

*#HowTrainingWorks*



# TECHNICAL ACADEMY





*This is who we are*

**GROB-WERKE**







*Technology at its best*

# STEP INTO A GREEN FUTURE WITH US

At GROB, we strive for continuous progress and improvement. Not only do we strive to develop outstanding solutions and products for our customers, but we also seek to make a contribution to our environment and future generations. This is firmly anchored in our corporate philosophy and lived every day.

We therefore utilize photovoltaics and geothermal energy in our locations and support a wide variety of social projects. But we also place great emphasis on SUSTAINABILITY in our internal departments. Our products are based on the highest energy efficiency and regenerative drive systems. We integrate our supplier network in reducing the carbon footprint.



## OUR PRODUCT RANGE

#MachiningTechnology #UniversalMachiningCenters  
#AssemblyPlants #Electromobility  
#Automation #AdditiveManufacturing #Digitalization  
#NewAndQualityCheckedUsedMachines #Service



*Concentrated competence worldwide*

# INTELLIGENT TECHNOLOGY IS HUMAN

For generations, we at GROB have lived and experienced this principle by making customer requirements the focus of our work. The result is sophisticated technology creating more efficient production processes worldwide and delivering highest quality.



## RESEARCH & DEVELOPMENT

With a high degree of creativity and technical intuition, as well as the best engineering expertise, our developers have worked hard to earn the reputation of being a technology leader.



## ASSEMBLY

From pre-assembly to machine assembly to process commissioning – our employees demonstrate their expertise with optimally coordinated workflows.



## ENGINEERING

With method development and structured problem solving, our employees in Engineering develop innovative concepts representing milestones for precision, dynamics, and reliability.



## COMMISSIONING

With simulation techniques and virtual commissioning, we achieve the highest adherence to delivery dates and product quality.



## PRODUCTION

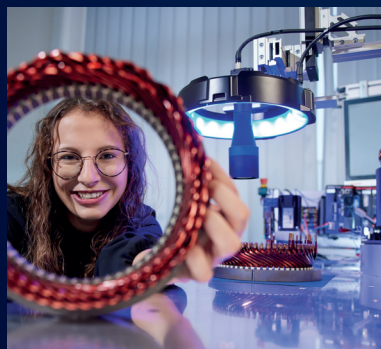
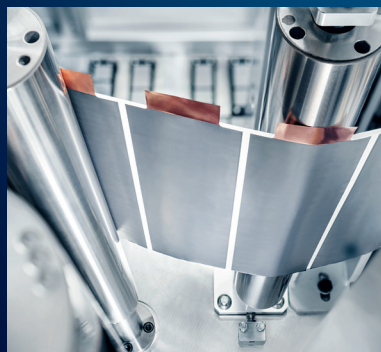
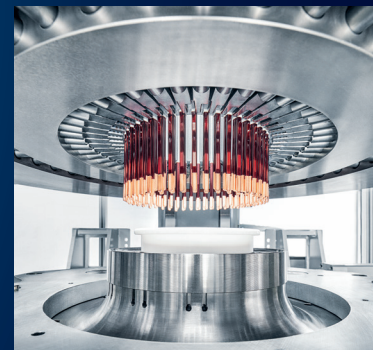
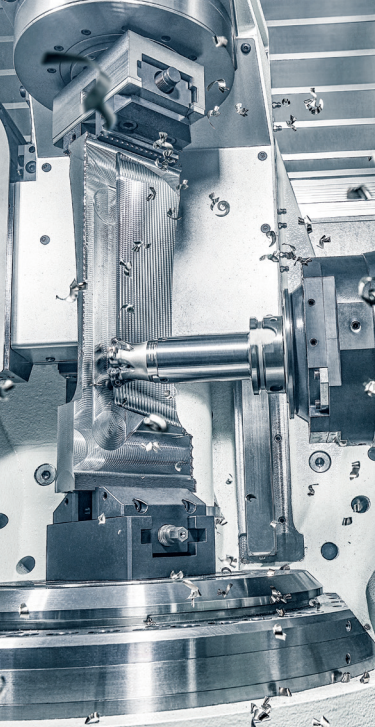
The high degree of vertical integration along the entire value creation chain, numerous machining technologies and our employees' distinctive specialist knowledge create the best conditions for state-of-the-art production.



## TECHNICAL APPLICATION CENTERS

Our production plants in Germany, Brazil, the USA, China, Italy and India have technical application centers for the machining and electromobility sectors, where our customers can experience GROB technologies up close.







*We demonstrate how to make optimum use of machines*

# GROB TECHNICAL ACADEMY

UNIVERSAL MACHINING CENTERS

MACHINING TECHNOLOGY

ASSEMBLY & E-MOBILITY

GENERAL CONDITIONS

GROB CAMPUS





UNIVERSAL MACHINING CENTERS  
MACHINING TECHNOLOGY

ASSEMBLY & E-MOBILITY





# *We demonstrate how to make optimum use of machines*

## TRAINING CONCEPT

As products become more and more complex and the competition gets tougher, the importance of the GROB Technical Academy as a key component of the GROB global range of services is constantly increasing. An experienced team of qualified trainers is meeting this challenge at GROB.

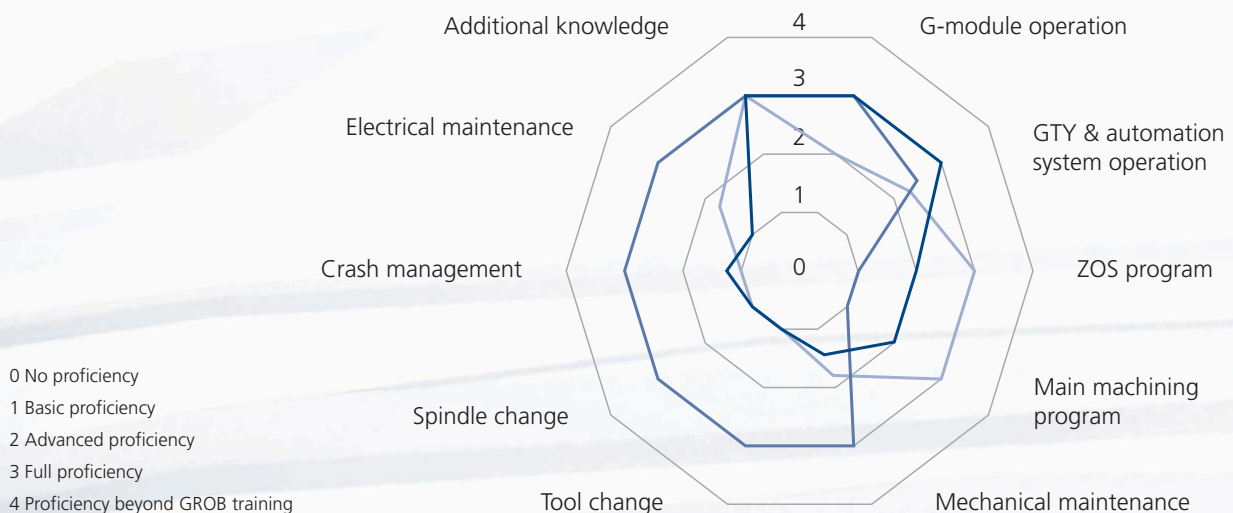
## The GROB service range

Aside from individual customer consultation and support, the GROB service range above all includes a wide range of instruction and training modules.

Due to GROB's individual machines and systems, we provide most of our customized training courses based on a standard program. We provide instruction and training courses for all GROB product ranges, not only for universal machining centers and system solutions, but also for e-mobility. Depending on availability, individual training modules can be configured to suit particular needs. Learning progress tests can be integrated as required. All participants who successfully attend the GROB Technical Academy will receive a certificate.

### THE PERFECT EMPLOYEE

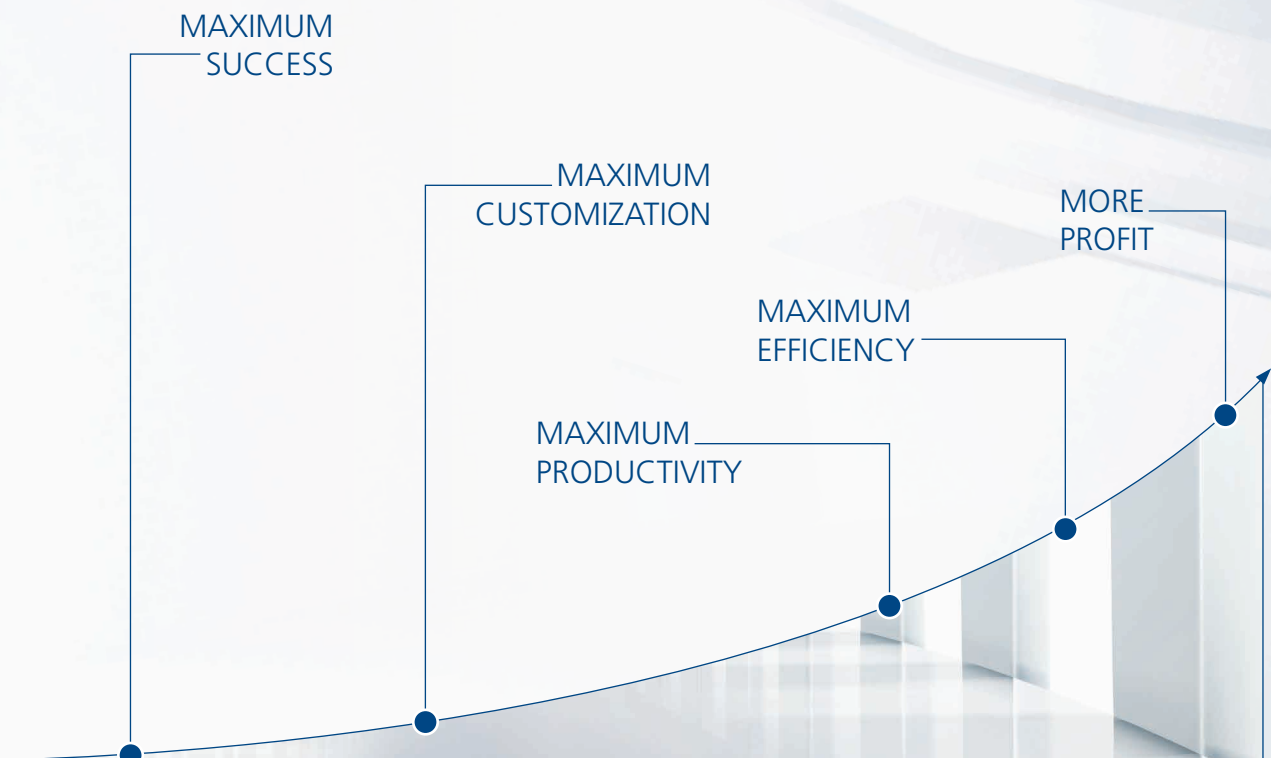
- Operator
- Maintenance technician
- Programmer



