

We recommend booking the modules in the order mentioned under “prerequisites”. If you prefer a different choice due to previous knowledge, **please get in touch with us**.

Module 1 (Basics)	Hardware and Software Concepts	Get an overview of everything Indel contributes to your machine:	Duration: 2 hours	Indel order no.: 600207301 Label: Training Option: IA1-Concepts
	Prerequisites: None	<ul style="list-style-type: none"> • products supplied by Indel and how they combine to a control system • internals and division of labor of the hardware components • operation of the field bus • software on the embedded system: architecture of the INOS real-time operating system • software on the desktop: tools for development, debugging, commissioning, maintenance, and interfacing to your own software 		
Module 2 (Basics)	Indel Tools Basics	Learn about the purpose and basic functionality of the most important debugging, commissioning, and maintenance tools. You will be able to choose the right tool for a given task.	Duration: 2 hours	Indel order no.: 600207302 Label: Training Option: IA2-Tools_Basics
	Prerequisites: <ul style="list-style-type: none"> • Concepts (IA1) 			
Module 3 (Basics)	Indel Varlog Basics	Indel Varlog, the software oscilloscope, is one of the most important tools. Learn how to use it in hands-on exercises. You will be able to start a log with a trigger and analyze the logged data in basic ways.	Duration: 3 hours	Indel order no.: 600207303 Label: Training Option: IA3-Varlog_Basics
	Prerequisites: <ul style="list-style-type: none"> • Concepts (IA1), • Indel Tools Basics (IA2) 			

<p>Module 4 (Basics)</p>	<p>Getting Started with McLua Programming in iDev – Indel Developer Studio</p> <p>Prerequisites:</p> <ul style="list-style-type: none"> • Concepts (IA1), • Indel Tools Basics (IA2), • Indel Varlog Bas. (IA3) 	<p>Meet the development environment as well as McRobot, the framework that saves you many common tasks in developing complete machine control solutions. Configure the IO modules and develop simple processes on real hardware using Lua. Inspect what your system is doing using various debugging tools.</p>	<p>Duration: 4 hours</p>	<p>Indel order no.: 600207304</p> <p>Label: Training</p> <p>Option: IA4-McLua_in_iDev</p>
<p>Module 5 (Basics)</p>	<p>Getting Started with C++ Programming in iDev – Indel Developer Studio</p> <p>Prerequisites:</p> <ul style="list-style-type: none"> • Concepts (IA1), • Indel Tools Basics (IA2), • Indel Varlog Bas. (IA3), • Getting Started McLua (IA4), • Basic knowledge of C/C++, • Basic knowledge of version control (Git, SVN or similar) 	<p>Use the development environment to write a “Hello World” application in C++ on real hardware. Develop simple processes involving digital inputs and outputs. Inspect what your system is doing using various debugging tools. Define an API and learn how to use it from your own HMI.</p>	<p>Duration: 4 hours</p>	<p>Indel order no.: 600207305</p> <p>Label: Training</p> <p>Option: IA5-Cpp_in_iDev</p>
<p>Module 6 (Basics)</p>	<p>McRobot</p> <p>Prerequisites:</p> <ul style="list-style-type: none"> • Concepts (IA1), • Indel Tools Basics (IA2), • Indel Varlog Bas. (IA3), • Getting Started McLua (IA4), • Getting Started C++ (IA5) 	<p>Dive deeper into the McRobot framework. Extend the provided foundations to develop modules with real-time functionality in C++ and write Lua scripts to configure them and combine them to complex processes.</p>	<p>Duration: 3 hours</p>	<p>Indel order no.: 600207306</p> <p>Label: Training</p> <p>Option: IA6-McRobot</p>

