CHIRON Training

Current training program
Ahead through qualification, because knowledge leads to success.

In the CHIRON training centre, we get your staff, both beginners and pros, up-to-date with the latest technology, step by step. With a multitude of individually combinable machines and programming courses, we will qualify your employees and increase productivity of the machines used, thereby enhancing the success of your company. After all, qualified and motivated employees are the most valuable assets of any company.

Our training is didactically structured according to the latest teaching methods. By doing practical work in small groups, the field of interest and the level of knowledge of the participants is taken into account.

Our philosophy is to strongly qualify the participants through their own work on our training objects. What is learned can be directly implemented in routine work.
Your opinion is important to us. To consistently further develop our offered training programs, the course participants are regularly surveyed by our trainers. With this standardized method, we ensure the quality of our courses and recognize potential for optimization early on. As you can see, we’re constantly working to improve ourselves and to meet your demands.

Our training program is especially characterized by its implementation flexibility. Courses can either be given in our CHIRON training centre or at your site, as you prefer. Our trainers are able to conduct the offered courses in German or English. Optionally, we can provide an interpreter for other languages.

We’re looking forward to seeing you in our training program!

„It’s not enough that we do our best; sometimes we have to do what’s required“ Winston Churchill
Training - Service and maintenance

Facts

- **Duration**: 4 days
- **Dates**: on request
- **Participants**: Max. 5 participants
- **Location**: CHIRON Werke, Tuttlingen, Germany
Service and maintenance training for machining centres with basket tool changers

After training has been completed, the training participants should be able to carry out maintenance according to schedule, find malfunctions to a limited degree and be able to properly rectify them.

Target group: Service, maintenance and repair personnel

Conditions: Basic knowledge on how to work with CNC machining centres, technical vocational training or practical experience with CNC machining centres

Topics:
- Safety and accident prevention regulations
- Operation and handling, as well as the mechanical and electrical setup of the machine
- Maintenance and repair for early error detection
- Geometrical check
- Check and setting of machine-specific reference points
- Function and setup of the main spindle section
- Function, setup and setting of basket changer
- Function and setup of workpiece changer
- Data backup

We offer service and maintenance training for the following machining centres with basket tool changers:

<table>
<thead>
<tr>
<th>Series</th>
<th>08 SERIES</th>
<th>12 SERIES</th>
<th>15 SERIES</th>
<th>18 SERIES</th>
</tr>
</thead>
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<tr>
<td>Spindle version</td>
<td>FZ</td>
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<td>Control</td>
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<td>Order No. 1437498</td>
<td>Order No. 1437635</td>
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</tbody>
</table>

www.chiron.de
Training - Service and maintenance

Facts

- **Duration**: 4 days
- **Dates**: on request
- **Participants**: Max. 5 participants
- **Location**: CHIRON Werke, Tuttlingen, Germany
Service and maintenance training for machining centres with pick-up tool changer

After training has been completed, the training participants should be able to carry out maintenance according to schedule, find malfunctions to a limited degree and be able to properly rectify them.

**Target group:**
Service, maintenance and repair personnel

**Conditions:**
Basic knowledge on how to work with CNC machining centres, technical vocational training or practical experience with CNC machining centres

**Topics:**
- Safety and accident prevention regulations
- Operation and handling, as well as the mechanical and electrical setup of the machine
- Maintenance and repair for early error detection
- Geometrical check
- Check and setting of machine-specific reference points
- Function and setup of the main spindle section
- Function, setup and setting of pick-up tool changer
- Function and setup of workpiece changer
- Function and setup of background magazine
- Data backup

We offer service and maintenance training for the following machining centres with pick-up tool changers:

<table>
<thead>
<tr>
<th>Series</th>
<th>08 SERIES</th>
<th>12 SERIES</th>
<th>15 SERIES</th>
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<tr>
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<td>FZ</td>
<td>FZ</td>
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</tbody>
</table>

*For machining centres of the 18 Series starting from year of construction 2013

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www.chiron.de
Training - Service and maintenance

Facts
- **Duration**: 4 days
- **Dates**: on request

- **Participants**: Max. 5 participants
- **Location**: CHIRON Werke, Tuttlingen, Germany
Service and maintenance training for 5-axis machining centres

After training has been completed, the training participants should be able to carry out maintenance according to schedule, find malfunctions to a limited degree and be able to properly rectify them.