*Gain new insights*

# GROB TRAINING MODULES

Whether operator, programmer, installation technician, or maintenance technician: we provide various training modules for optimum use of your GROB system in your production. All training programs on offer are available for the SIEMENS 840D sl, SIEMENS TIA, BECKHOFF TwinCAT3, HEIDENHAIN iTNC 530, TNC 640, and FANUC 30i-B machine control systems.



## ANALYSIS OF

- + your needs and requirements

## DESIGN OF

- + customized training courses

## TRAINING

- + tailored to your requirements



## WOULD YOU LIKE TO KNOW MORE?

Our training team is always available for you!

### GROB TECHNICAL ACADEMY

Phone: +49 8261 996-7488

E-mail: [training@grob.de](mailto:training@grob.de)

### GROB SERVICE / SALES

Phone: +49 8261 996-6000

E-mail: [sales.service@grob.de](mailto:sales.service@grob.de)









*Whether you are a novice or an experienced machine operator*

# UNIVERSAL MACHINING CENTERS

You will learn about GROB machining centers in various modules. Whether you are a novice or an experienced machine operator – we will show you how the machines work to optimal effect.

- ✚ We convey important know-how in handling your machine in a practical manner
- ✚ The safety of man and machine is guaranteed by learned knowledge
- ✚ Increase your team's problem-solving skills
- ✚ **Our machine types:** G440, G640, G840, G150, G350, G550, G750, G350T, G550T, G750T, and automation solutions



GROB TECHNICAL ACADEMY – PORTFOLIO  
#UniversalMachiningCenters #E-learning  
#MachiningTechnology #SpecialEquipmentBox  
#AssemblyAndElectromobility #Service



*Whether you are a novice or  
an experienced machine operator*

# UNIVERSAL MACHINING CENTERS TRAINING MODULES

Choose the right training course now! All training programs on offer are available for the SIEMENS, BECKHOFF TwinCAT3, HEIDENHAIN iTNC530, TNC640 & TNC7 machine control systems. As an official SIEMENS and HEIDENHAIN training partner, we offer all of the following training courses for the current control systems. Please get in touch if you use other or older control systems.

## Operation

- NC programming – basic course
- NC programming – swiveling
- NC programming – advanced course
- NC programming – GROB-specific programming
- GROB machine calibration
- GROB part clamping
- NC programming – interpolation turning
- NC programming – in-process tool measurement
- NC programming – GROB file input/output (FIO)
- Turning technology
- Touch probe programming
- GROB pallet storage systems
- Course for switching from HEIDENHAIN iTNC530 to TNC640 or TNC7
- Electrical maintenance – basic course
- Electrical maintenance – advanced course
- GROB spindle diagnostics (GSD) – electrical systems
- Mechanical maintenance
- Robot training – basic course
- Operation – robot station
- Setup – robot station





# UNIVERSAL MACHINING CENTERS





*Training modules***UNIVERSAL MACHINING CENTERS**

<b>OPERATION</b>	
<b>Requirements</b>	Basic knowledge of the control system used
<b>Duration / venue</b>	3 days (4 days for mill-turn machines) – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Operation incl. pallet change</li> <li>• Program introduction</li> <li>• Tool management</li> <li>• Loading and unloading tools</li> <li>• Touch probe calibration</li> <li>• Introduction to swiveling in manual mode</li> <li>• Touch probe in manual mode</li> <li>• Standard machine calibration</li> <li>• Daily inspection and maintenance of universal machining centers</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Autonomous and safe machine operation in manual and automatic mode</li> <li>• Correct handling of tools and associated data</li> <li>• Correct handling of the touch probe</li> <li>• Recognizing the need for machine maintenance</li> </ul>

<b>NC PROGRAMMING – BASIC COURSE</b>	
<b>Requirements</b>	Knowledge of milling according to technical drawings, CNC basics
<b>Duration / venue</b>	3 to 4 days – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Introduction to the corresponding control system functionality</li> <li>• Axis designations and coordinate systems</li> <li>• File management and tables</li> <li>• Tool management</li> <li>• Standard and contour cycles</li> <li>• Reference and zero points</li> <li>• Web functions</li> <li>• Basics of NC programming of the specific control system manufacturer</li> <li>• Programming techniques such as partial program repetition and subroutine technology</li> </ul>
<b>Learning objective</b>	Creating and testing 3-axis NC programs according to part drawings



## NC PROGRAMMING – SWIVELING

<b>Requirements</b>	Knowledge from the NC programming basic course
<b>Duration / venue</b>	2 days – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"><li>• Swiveling the machining plane with the control system's own swivel cycles</li><li>• Producing boreholes and surfaces on swiveled-in planes</li><li>• Resetting the swivel plane</li><li>• GROB manufacturer cycles</li></ul>
<b>Learning objective</b>	Machine programming in five axes

## NC PROGRAMMING – ADVANCED COURSE

<b>Requirements</b>	Knowledge from the NC programming basic course
<b>Duration / venue</b>	2 days – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"><li>• Using calculation parameters</li><li>• Reading and writing system variables</li><li>• Creating log files</li><li>• Definition and usage of user variables</li></ul>
<b>Learning objective</b>	<ul style="list-style-type: none"><li>• Flexible program design</li><li>• Basics of high-level language programming</li></ul>

## NC PROGRAMMING – GROB-SPECIFIC PROGRAMMING

<b>Requirements</b>	Knowledge from the NC programming basic course
<b>Duration / venue</b>	1 day – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"><li>• Using GROB manufacturing cycles</li><li>• Adapting the homing program</li><li>• Checking the tool data</li><li>• Automatic program initialization after program abort</li></ul>
<b>Learning objective</b>	Reliable program design



*Training modules*

# UNIVERSAL MACHINING CENTERS

## GROB MACHINE CALIBRATION

<b>Requirements</b>	Comprehensive experience with GROB machining centers and knowledge from the basic course
<b>Duration / venue</b>	1 day – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>• GROB swivel axis calibration (GSC), explanation, tips</li> <li>• Context of machine calibration</li> <li>• Calibration manipulation via variables</li> <li>• Defining individual measuring positions</li> <li>• Checking the calibration via measuring programs and the log file</li> <li>• Automation options</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Understanding the necessity for calibration and individual adjustment</li> <li>• Detailed insight into the calibration process and its variables</li> <li>• Safe use of control programs and logs</li> </ul>

## GROB PART CLAMPING

<b>Requirements</b>	Knowledge from the advanced course
<b>Duration / venue</b>	1 day – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Creating and defining clamping programs</li> <li>• Basic structure of setting, clamping and unclamping programs</li> <li>• Program assignment in the GROB HMI</li> <li>• Relevant functions and signals</li> <li>• Manual clamping and unclamping</li> <li>• Practical exercises on the machine</li> </ul>
<b>Learning objective</b>	Creating an automatic clamping and unclamping operation

## NC PROGRAMMING – INTERPOLATION TURNING

<b>Requirements</b>	Knowledge from the NC programming basic course
<b>Duration / venue</b>	1 day – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Tool management, defining tool data</li> <li>• Interpolation turning cycles</li> <li>• Plane switchover</li> <li>• Programming a part with turning contour</li> </ul>
<b>Learning objective</b>	Creating and editing turning contours



## NC PROGRAMMING – IN-PROCESS TOOL MEASUREMENT

<b>Requirements</b>	Knowledge from the NC programming basic course
<b>Duration / venue</b>	1 day – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Calibration</li> <li>• Tool measurement</li> <li>• Wear measurement</li> <li>• Tool breakage detection</li> <li>• Single cutting edge control</li> </ul>
<b>Learning objective</b>	Integrating the tool measurement system into the process

## NC PROGRAMMING – GROB FILE INPUT OUTPUT (FIO)

<b>Requirements</b>	Knowledge from the NC programming advanced course
<b>Duration / venue</b>	1 day – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Creating, reading and copying files</li> <li>• Creating time stamps</li> <li>• Output of records, such as measured value records, in a protocol</li> <li>• Creating tolerance and progress bars</li> <li>• Creating message boxes and selection softkeys</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• In-process communication with the machine</li> <li>• Extracting machine information</li> </ul>



