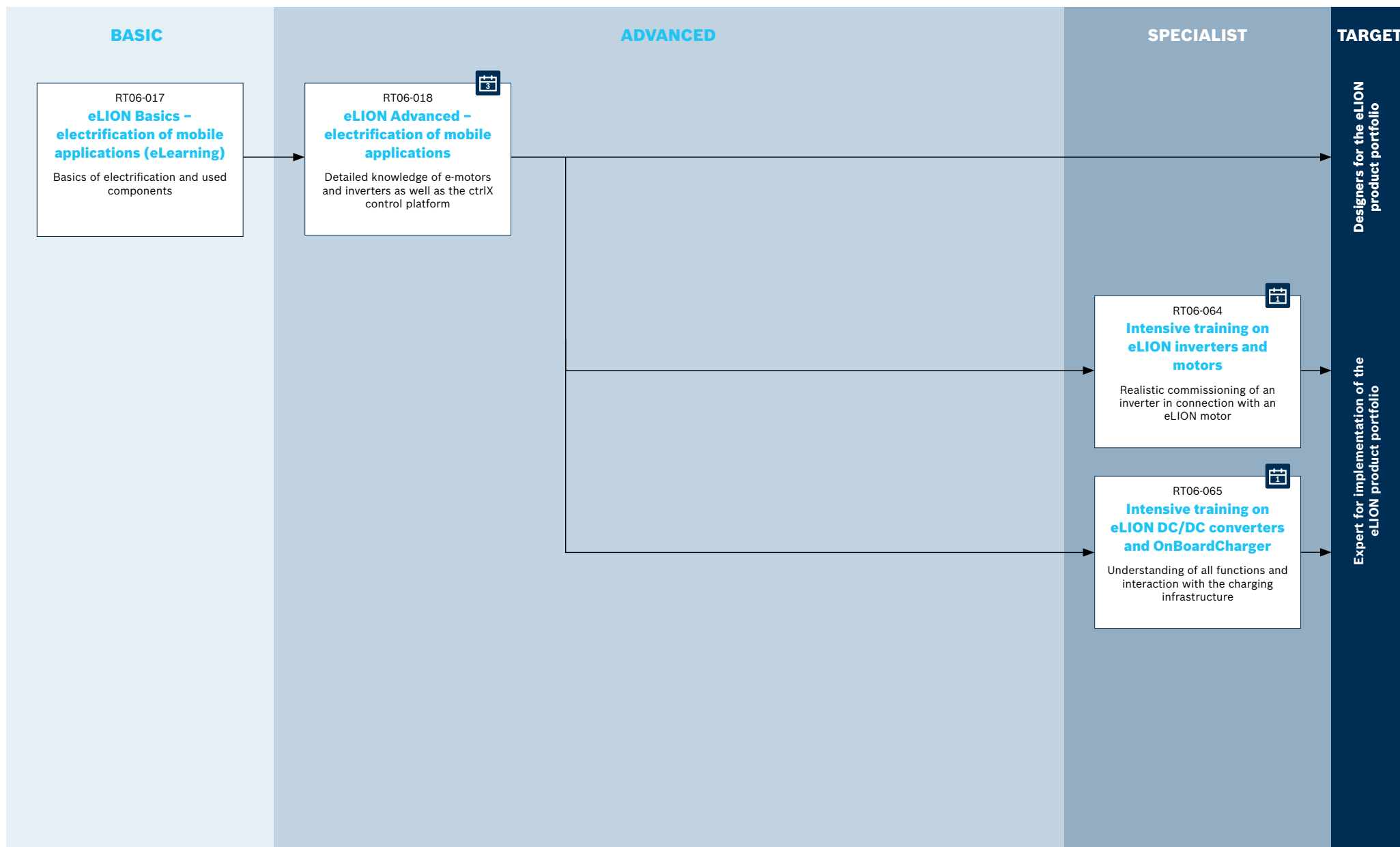


Learning path – electronic open circuit (eOC)