<p>Module 7 (Basics)</p>	<p>Motion Library</p> <p>Prerequisites:</p> <ul style="list-style-type: none"> • Concepts (IA1), • Indel Tools Basics (IA2), • Indel Varlog Bas. (IA3), • Getting Started McLua (IA4), • Getting Started C++ (IA5) 	<p>This introduction presents an overview of the basic motion control functionality provided by INOS. You will be able to configure an axis and know about the different types of moves.</p>	<p>Duration: 2 hours</p>	<p>Indel order no.: 600207307</p> <p>Label: Training</p> <p>Option: IA7-MotionLibrary</p>
<p>Module 8 (Basics)</p>	<p>Axis Commissioning Basics</p> <p>Prerequisites:</p> <ul style="list-style-type: none"> • Concepts (IA1), • Indel Tools Basics (IA2), • Indel Varlog Bas. (IA3) 	<p>Set up axis parameters based on a present axis and its data sheet, and bring it into operation step by step. Learn about the respective commissioning and optimization tools on the PC.</p>	<p>Duration: 4 hours</p>	<p>Indel order no.: 600207308</p> <p>Label: Training</p> <p>Option: IA8-Axis_Basics</p>
<p>Module 9 (Basics)</p>	<p>Indel Functional Safety GIN-SAC4xX FS</p> <p>Prerequisites:</p> <ul style="list-style-type: none"> • Concepts (IA1), • Indel Tools Basics (IA2), • Indel Varlog Bas. (IA3), • Axis Commissioning Basics (IA8); <p>recommended:</p> <ul style="list-style-type: none"> • Getting Started McLua (IA4) 	<p>Get an introduction into the functionality of the servo drive with functional safety GIN-SAC4xX FS. You will know the wiring guidelines and be able to set up a safety configuration and commission a safe axis on your own.</p>	<p>Duration: 6 hours</p>	<p>Indel order no.: 600207309</p> <p>Label: Training</p> <p>Option: IA9-SAC4_Safety</p>

Module 10 (Advanced)	McRobot: Application to Customer Project	Develop a scaffolding of your own application in collaboration with the workshop instructor. You will take select modules and scripts tailored to your use case home with you fully defined to base your further development on.	Duration: 3 hours	Indel order no.: 600207310 Label: Training Option: IA10-McRobot_Custom
Prerequisites: <ul style="list-style-type: none"> • Concepts (IA1), • Indel Tools Basics (IA2), • Indel Varlog Bas. (IA3), • Getting Started McLua (IA4), • Getting Started C++ (IA5), • McRobot (IA6) 				
Module 11 (Advanced)	Indel Tools Advanced	Learn about all the functionality of the Indel Tools that was not covered in the prerequisite modules by applying them in realistic complex debugging and optimization scenarios. You will be able to choose the right tool for a given task and combine multiple tools to perform timing analyses.	Duration: 2 hours	Indel order no.: 600207311 Label: Training Option: IA11-Tools_Advanced
Prerequisites: <ul style="list-style-type: none"> • Concepts (IA1), • Indel Tools Basics (IA2), • Indel Varlog Bas. (IA3); recommended: <ul style="list-style-type: none"> • McRobot (IA6) 				
Module 12 (Advanced)	INOS Advanced	Get closer insights into the INOS kernel. Knowledge about preemptive task scheduling, task synchronization, cyclic fieldbus tasks, use of multiple CPU cores, memory management, and the booting mechanism will deepen your understanding of what your control system is doing and give you greater flexibility in meeting specific requirements by targeted application of powerful base functionality.	Duration: 2 hours	Indel order no.: 600207312 Label: Training Option: IA12-INOS_Advanced
Prerequisites: <ul style="list-style-type: none"> • Concepts (IA1), • Indel Tools Basics (IA2), • Indel Varlog Bas. (IA3), • Getting Started McLua (IA4), • Getting Started C++ (IA5) 				
Module 13 (Advanced)	Axis Commissioning Advanced	Working on your own, assisted by an Indel employee, commission and optimize an axis in your own machine.	Duration: 4 hours	Indel order no.: 600207313 Label: Training Option: IA13-Axis_Advanced
Prerequisites: <ul style="list-style-type: none"> • Concepts (IA1), • Indel Tools Basics (IA2), • Indel Varlog Bas. (IA3), • Axis Commissioning Basics (IA8) 				