*Training modules*

# UNIVERSAL MACHINING CENTERS

## TURNING TECHNOLOGY

<b>Requirements</b>	Knowledge from the NC programming basic course and machine operation
<b>Duration / venue</b>	3 days – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Basics of turning mode</li> <li>• Balancing parts</li> <li>• Advanced tool management</li> <li>• In-process measurement of turning tools</li> <li>• Toggling between milling and turning mode</li> <li>• Using turning cycles</li> <li>• Practical exercises on the machine</li> </ul>
<b>Learning objective</b>	Operating and programming mill-turn machines

## TOUCH PROBE PROGRAMMING

<b>Requirements</b>	Knowledge from the NC programming basic course
<b>Duration / venue</b>	1 day – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Measuring cycles in automatic mode</li> <li>• Positioning parts</li> <li>• Setting part zero points</li> <li>• Correcting tool geometry data</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Positioning parts in the work area</li> <li>• Checking and correcting parts</li> </ul>





## GROB PALLET STORAGE SYSTEMS

<b>Requirements</b>	Basic knowledge of the machining unit used
<b>Duration / venue</b>	1 day – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Design and function of GROB pallet storage systems</li> <li>• Pallet storage system control software basics</li> <li>• Generation of work plans</li> <li>• Production planning</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Autonomous and safe PSS operation</li> <li>• Proper equipping and production planning</li> </ul>

## COURSE FOR SWITCHING FROM HEIDENHAIN iTNC530 TO TNC640 OR TNC7

<b>Requirements</b>	Knowledge of the old control system or from the NC programming basic course
<b>Duration / venue</b>	1 day – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>• New cycles (face milling cycle 233 and more)</li> <li>• New, fast and high-performance cutting simulation</li> <li>• Working with the preset table</li> <li>• New probing functions</li> <li>• New TNC functions</li> <li>• DXF converter</li> <li>• iTNC530 ↔ TNC640 control system comparison</li> </ul>
<b>Learning objective</b>	Learning and applying special features and functions of the TNC640



*Training modules*

# UNIVERSAL MACHINING CENTERS

## ELECTRICAL MAINTENANCE – BASIC COURSE

<b>Requirements</b>	Training on electrical or electronic systems <ul style="list-style-type: none"> <li>• Basic knowledge of drive and control systems technology as well as of the control system used</li> </ul>
<b>Duration / venue</b>	3 days – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Safety training</li> <li>• Function description of the electrical components</li> <li>• Data backup</li> <li>• Data recovery</li> <li>• Hardware replacement</li> <li>• Hardware settings</li> <li>• Diagnostic options</li> <li>• Error analysis and the correct approach to machine malfunctions</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Minimizing machine downtime through preventive maintenance activities</li> <li>• Repair of electrical components</li> <li>• Localizing and rectifying electrical faults</li> <li>• Creation and use of the data backup as a reference</li> <li>• Proficient use of the documentation</li> </ul>

## ELECTRICAL MAINTENANCE – ADVANCED COURSE

<b>Requirements</b>	Training on electrical or electronic systems <ul style="list-style-type: none"> <li>• Basic knowledge of drive and control systems technology as well as of the control system used</li> <li>• Participation in the "Electrical maintenance – basic course" or equivalent knowledge</li> </ul>
<b>Duration / venue</b>	2 days – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Safety training</li> <li>• Basic knowledge of editing GROB diagnostic diagrams</li> <li>• Evaluating alarms and messages</li> <li>• General PLC and HMI program overview</li> <li>• Customer-specific functions</li> <li>• Diagnostic options</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Minimizing machine downtimes through preventive maintenance activities</li> <li>• Repair of electrical components</li> <li>• Localizing and rectifying electrical faults</li> <li>• Creation and use of the data backup as a reference</li> <li>• Proficient use of the documentation</li> </ul>

## GROB SPINDLE DIAGNOSTICS (GSD) – ELECTRICAL SYSTEMS

<b>Target group</b>	Specifically for electrical maintenance technicians
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• Comprehensive training on electrical systems</li> <li>• Basic knowledge of drive and control systems technology as well as of the control system used</li> </ul>
<b>Duration / venue</b>	1 day – GROB Mindelheim Training Center or at customer premises <ul style="list-style-type: none"> <li>• Course composition: Combination of theory (30 %) and practical exercises (70 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Structure and function of GROB spindle diagnostics</li> <li>• Basics of the software used (IFM Octavis)</li> <li>• Troubleshooting on the machine</li> <li>• Maintenance, commissioning, and hardware replacement</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Minimizing machine downtimes following malfunctions</li> <li>• Proper use of the software</li> </ul>

## MECHANICAL MAINTENANCE

<b>Target group</b>	Specifically for mechanical maintenance technicians
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• Comprehensive training on mechanical systems</li> <li>• Basic knowledge of hydraulic and pneumatic systems</li> <li>• Basic knowledge of the control system used</li> </ul>
<b>Duration / venue</b>	3 days – GROB Mindelheim Training Center or at customer premises <ul style="list-style-type: none"> <li>• Course composition: Combination of theory (30 %) and practical exercises (70 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Introduction to safety technology</li> <li>• Structure of the machine (assemblies, drives, tool magazine)</li> <li>• Using the machine documentation</li> <li>• Motorized spindle (inspection)</li> <li>• Machine zero points</li> <li>• Service and preventive maintenance measures</li> <li>• Introduction to the special equipment</li> <li>• Fluid technology</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Using the technical documentation as a reference</li> <li>• Minimizing machine downtime through preventive maintenance activities</li> <li>• Implementing simple mechanical repair and maintenance activities</li> </ul>



*Training modules***UNIVERSAL MACHINING CENTERS****ROBOT TRAINING – BASIC COURSE**

<b>Target group</b>	Operators, installation technicians
<b>Requirements</b>	Technical knowledge
<b>Duration / venue</b>	2 days – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Safety instruction</li> <li>• Structure and components of a robot system</li> <li>• Robot operating modes</li> <li>• Structure and functions of the control panel</li> <li>• Moving the robot arm in setup mode (by axis/Cartesian)</li> <li>• Selecting, starting, and stopping programs</li> <li>• Tool measurement</li> <li>• Basic measurement</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Basic knowledge of robots</li> <li>• Correct robot operation</li> </ul>

**OPERATION – ROBOT STATION**

<b>Target group</b>	Operators, installation technicians
<b>Requirements</b>	Robot training – basic course or equivalent knowledge
<b>Duration / venue</b>	1 day – customer system at customer premises
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Robot station safety devices</li> <li>• Operating the robot cell via the station HMI</li> <li>• Explanation of coordinate systems in place</li> <li>• Retracting the robot in setup mode in case of faults</li> <li>• Retracting the robot from the safety area</li> <li>• Switching the robot station to automatic mode</li> <li>• Automatic program sequence of the robot station</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Knowledge of the special features of the system</li> <li>• Independent operation of the robot station</li> <li>• Independent rectification of (simple) faults</li> </ul>



## SETUP – ROBOT STATION

<b>Target group</b>	Installation technicians
<b>Requirements</b>	Robot station operation course
<b>Duration / venue</b>	1 day – customer system at customer premises
<b>Contents</b>	<ul style="list-style-type: none"><li>• Explanation of GROB-specific programs</li><li>• Remeasuring a base</li><li>• Adjusting robot positions</li><li>• Adjusting robot paths</li><li>• Adjusting program parameters</li></ul>
<b>Learning objective</b>	Making independent changes to robot programs









*Equipped for the future*

# MACHINING TECHNOLOGY

The GROB G-modules! In GROB machining technology, machining centers of various sizes are built in a modular fashion. These can be connected via automation solutions. Their field of use lies in series production – in the automotive industry, among others.

- ✚ Get the most out of your productivity with trained staff
- ✚ Our customized training courses improve your workflow and speed
- ✚ Avoid application errors due to a high performance level of your staff
- ✚ **Our machine types:** G300, G320, G500, G520, G700, G720, G500F, G520F, G600F, G700F, G720F, G920F, G920X, and automation solutions



GROB TECHNICAL ACADEMY – PORTFOLIO  
#UniversalMachiningCenters #E-learning  
#MachiningTechnology #SpecialEquipmentBox  
#AssemblyAndElectromobility #Service



*Equipped for the future*

# MACHINING TECHNOLOGY TRAINING MODULES

Operation – G-module and automation system

NC programming – basics (SIEMENS)

NC programming – GROB-specific (SIEMENS)

Touch probe

Electrical maintenance – basic course

Electrical maintenance – advanced course

GROB spindle diagnostics (GSD) – electrical systems

Mechanical maintenance – G-module

Motorized spindle – mechanical systems (installation and removal)

Motorized spindle – mechanical systems (with cross-feed unit type 22)

Tool change – mechanical systems

RENISHAW ballbar measurement

Crash Management (main machining axes)