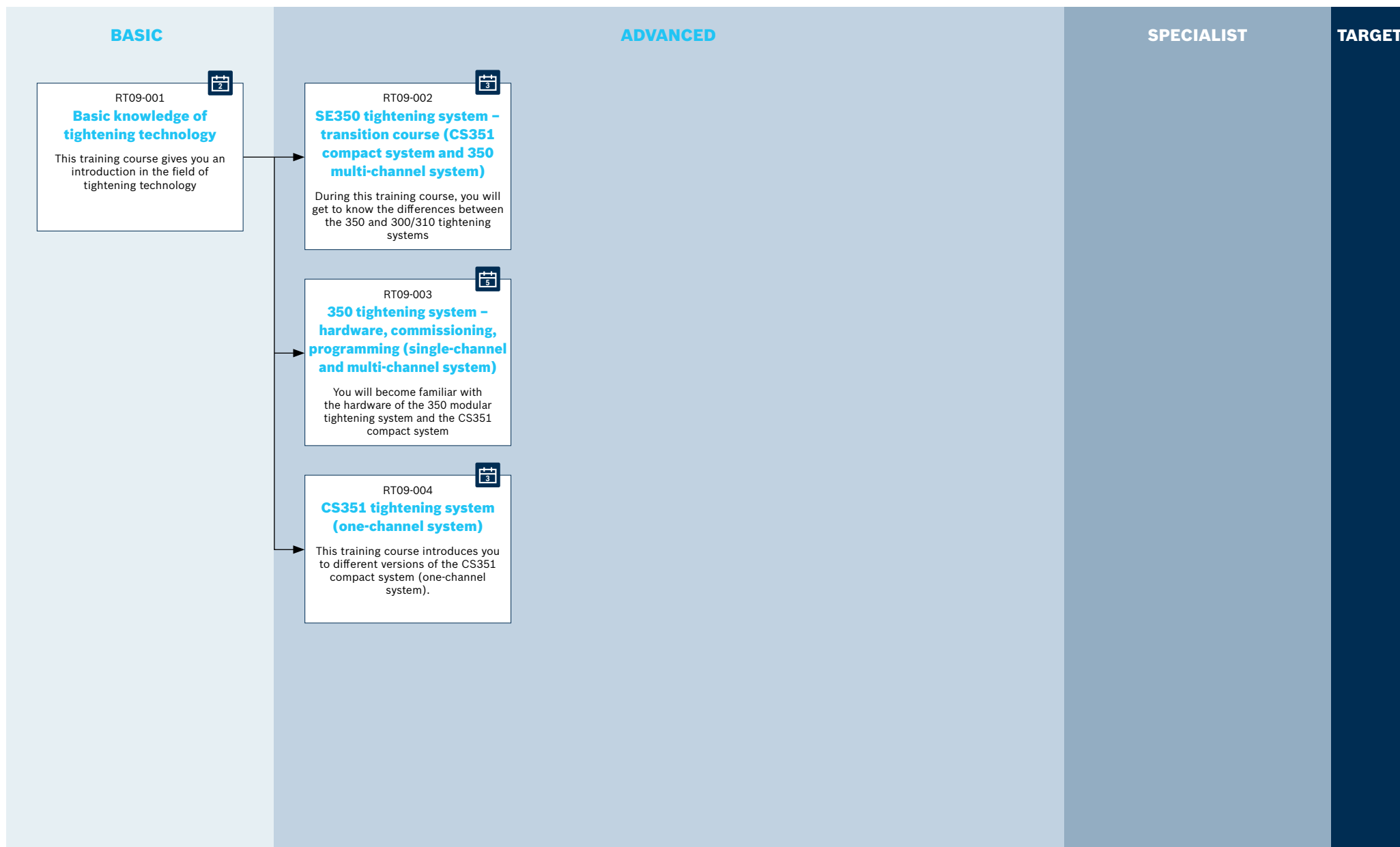


Learning path – electrics

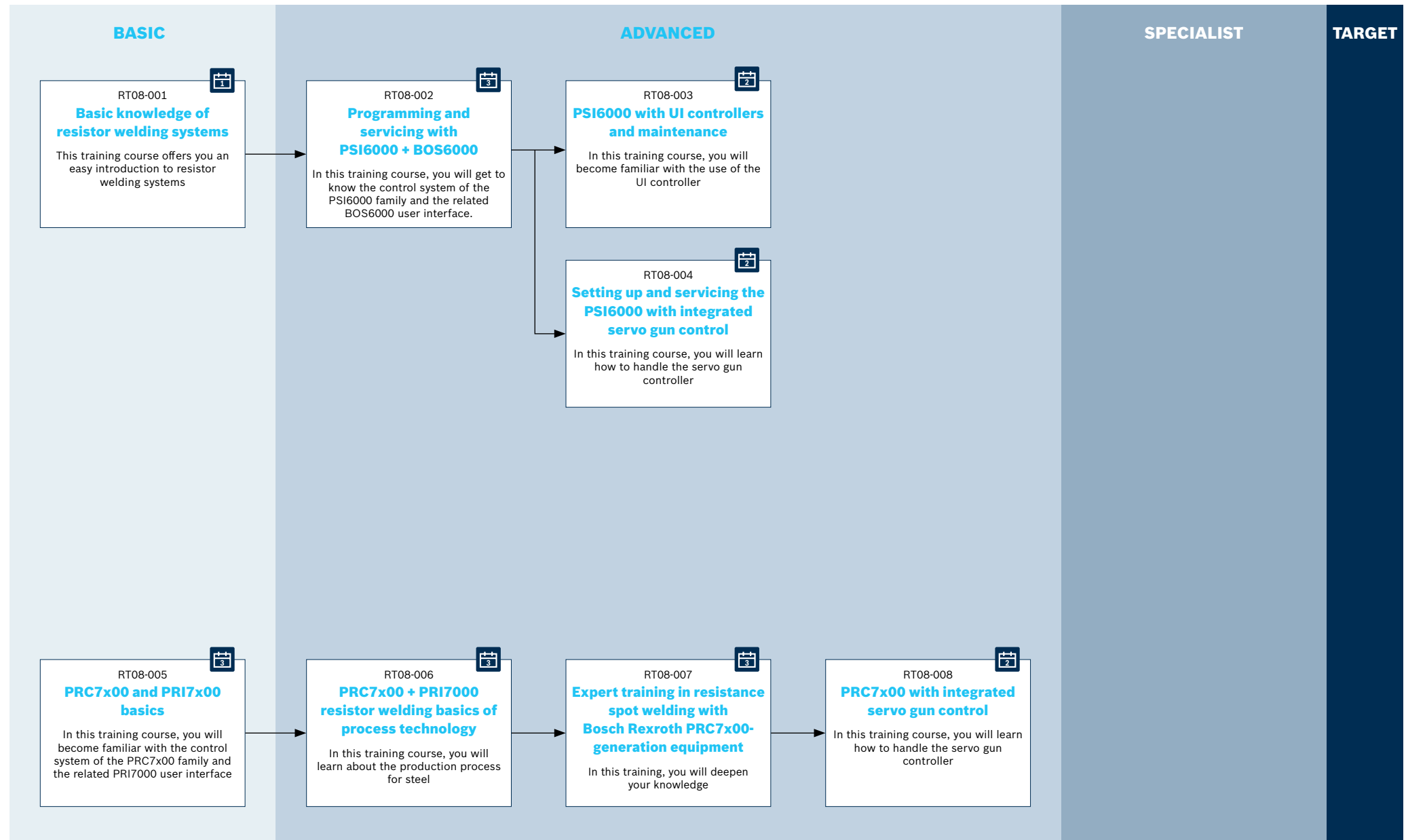




Learning path – tightening technology



Learning path – resistor welding





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