Assembly replacement

Mechanical maintenance – automation system

Mechanical maintenance – special-purpose machines

Operation – special-purpose machines

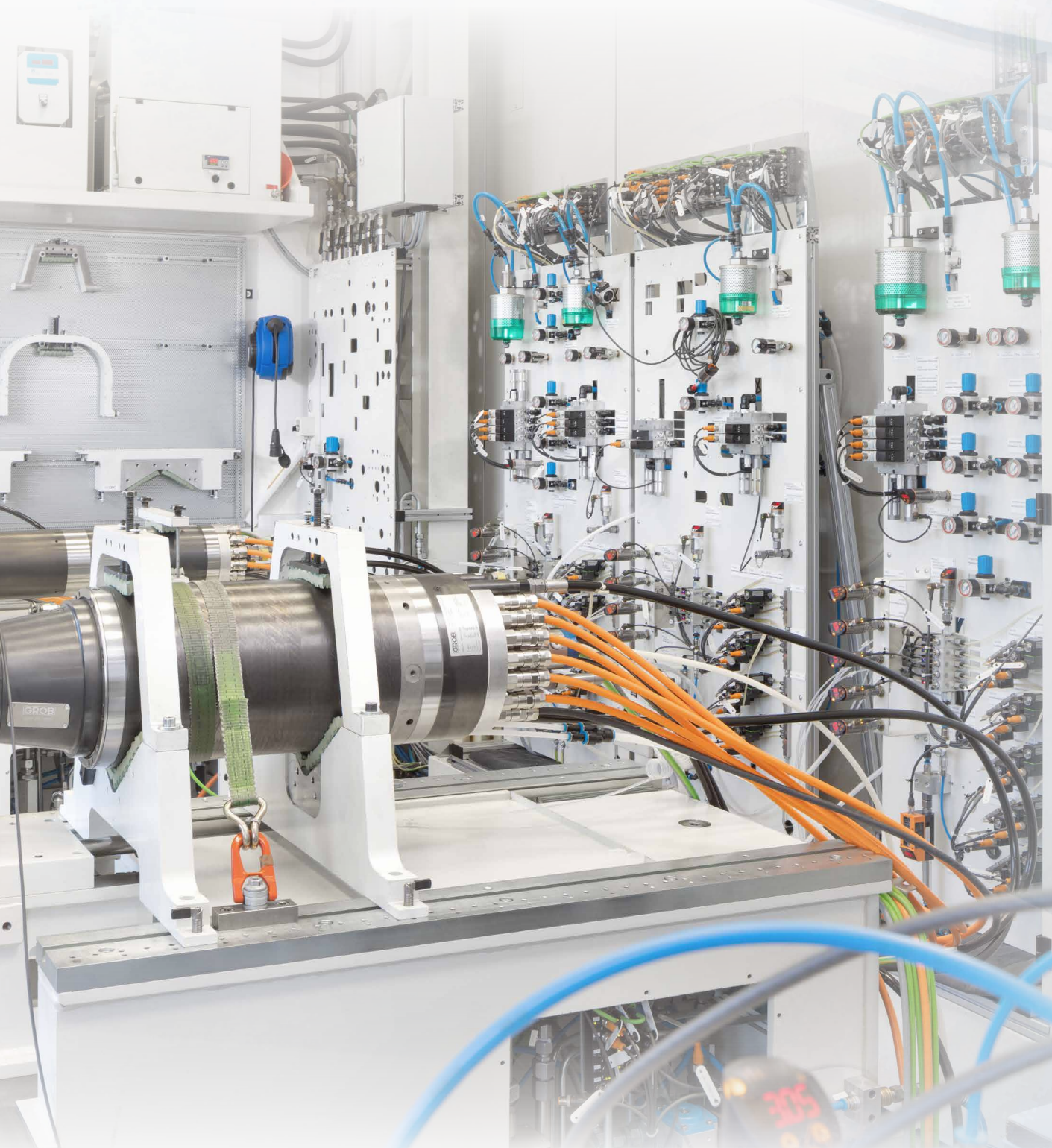
Robot training – basic course

Operation – robot station

Setup – robot station



# MACHINING TECHNOLOGY





*Training modules***MACHINING TECHNOLOGY****OPERATION – G-MODULE AND AUTOMATION SYSTEM**

<b>Target group</b>	<ul style="list-style-type: none"> <li>Specifically for operating personnel</li> <li>Also recommended for maintenance personnel depending on their tasks</li> </ul>
<b>Requirements</b>	<ul style="list-style-type: none"> <li>Knowledge of the function of automated machine tools</li> <li>Basic course of the control system manufacturer</li> </ul>
<b>Duration / venue</b>	2 days – GROB Mindelheim Training Center or at customer premises <ul style="list-style-type: none"> <li>Course composition: Combination of theory (10 %) and practical exercises (90 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>Safety training</li> <li>Introduction to safety technology</li> <li>Structure of the machine</li> <li>Basics of machine operation</li> <li>Operating modes and how they are used</li> <li>Tool management and its use</li> <li>Detecting faults (troubleshooting)</li> <li>Seating check</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>Correct and safety-conscious machine operation</li> <li>Minimizing machine downtimes through proactive machine operation</li> <li>Adequate knowledge of GROB system solutions</li> </ul>

**NC PROGRAMMING – BASICS (SIEMENS)**

<b>Target group</b>	<ul style="list-style-type: none"> <li>Specifically for operating personnel and NC programmers</li> <li>Also recommended for persons who optimize process quality through program modifications</li> </ul>
<b>Requirements</b>	<ul style="list-style-type: none"> <li>Knowledge of the function of automated machine tools</li> <li>Knowledge of the use of production documents, such as drawings, parts lists, tool layouts</li> </ul>
<b>Duration / venue</b>	1 day – GROB Mindelheim Training Center or customer premises, or online training via MS Teams <ul style="list-style-type: none"> <li>Course composition: Theory (100 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>Basic structure of NC programs</li> <li>SIEMENS NC commands</li> <li>Main and additional functions</li> <li>Learning the most important G-functions and M-functions</li> <li>Zero points and their influence</li> <li>Simple programming exercises</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>Using basic SIEMENS NC commands</li> <li>Understanding the NC functions and their use</li> <li>Basic knowledge of SIEMENS NC programming</li> </ul>

## NC PROGRAMMING – GROB-SPECIFIC (SIEMENS)

<b>Target group</b>	<ul style="list-style-type: none"> <li>Specifically for NC programmers</li> <li>Also recommended for persons who optimize process quality through program modifications</li> </ul>
<b>Requirements</b>	<ul style="list-style-type: none"> <li>Participation in the "NC programming – basics (SIEMENS)" training module or equivalent knowledge</li> <li>Knowledge of the function of automated machine tools</li> <li>Knowledge of the use of production documents, including drawings, parts lists, tool layouts</li> </ul>
<b>Duration / venue</b>	2 days – GROB Mindelheim Training Center or customer premises, or online training via MS Teams <ul style="list-style-type: none"> <li>Course composition: Theory (100 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>Familiarization with the coordinate systems used by GROB</li> <li>Program management</li> <li>Structure of machining programs</li> <li>Machining sub-routines</li> <li>Quality optimization/offset parameters</li> <li>Tool correction and monitoring</li> <li>Speed, feed and position parameters</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>Autonomous modification to machining programs (without touch probe)</li> <li>Performing quality optimizations</li> <li>Understanding the machine, its functions and machining programs</li> <li>Localizing sources of faults</li> <li>Comprehensive knowledge of the GROB-specific NC program</li> </ul>

## TOUCH PROBE

<b>Target group</b>	<ul style="list-style-type: none"> <li>Specifically for NC programmers</li> <li>Also recommended for persons who optimize process quality through program modifications</li> </ul>
<b>Requirements</b>	<ul style="list-style-type: none"> <li>Participation in the "NC programming – basics (SIEMENS)" training module or equivalent knowledge</li> <li>Knowledge of the function of automated machine tools</li> <li>Knowledge of the use of production documents, including drawings, parts lists, tool layouts</li> </ul>
<b>Duration / venue</b>	1 day or ½ day in connection with the "NC programming – GROB-specific (SIEMENS)" training course <ul style="list-style-type: none"> <li>Course composition: Combination of theory (50 %) and practical exercises (50 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>Basic knowledge of the different manufacturers of touch probes</li> <li>Calibration of the touch probe</li> <li>Replacement of the battery and probe head</li> <li>Internal function settings</li> <li>Replacement and initial operation of a touch probe</li> <li>Programming in main and subprograms</li> <li>Customer-specific functions</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>Autonomous modification of the touch probe programming</li> <li>Quality optimization</li> <li>Understanding touch probe functions and their NC programming</li> <li>Localizing sources of faults</li> <li>Comprehensive knowledge of the GROB-specific use of the touch probe</li> </ul>



*Training modules*

# MACHINING TECHNOLOGY

## ELECTRICAL MAINTENANCE – BASIC COURSE

<b>Requirements</b>	Training on electrical or electronic systems <ul style="list-style-type: none"> <li>• Basic knowledge of drive and control systems technology as well as of the control system used</li> </ul>
<b>Duration / venue</b>	3 days – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Safety training</li> <li>• Function description of the electrical components</li> <li>• Data backup</li> <li>• Data recovery</li> <li>• Hardware replacement</li> <li>• Hardware settings</li> <li>• Diagnostic options</li> <li>• Error analysis and the correct approach to machine malfunctions</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Minimizing machine downtime through preventive maintenance activities</li> <li>• Repair of electrical components</li> <li>• Localizing and rectifying electrical faults</li> <li>• Creation and use of the data backup as a reference</li> <li>• Proficient use of the documentation</li> </ul>

## ELECTRICAL MAINTENANCE – ADVANCED COURSE

<b>Requirements</b>	Training on electrical or electronic systems <ul style="list-style-type: none"> <li>• Basic knowledge of drive and control systems technology as well as of the control system used</li> <li>• Participation in the "Electrical maintenance – basic course" or equivalent knowledge</li> </ul>
<b>Duration / venue</b>	2 days – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Safety training</li> <li>• Basic knowledge of editing GROB diagnostic diagrams</li> <li>• Evaluating alarms and messages</li> <li>• General PLC and HMI program overview</li> <li>• Customer-specific functions</li> <li>• Diagnostic options</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Minimizing machine downtimes through preventive maintenance activities</li> <li>• Repair of electrical components</li> <li>• Localizing and rectifying electrical faults</li> <li>• Creation and use of the data backup as a reference</li> <li>• Proficient use of the documentation</li> </ul>

## GROB SPINDLE DIAGNOSTICS (GSD) – ELECTRICAL SYSTEMS

<b>Target group</b>	Specifically for electrical maintenance technicians
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• Comprehensive training on electrical systems</li> <li>• Basic knowledge of drive and control systems technology as well as of the control system used</li> </ul>
<b>Duration / venue</b>	1 day – GROB Mindelheim Training Center or at customer premises <ul style="list-style-type: none"> <li>• Course composition: Combination of theory (30 %) and practical exercises (70 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Structure and function of GROB spindle diagnostics</li> <li>• Basics of the software used (IFM Octavis)</li> <li>• Troubleshooting on the machine</li> <li>• Maintenance, commissioning, and hardware replacement</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Minimizing machine downtimes following malfunctions</li> <li>• Proper use of the software</li> </ul>

## MECHANICAL MAINTENANCE – G-MODULE

<b>Target group</b>	Specifically for mechanical maintenance technicians
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• Comprehensive training on mechanical systems</li> <li>• Basics of hydraulic, pneumatic, and lubrication systems (lubricants, lubrication diagrams)</li> <li>• Experience in the preventive maintenance of automated machine tools</li> <li>• Experience in diagnosing faults and their causes</li> </ul>
<b>Duration / venue</b>	3 days – GROB Mindelheim Training Center or at customer premises <ul style="list-style-type: none"> <li>• Course composition: Combination of theory (30 %) and practical exercises (70 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Introduction to safety technology</li> <li>• Structure of the machine (assemblies, guides, drives, measuring systems, tool magazine)</li> <li>• Introduction to the machine documentation</li> <li>• Service and preventive maintenance measures</li> <li>• Introduction to the special equipment</li> <li>• Motorized spindle (inspection)</li> <li>• Machine zero points</li> <li>• Fluid technology</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Using the technical documentation as a reference</li> <li>• Correcting reference setting points</li> <li>• Analyzing and rectifying mechanical faults</li> <li>• Replacing spare and wear parts</li> <li>• Performing preventive maintenance and inspection tasks</li> <li>• Localizing sources of faults</li> <li>• Carrying out repair activities</li> </ul>



## Training modules

# MACHINING TECHNOLOGY

### MOTORIZED SPINDLE MECHANICAL SYSTEMS (INSTALLATION AND REMOVAL)

<b>Target group</b>	Specifically for mechanical maintenance technicians
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• Comprehensive training on mechanical systems</li> <li>• Basics of machine operation</li> <li>• Experience with machine tools</li> </ul>
<b>Duration / venue</b>	2 days – GROB Mindelheim Training Center • Course composition: Combination of theory (10 %) and practical exercises (90 %)
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Introduction to safety technology</li> <li>• Service and preventive maintenance measures</li> <li>• Introduction to the special equipment</li> <li>• Installation and removal of a motorized spindle using the special equipment provided</li> <li>• Checking perpendicularity, correcting as necessary</li> <li>• Spindle 0° setting</li> <li>• Setting the machine zero point (Z-axis)</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Using the technical documentation as a reference</li> <li>• Performing preventive maintenance and inspection tasks</li> <li>• Correcting reference setting points</li> <li>• Localizing and rectifying mechanical faults</li> <li>• Replacing spare and wear parts</li> <li>• Localizing sources of faults</li> <li>• Carrying out repair activities</li> </ul>

### MOTORIZED SPINDLE MECHANICAL SYSTEMS (WITH TYPE 22 CROSS-FEED UNIT)

<b>Target group</b>	Mechanical maintenance technicians or machine operators (prior arrangement required)
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• Comprehensive training on mechanical systems</li> <li>• Basics of machine operation, NC programming, and geometry</li> <li>• Experience with machine tools</li> </ul>
<b>Duration / venue</b>	1 or 2 days (prior arrangement required) – GROB Mindelheim Training Center or customer premises • Course composition: Combination of theory (10 %) and practical exercises (90 %)
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Introduction to safety technology</li> <li>• Structure, function, service, and preventive maintenance activities for the motorized spindle with cross-feed (clamping set maintenance)</li> <li>• Introduction to the special equipment and standard parts (sealing elements)</li> <li>• Removal and installation of a motorized spindle with cross-feed using the special equipment provided (prior arrangement required)</li> <li>• Check and adjustment of the motorized spindle position</li> <li>• Spindle 0° setting with special equipment</li> <li>• Configuration of the feed-out tool in tool management</li> <li>• NC programs and the associated contexts</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Using the technical documentation as a reference</li> <li>• Presentation of specific knowledge used across all relevant technical departments</li> <li>• Performing preventive maintenance and inspection tasks</li> <li>• Carrying out repair activities</li> </ul>

## TOOL CHANGE – MECHANICAL SYSTEMS

<b>Target group</b>	Specifically for mechanical maintenance technicians
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• Comprehensive training on mechanical systems</li> <li>• Basics of machine operation</li> <li>• Experience with machine tools</li> </ul>
<b>Duration / venue</b>	3 days – GROB Mindelheim Training Center <ul style="list-style-type: none"> <li>• Course composition: Combination of theory (10 %) and practical exercises (90 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Introduction to safety technology</li> <li>• Tool magazine (structure)</li> <li>• Configuration and installation using special equipment (positioner)</li> <li>• Checking and setting up the transfer position</li> <li>• Setting the software cams</li> <li>• Checking the tool change operation in automatic mode</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Using the technical documentation as a reference</li> <li>• Correcting reference setting points</li> <li>• Localizing and rectifying mechanical faults</li> <li>• Performing preventive maintenance and inspection tasks</li> <li>• Carrying out repair activities</li> </ul>

## RENISHAW BALLBAR MEASUREMENT

<b>Target group</b>	Specifically for mechanical maintenance technicians
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• Comprehensive training on mechanical systems</li> <li>• Basics of machine operation and geometry</li> <li>• Experience with machine tools</li> </ul>
<b>Duration / venue</b>	3 days – GROB Mindelheim Training Center <ul style="list-style-type: none"> <li>• Course composition: Combination of theory (10 %) and practical exercises (90 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Introduction to safety technology</li> <li>• Basics of machine operation</li> <li>• Operating modes and how they are used</li> <li>• Structure and function of the RENISHAW applications</li> <li>• Introduction to fault overviews</li> <li>• Evaluation of diagnostic routines and graphics</li> <li>• Restoring perpendicularity</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Using the technical documentation as a reference</li> <li>• Correcting reference setting points</li> <li>• Localizing and rectifying mechanical faults</li> <li>• Performing preventive maintenance and inspection tasks</li> <li>• Carrying out repair activities</li> </ul>



*Training modules*

# MACHINING TECHNOLOGY

## CRASH MANAGEMENT (MAIN MACHINING AXES)

<b>Target group</b>	Specifically for mechanical maintenance technicians
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• Comprehensive training on mechanical systems</li> <li>• Basics of machine operation and geometry</li> <li>• Experience with machine tools</li> </ul>
<b>Duration / venue</b>	5 days – GROB Mindelheim Training Center <ul style="list-style-type: none"> <li>• Course composition: Combination of theory (10 %) and practical exercises (90 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Introduction to safety technology</li> <li>• Identification of geometry errors</li> <li>• RENISHAW ballbar measurement and corresponding machine settings</li> <li>• Restoring machine geometry</li> <li>• Setting of machine zero points</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Using the technical documentation as a reference</li> <li>• Localizing sources of faults</li> <li>• Localizing and rectifying mechanical faults</li> <li>• Performing preventive maintenance and inspection tasks</li> <li>• Carrying out repair activities</li> </ul>

## ASSEMBLY REPLACEMENT

<b>Target group</b>	Specifically for experienced mechanical maintenance technicians
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• Comprehensive training on mechanical systems</li> <li>• Basics of machine operation and geometry</li> <li>• Experience with machine tools</li> </ul>
<b>Duration / venue</b>	1 to 5 days – Mindelheim Training Center (prior arrangement required) <ul style="list-style-type: none"> <li>• Course composition: Combination of theory (10 %) and practical exercises (90 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Introduction to safety technology</li> <li>• Identification of geometry errors</li> <li>• Replacement of an assembly (prior arrangement required)</li> <li>• Restoring machine geometry</li> <li>• Commissioning of the assembly</li> <li>• Setting of machine zero points</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Using the technical documentation as a reference</li> <li>• Correcting reference setting points</li> <li>• Localizing and rectifying mechanical faults</li> <li>• Performing preventive maintenance and inspection tasks</li> <li>• Carrying out repair activities</li> </ul>

## MECHANICAL MAINTENANCE – AUTOMATION SYSTEM

<b>Target group</b>	Mechanical maintenance technicians, electrical maintenance technicians, or machine operators (prior arrangement required)
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• Comprehensive training on mechanical/electrical systems</li> <li>• Basics of machine operation</li> <li>• Experience with machine tools</li> </ul>
<b>Duration / venue</b>	1 or 2 days (prior arrangement required) – at customer premises • Course composition: Combination of theory (10 %) and practical exercises (90 %)
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Introduction to safety technology</li> <li>• Operating modes and how they are used</li> <li>• Structure of linear gantry/part changer/automation system</li> <li>• Setting up the axes and grippers</li> <li>• Setting the axis zero points</li> <li>• Checking and setting up the transfer positions</li> <li>• Setting the GUDs and software cams</li> <li>• Automatic mode and operation</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Using the technical documentation as a reference</li> <li>• Correcting reference setting points</li> <li>• Localizing and rectifying mechanical and electrical faults</li> <li>• Performing preventive maintenance and inspection tasks</li> <li>• Correct and safety-conscious machine operation</li> <li>• Minimizing machine downtimes through proactive machine operation</li> </ul>

## MECHANICAL MAINTENANCE – SPECIAL-PURPOSE MACHINES

<b>Target group</b>	Mechanical maintenance technicians or electrical maintenance technicians (prior arrangement required)
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• Comprehensive training on mechanical/electrical systems</li> <li>• Basics of machine operation and geometry</li> <li>• Experience with machine tools</li> </ul>
<b>Duration / venue</b>	1 day – on customer premises (prior arrangement required) • Course composition: Combination of theory (10 %) and practical exercises (90 %)
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Introduction to safety technology</li> <li>• Structure of the machine (assemblies, guides, drives, measuring systems, tool magazine)</li> <li>• Introduction to the machine documentation</li> <li>• Service and preventive maintenance measures</li> <li>• Introduction to the special equipment</li> <li>• Motorized spindle (inspection)</li> <li>• Machine zero points</li> <li>• Fluid technology</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Using the technical documentation as a reference</li> <li>• Correcting reference setting points</li> <li>• Analyzing and rectifying mechanical faults</li> <li>• Replacing spare and wear parts</li> <li>• Performing preventive maintenance and inspection tasks</li> <li>• Localizing sources of faults</li> <li>• Carrying out repair activities</li> </ul>



*Training modules***MACHINING TECHNOLOGY****OPERATION – SPECIAL-PURPOSE MACHINES**

<b>Target group</b>	<ul style="list-style-type: none"> <li>Specifically for operating personnel</li> <li>Also recommended for maintenance personnel depending on their tasks</li> </ul>
<b>Requirements</b>	<ul style="list-style-type: none"> <li>Knowledge of the function of automated machine tools</li> <li>Basic course of the control system manufacturer</li> <li>Training immediately follows process commissioning</li> </ul>
<b>Duration / venue</b>	1 day – on customer premises (prior arrangement required) <ul style="list-style-type: none"> <li>Course composition: Combination of theory (10 %) and practical exercises (90 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>Safety training</li> <li>Introduction to safety technology</li> <li>Structure of the machine</li> <li>Basics of machine operation</li> <li>Operating modes and how they are used</li> <li>Tool management and its use</li> <li>Detecting faults (troubleshooting)</li> <li>Seating check</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>Correct and safety-conscious machine operation</li> <li>Minimizing machine downtimes through proactive machine operation</li> <li>Sufficient knowledge of GROB machining technology</li> </ul>

**ROBOT TRAINING – BASIC COURSE**

<b>Target group</b>	Operators, installation technicians
<b>Requirements</b>	Technical knowledge
<b>Duration / venue</b>	2 days – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>Safety instruction</li> <li>Structure and components of a robot system</li> <li>Robot operating modes</li> <li>Structure and functions of the control panel</li> <li>Moving the robot arm in setup mode (by axis/Cartesian)</li> <li>Selecting, starting, and stopping programs</li> <li>Tool measurement</li> <li>Basic measurement</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>Basic knowledge of robots</li> <li>Correct robot operation</li> </ul>

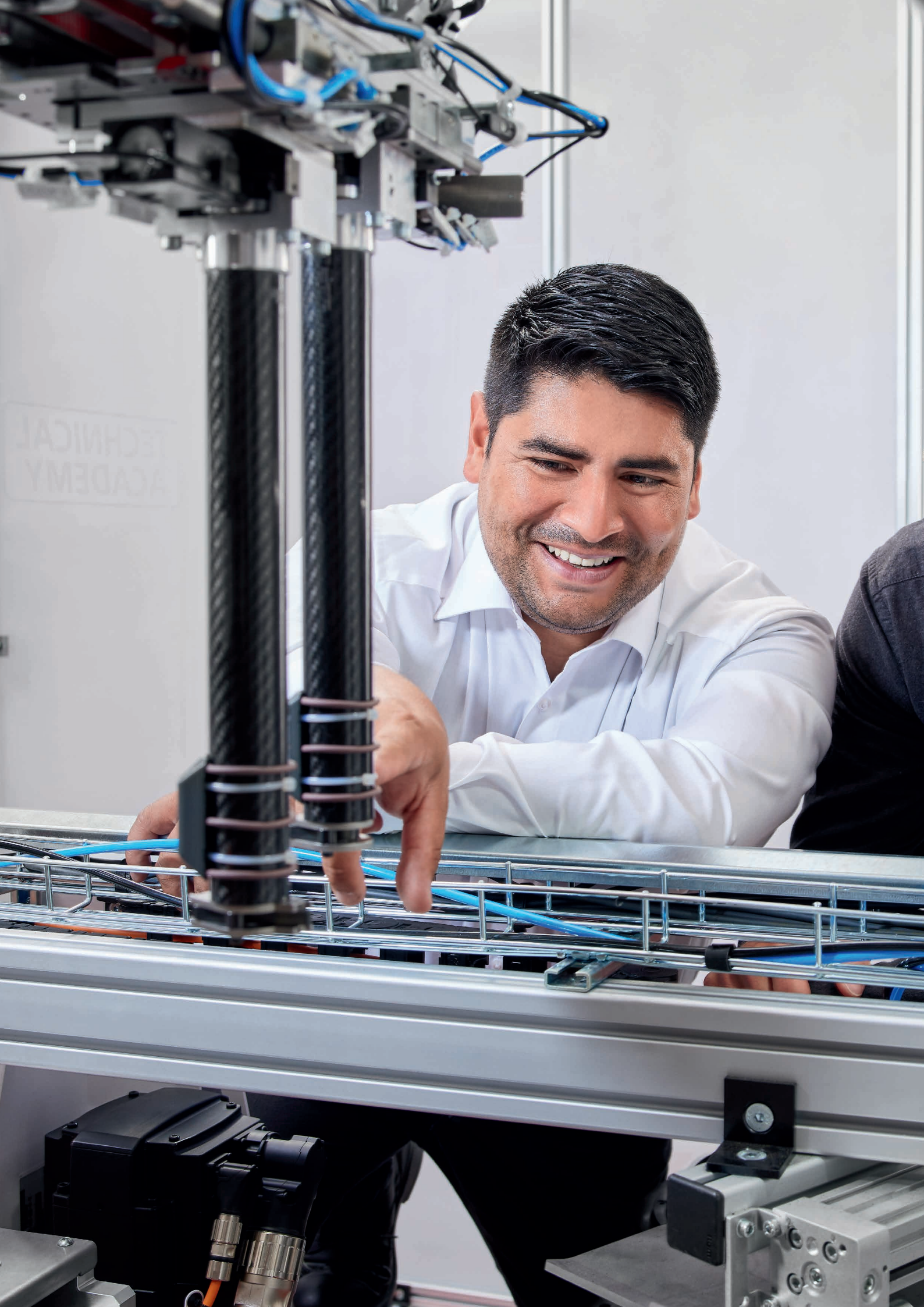
## OPERATION – ROBOT STATION

<b>Target group</b>	Operators, installation technicians
<b>Requirements</b>	Robot training – basic course or equivalent knowledge
<b>Duration / venue</b>	1 day – customer system at customer premises
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Robot station safety devices</li> <li>• Operating the robot cell via the station HMI</li> <li>• Explanation of coordinate systems in place</li> <li>• Retracting the robot in setup mode in case of faults</li> <li>• Retracting the robot from the safety area</li> <li>• Switching the robot station to automatic mode</li> <li>• Automatic program sequence of the robot station</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Knowledge of the special features of the system</li> <li>• Independent operation of the robot station</li> <li>• Independent rectification of (simple) faults</li> </ul>

## ROBOT STATION SETUP

<b>Target group</b>	Installation technicians
<b>Requirements</b>	Robot station operation training module
<b>Duration / venue</b>	1 day – customer system at customer premises
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Explanation of GROB-specific programs</li> <li>• Remeasuring a base</li> <li>• Adjusting robot positions</li> <li>• Adjusting robot paths</li> <li>• Adjusting program parameters</li> </ul>
<b>Learning objective</b>	Making independent changes to robot programs









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# ASSEMBLY & E-MOBILITY

GROB offers its customers a broad spectrum of state-of-the-art training courses. With all expertise and core processes in-house, we can elaborate on your individual systems.

- ✚ Increase the expertise of your employees in the complex world of electromobility
- ✚ Learn how to master technical challenges quickly and efficiently
- ✚ For an optimal use of your capacities and resources



GROB TECHNICAL ACADEMY – PORTFOLIO

#UniversalMachiningCenters #E-learning  
#MachiningTechnology #SpecialEquipmentBox  
#AssemblyAndElectromobility #Service



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# ASSEMBLY AND ELECTROMOBILITY TRAINING MODULES

GROB offers diverse and customer-specific concepts for tomorrow's components through its modular, flexible, and scalable solutions for electric powertrains. Our broad range of training courses includes courses on stator technologies, rotor technologies, as well as battery cells and modules.

Operation

Mechanical maintenance

Electrical maintenance

Mechanical maintenance – linear gantry

SIEMENS TIA – basic course on the GROB structure

BECKHOFF – basic course on the GROB structure

Camera systems – basic course (Keyence, Baumer, Cognex, etc.)

LASER BASICS BASED ON TRUMPF

Robot training – basic course

Operation – robot station

Setup – robot station

Kistler spindle training



ASSEMBLY & E-MOBILITY





*Training modules*

# ASSEMBLY & E-MOBILITY

## OPERATION

<b>Target group</b>	Machine operators, mechanical and electrical maintenance technicians
<b>Requirements</b>	Basic knowledge of the assembly line
<b>Duration / venue</b>	0.5 days per station (project-specific adaptation required) – customer premises <ul style="list-style-type: none"> <li>Course composition: Combination of theory (10 %) and practical exercises (90 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>Introduction to safety technology</li> <li>Structure of the machine</li> <li>Basics of machine operation</li> <li>Operating modes and how they are used</li> <li>Detecting faults (troubleshooting)</li> </ul> <p>Additional training course content must be adapted individually for the system.</p>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>Correct and safety-conscious machine operation</li> <li>Fast correction and analysis of malfunctions</li> <li>Minimizing machine downtimes</li> </ul>

## MECHANICAL MAINTENANCE

<b>Target group</b>	Mechanical maintenance technicians
<b>Requirements</b>	<ul style="list-style-type: none"> <li>Training on mechanical systems</li> <li>Basic knowledge of hydraulic and pneumatic systems</li> <li>Knowledge of preventive maintenance for assembly lines</li> </ul>
<b>Duration / venue</b>	0.5 days per station (project-specific adaptation required) – customer premises <ul style="list-style-type: none"> <li>Course composition: Combination of theory (20 %) and practical exercises (80 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>Introduction to safety technology</li> <li>Structure of the machine (assemblies, guides, drives, measuring systems, etc.)</li> <li>Service and preventive maintenance measures</li> <li>Replacing wear parts</li> </ul> <p>Additional training course content must be adapted individually for the system.</p>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>Localizing and rectifying mechanical faults</li> <li>Replacing spare and wear parts</li> <li>Minimization of machine downtimes</li> <li>Carrying out inspection and preventive maintenance tasks</li> </ul>

## ELECTRICAL MAINTENANCE

<b>Target group</b>	Maintenance technicians, electronics technicians
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• Training on electrical or electronic systems</li> <li>• Basic knowledge of drive and control systems technology as well as of the control system used</li> </ul>
<b>Duration / venue</b>	0.5 days per station (project-specific adaptation required) – customer premises <ul style="list-style-type: none"> <li>• Course composition: Combination of theory (50 %) and practical exercises (50 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Safety training</li> <li>• Function description of the electrical components</li> <li>• Data backup</li> <li>• Data recovery</li> <li>• Hardware replacement</li> <li>• Hardware settings</li> <li>• Diagnostic options</li> <li>• Error analysis and the correct approach to machine malfunctions</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Minimizing machine downtime through preventive maintenance activities</li> <li>• Repair of electrical components</li> <li>• Rectifying and finding electrical faults</li> <li>• Creation and use of the data backup as a reference</li> </ul>

## MECHANICAL MAINTENANCE – LINEAR GANTRY

<b>Target group</b>	Mechanical maintenance technicians, electrical maintenance technicians, or machine operators (prior arrangement required)
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• Comprehensive training on mechanical/electrical systems</li> <li>• Basics of machine operation</li> <li>• Experience with assembly systems</li> </ul>
<b>Duration / venue</b>	1 day – on customer premises <ul style="list-style-type: none"> <li>• Course composition: Combination of theory (10 %) and practical exercises (90 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Introduction to safety technology</li> <li>• Operating modes and how they are used</li> <li>• Linear gantry (structure)</li> <li>• Structure and setup of the axes and grippers</li> <li>• Checking and setting up the transfer position</li> <li>• Setting the required parameters</li> <li>• Automatic mode and operation</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Using the technical documentation as a reference</li> <li>• Correcting reference setting points</li> <li>• Localizing and rectifying mechanical and electrical faults</li> <li>• Performing preventive maintenance and inspection tasks</li> <li>• Correct and safety-conscious machine operation</li> <li>• Minimizing machine downtimes through proactive machine operation</li> </ul>



*Training modules***ASSEMBLY & E-MOBILITY****SIEMENS TIA – BASIC COURSE ON THE GROB STRUCTURE**

<b>Target group</b>	Maintenance technicians, electronics technicians
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• Training on electronic systems</li> <li>• Basic knowledge of the control system used</li> </ul>
<b>Duration / venue</b>	3 days (can be adapted to the specific project) – customer premises <ul style="list-style-type: none"> <li>• Course composition: Combination of theory (70 %) and practical exercises (30 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Introduction to the hardware</li> <li>• Introduction to the GROB structures</li> <li>• Basics of programming</li> <li>• Data backup</li> <li>• Diagnostic options</li> <li>• Data processing</li> <li>• Interface description</li> <li>• Sequences</li> <li>• Visualization</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Correct and safety-conscious machine operation</li> <li>• Knowledge of the GROB structures</li> <li>• Tracking data communication</li> <li>• Understanding the sub-components' interfaces</li> </ul>

**BECKHOFF – BASIC COURSE ON THE GROB STRUCTURE**

<b>Target group</b>	Maintenance technicians, electronics technicians
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• Training on electronic systems</li> <li>• Basic knowledge of the control system used</li> </ul>
<b>Duration / venue</b>	2 days (can be adapted to the specific project) – customer premises <ul style="list-style-type: none"> <li>• Course composition: Combination of theory (70 %) and practical exercises (30 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Introduction to the hardware</li> <li>• Introduction to the GROB structures</li> <li>• Basics of programming</li> <li>• Data backup</li> <li>• Diagnostic options</li> <li>• Data processing</li> <li>• Interface description</li> <li>• Sequences</li> <li>• Visualization</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Correct and safety-conscious machine operation</li> <li>• Knowledge of the GROB structures</li> <li>• Tracking data communication</li> <li>• Understanding the sub-components' interfaces</li> </ul>



## CAMERA SYSTEMS – BASIC COURSE (KEYENCE, BAUMER, COGNEX, ETC.)

<b>Target group</b>	BASICS (KEYENCE, BAUMER, COGNEX, etc.) Maintenance technicians, electronics technicians, quality assurance personnel
<b>Requirements</b>	Training on electrical or electronic systems
<b>Duration / venue</b>	1 day (project-specific adaptation required) – customer premises <ul style="list-style-type: none"> <li>Course composition: Combination of theory (60 %) and practical exercises (40 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>Structure of a camera system</li> <li>Function description of the electrical components</li> <li>Hardware replacement</li> <li>Hardware settings</li> <li>Diagnostic options</li> <li>Fault analysis</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>Quality improvement through better understanding</li> <li>Safe replacement of components</li> <li>Localizing and rectifying faults</li> <li>Creation and use of data backups</li> </ul>

## LASER BASICS BASED ON TRUMPF

<b>Target group</b>	Application technicians, operators
<b>Requirements</b>	Technical training
<b>Duration / venue</b>	2 days – GROB Mindelheim Training Center or at customer premises <ul style="list-style-type: none"> <li>Course composition: Combination of theory (40 %) and practical exercises (60 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>Safety training</li> <li>Introduction to safety technology</li> <li>Basics/structure of the various laser systems</li> <li>Basics of machine operation</li> <li>Detecting faults (troubleshooting)</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>Correct and safety-conscious machine operation</li> <li>Basic understanding of laser systems</li> </ul>



*Training modules***ASSEMBLY & E-MOBILITY****ROBOT TRAINING – BASIC COURSE**

<b>Target group</b>	Operators, installation technicians
<b>Requirements</b>	Technical knowledge
<b>Duration / venue</b>	2 days – GROB Mindelheim Training Center
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Safety instruction</li> <li>• Structure and components of a robot system</li> <li>• Robot operating modes</li> <li>• Structure and functions of the control panel</li> <li>• Moving the robot arm in setup mode (by axis/Cartesian)</li> <li>• Selecting, starting, and stopping programs</li> <li>• Tool measurement</li> <li>• Basic measurement</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Basic knowledge of robots</li> <li>• Correct robot operation</li> </ul>

**OPERATION – ROBOT STATION**

<b>Target group</b>	Operators, installation technicians
<b>Requirements</b>	Robot training – basic course or equivalent knowledge
<b>Duration / venue</b>	1 day – customer system at customer premises
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Robot station safety devices</li> <li>• Operating the robot cell via the station HMI</li> <li>• Explanation of coordinate systems in place</li> <li>• Retracting the robot in setup mode in case of faults</li> <li>• Retracting the robot from the safety area</li> <li>• Switching the robot station to automatic mode</li> <li>• Automatic program sequence of the robot station</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Knowledge of the special features of the system</li> <li>• Independent operation of the robot station</li> <li>• Independent rectification of (simple) faults</li> </ul>

## SETUP – ROBOT STATION

<b>Target group</b>	Installation technicians
<b>Requirements</b>	Operation – robot station
<b>Duration / venue</b>	1 day – customer system at customer premises
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Explanation of GROB-specific programs</li> <li>• Remeasuring a base</li> <li>• Adjusting robot positions</li> <li>• Adjusting robot paths</li> <li>• Adjusting program parameters</li> </ul>
<b>Learning objective</b>	Making independent changes to robot programs

## KISTLER SPINDLE TRAINING

<b>Target group</b>	Mechanical maintenance technicians, machine operators, quality assurance personnel
<b>Requirements</b>	<ul style="list-style-type: none"> <li>• Training on mechanical systems</li> <li>• Basics of machine operation</li> </ul>
<b>Duration / venue</b>	2 days – GROB Mindelheim Training Center or at customer premises <ul style="list-style-type: none"> <li>• Course composition: Combination of theory (10 %) and practical exercises (90 %)</li> </ul>
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Introduction to safety technology</li> <li>• Structure, function, service, and preventive maintenance activities for spindles</li> <li>• Spindle removal and installation incl. referencing</li> <li>• Basic spindle settings</li> <li>• Operation of the maXYmos HMI (control system)</li> <li>• Basic structure of the programs</li> <li>• Evaluation of press-fitting programs</li> <li>• Calibration of press-fitting spindles</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Understanding the maXYmos control system</li> <li>• Performing preventive maintenance and inspection tasks</li> <li>• Carrying out repair activities</li> <li>• Correct and safety-conscious machine operation</li> </ul>





Magazin HBG) > G516-1920-0000-01 (Bürsteinheit)

Schnellsuche

## Bauteil-Details

### Informationen

Material-Nr. GROB: 1663

GROB Benennung: Decke

Menge: 1

ME: ST

ETV: ☒

### Icons

Benennung

Hersteller

GROB

GROB

GROB

GROB

GROB

Bestell-Nr.

Typ-Bez.

System



*Stabilized production  
with training*

# UNIVERSAL CONCEPTS FOR ALL TECHNOLOGIES

GROB offers its customers a broad spectrum of state-of-the-art training courses. With all expertise and core processes in-house, we can elaborate on your individual systems.

- ⊕ Strengthening of individual maintenance competence
- ⊕ Understanding & lasting correction of faults
- ⊕ Stabilization of internal workflows
- ⊕ A highly qualified contact person on site



GROB TECHNICAL ACADEMY – PORTFOLIO  
#UniversalMachiningCenters #E-learning  
#MachiningTechnology #SpecialEquipmentBox  
#AssemblyAndElectromobility #Service



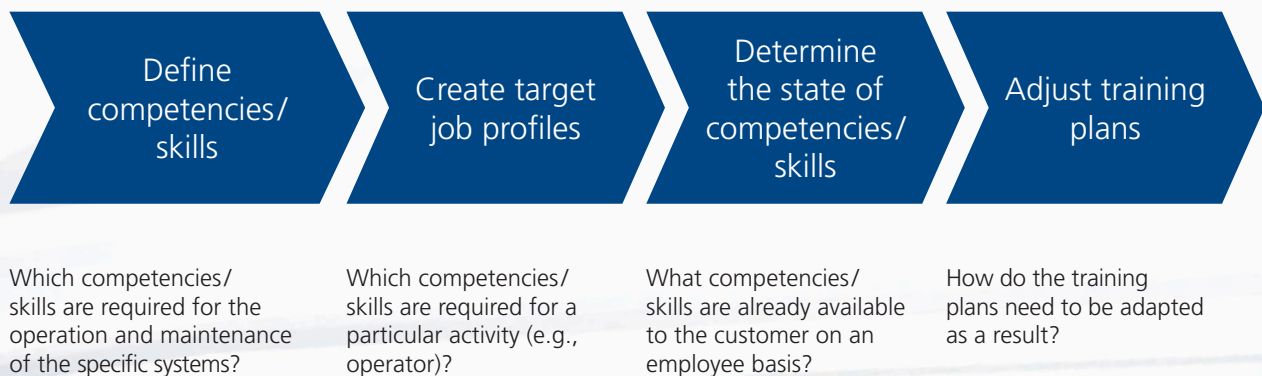
*Training modules*

# UNIVERSAL CONCEPTS FOR ALL TECHNOLOGIES

## SKILL GAP ANALYSIS (WORKSHOP)

<b>Target group</b>	Machine operators, mechanical and electrical maintenance technicians
<b>Duration / venue</b>	Dependent on the number of participants and system complexity – GROB Mindelheim Training Center
<b>Contents</b>	Joint elaboration of a qualification matrix and associated job profiles for different roles
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Covering all required skills and qualifications to operate the system safely</li> <li>• Developing an understanding of the complexity of the machine</li> <li>• Identifying possible qualification deficits of various target groups</li> </ul>

## The skill gap analysis as an introduction to customer-specific training concepts





## ON-THE-JOB TRAINING

<b>Target group</b>	Maintenance technician, maintenance personnel, operator
<b>Requirements</b>	Basic training
<b>Duration / venue</b>	<b>After consultation</b> – GROB Mindelheim Training Center or customer premises For example: during shifts, 8–10h per day, Mon.–Fri. Recommendation: min. 1–3 months, ongoing if needed
<b>Contents</b>	<ul style="list-style-type: none"> <li>• Maintenance qualification</li> <li>• Developing system-specific competence: mechanical and electrical</li> <li>• Developing problem-solving competence</li> <li>• Fault analysis</li> <li>• Stabilization of systems</li> <li>• Preventing machine downtime</li> <li>• Attending and establishing shop floor meetings and documentation, 8D, FMEA, RCA, etc.</li> </ul>
<b>Learning objective</b>	<ul style="list-style-type: none"> <li>• Strengthening of individual maintenance competence</li> <li>• Understanding and lasting correction of faults</li> <li>• Stabilization of production and internal workflows</li> </ul>



*Everything at a glance*

# GENERAL CONDITIONS

## GENERAL INFORMATION

<b>Registration</b>	<p>Please provide the following information when submitting your training inquiry/application:</p> <ul style="list-style-type: none"> <li>• Relevant training module</li> <li>• Number of participants including first and last names (The maximum number of participants per course is limited to five. No minimum number of participants is required.)</li> <li>• Your complete contact data (Company name, address with telephone number and e-mail address, as well as a contact for queries.) The training application is binding only after our e-mail confirmation!</li> </ul>
<b>Training duration</b>	The training time is indicated to the customer in days, where one day lasts from 8 a.m. – 3 p.m. unless otherwise agreed. The total break time is 45 minutes, usually divided as follows: 15 minutes in the morning, 30 minutes at noon.
<b>Language of the training</b>	German or English – if interpreters are required, these must be provided by the customer. We will of course assist you with your search for a suitable interpreter.
<b>Cancellation</b>	A cancellation of the training is free of charge, provided that the written cancellation notice arrives at GROB 14 days before the start of the course at the latest. Cancellations received after this time will incur a charge of 30 % of the course fees. If a participant fails to attend or leaves the course prematurely, the full fee will be charged.
<b>Agreed performance period</b>	The ordered training course(s) must be completed within three years from the date of order confirmation, otherwise the customer's claim to fulfillment expires and the service is considered to have been rendered.
<b>Course procedure</b>	All courses are held at GROB in professionally-equipped training rooms.
<b>Customer system</b>	No modifications that influence the process are implemented in practice during training courses on customer systems. The theory behind these topics is discussed directly at the system.
<b>Course materials</b>	Training documentation is provided in German or the language of the Technical Documentation supplied. Please contact us if further languages are required. The course materials are protected by copyright. They must not be copied nor otherwise reproduced, either in whole or in part, without the trainer's prior consent. Use of online content: For training measures and content made available online by GROB(e.g., webinars, online courses, etc.), the customer receives a temporary, non-transferable right of use depending on the contract.
<b>Disclaimer</b>	The information provided in the courses and related documents is always given to the best of our knowledge and ability. GROB does not accept any liability for discrepancies or errors. The written information in particular does not constitute any assurance of quality or the equipment versions of the machines sold.
<b>Accommodation during the courses</b>	The participants must arrange their own accommodation. We will of course assist you with your search for overnight accommodation.
<b>Safety</b>	The training participants are obliged to observe and comply with the safety regulations applicable on GROB company premises. Specifically, the participants are obliged to wear safety footwear. Please bring safety footwear with you to the training.
<b>Costs</b>	We will happily inform you of all costs on request. Generally speaking, the costs are calculated per training day.
<b>Meals</b>	Per training day, each participant will receive drinks, snacks and one lunch free-of-charge in the GROB company restaurant.

*Learn when and where you want*

# GROB CAMPUS



The GROB Campus gives you the opportunity to flexibly expand your skills to meet your requirements at any time. This ensures that you are perfectly prepared for your future challenges.

**Expand and enhance your knowledge with customized digital training offers!**

## WHAT IS THE GROB CAMPUS?

- + Innovative learning management system
- + Targeted learning and expertise management
- + Provision of digital learning content such as online courses or videos
- + Digital training catalog on our training offer



### **Learning management**

View the GROB training courses that your employees have already completed at any time.



### **Expertise management**

Central management of expertise to close current and future knowledge and skill gaps.



### **Digitalization**

Learn when and where it best suits your company and your employees.



*Worldwide throughout the machine service life*

# GROB – GLOBAL AND INTERNATIONAL

From Bavaria to the world: Since our founding in 1926 in Munich, we as a global, family-managed company have been on a constant growth trajectory developing and manufacturing systems and machine tools. Our customers include the world's leading automotive manufacturers, their suppliers, and renowned companies from the aerospace, mechanical engineering, and other industries. With our production facilities in Germany, Brazil, the USA, China, Italy and India, as well as 15 worldwide service centers and sales branches, we are represented around the globe, ensuring the highest quality.

FOUNDED IN 1926

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15 SALES  
AND SERVICE BRANCHES WORLDWIDE

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*Our global production sites*



Mindelheim, Germany



São Paulo, Brazil



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24/7 SUPPORT



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**Bluffton, USA**



**Dalian, China**



**Pianezza, Italy**



**Bangalore, India**



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#AdditiveManufacturing #Digitalization  
#NewAndQualityCheckedUsedMachines #Service*



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