**Target group:**
Service, maintenance and repair personnel

**Conditions:**
Basic knowledge on how to work with CNC machining centres, technical vocational training or practical experience with CNC machining centres

**Topics:**
- Safety and accident prevention regulations
- Operation and handling, as well as the mechanical and electrical setup of the machine
- Maintenance and repair for early error detection
- Geometrical check
- Check and setting of machine-specific reference points
- Function and setup of the main spindle section
- Function, setup and setting of pick-up tool changer
- Function and setup of the CHIRON 2-axis swivel unit
- Function and setup of background magazine
- Data backup

We offer service and maintenance training for the following 5-axis machining centres:

<table>
<thead>
<tr>
<th>Series</th>
<th>08 SERIES</th>
<th>12 SERIES</th>
<th>15 SERIES</th>
<th>18 SERIES</th>
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Training - Service and maintenance

Facts

- **Duration**: 4 days
- **Dates**: on request
- **Participants**: Max. 5 participants
- **Location**: CHIRON Werke, Tuttlingen, Germany
Service and maintenance training for machining centres with swivel heads

After training has been completed, the training participants should be able to carry out maintenance according to schedule, find malfunctions to a limited degree and be able to properly rectify them.

Target group:
Service, maintenance and repair personnel

Conditions:
Basic knowledge on how to work with CNC machining centres, technical vocational training or practical experience with CNC machining centres

Topics:
- Safety and accident prevention regulations
- Operation and handling, as well as the mechanical and electrical setup of the machine
- Maintenance and repair for early error detection
- Geometrical check
- Check and setting of machine-specific reference points
- Function and setup of the main spindle section
- Function, setup and setting of pick-up tool changer
- Function and setup of the swivel axis
- Function and setup of background magazine
- Data backup

We offer service and maintenance training for the following machining centres with swivel heads:

<table>
<thead>
<tr>
<th>Series</th>
<th>08 SERIES</th>
<th>12 SERIES</th>
<th>MILL SERIES</th>
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<tr>
<td>Steuerung</td>
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<tr>
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Training - Service and maintenance

Facts

- **Duration**: 4 days
- **Dates**: on request
- **Participants**: Max. 5 participants
- **Location**: CHIRON Werke, Tuttlingen, Germany
Service and maintenance training **for machining centres with MT technology**

After training has been completed, the training participants should be able to carry out maintenance according to schedule, find malfunctions to a limited degree and be able to properly rectify them.

**Target group:**
Service, maintenance and repair personnel

**Conditions:**
Basic knowledge on how to work with CNC machining centres, technical vocational training or practical experience with CNC machining centres

**Topics:**
- Safety and accident prevention regulations
- Operation and handling, as well as the mechanical and electrical setup of the machine
- Maintenance and repair for early error detection
- Geometrical check
- Check and setting of machine-specific reference points
- Function and setup of the main spindle section
- Function, setup and setting of pick-up tool changer
- Function and setup of tool disc turret
- Function and setup of background magazine
- Data backup

We offer service and maintenance training **for the following machining centres with MT technology:**

<table>
<thead>
<tr>
<th>Series</th>
<th>08 SERIES</th>
<th>12 SERIES</th>
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</thead>
<tbody>
<tr>
<td>Spindle version</td>
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<td>Fanuc</td>
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</tr>
</tbody>
</table>
Training
Ahead through optimum preconditions

In our training rooms at the CHIRON Forum in Tuttlingen, we offer optimal conditions in almost 700 square meters of space!

Take advantage of our professional training area with high-quality equipment. This makes the best possible training efficiency possible through practical training on the object.
Training - Operation

Operator training, 2 days

After completing training, the training participants should be able to understand how to basically handle the machine.

Target group:
Operators, setters, maintenance and service personnel

Prerequisites:
None or little basic knowledge of CNC programming

Topics:
- Safety and accident prevention regulations
- JOG / JOG-INC mode, conventional method
- Programming input via keyboard
- Program editing
- Entering tool corrections
- MDA mode, manual input
- Running a program
- Setting mode
- Alarms and signals
- How to work with documentation

Facts

- **Duration**: 2 days
- **Dates**: on request
- **Participants**: Max. 5 participants
- **Location**: CHIRON Werke, Tuttlingen, Germany
- **Order Number**: 1450921
Operator training, 3 days

After completing training, the training participants should be able to understand how to basically handle the machine.

Target group:
Operators, setters, maintenance and service personnel

Conditions:
None or little basic knowledge of CNC programming

Topics:
- Safety and accident prevention regulations
- JOG / JOG-INC mode, conventional method
- Programming input via keyboard
- Program editing
- Entering tool corrections
- MDA mode, manual input
- Running a program
- Setting mode
- Alarms and signals
- How to work with documentation
- Siemens tool management
- Calibrating probes
- Maintenance cycles
- Block search

Facts

- **Duration**
  3 days
- **Dates**
on request
- **Participants**
  Max. 5 participants
- **Location**
  CHIRON Werke, Tuttlingen, Germany
- **Order Number**
  1450922
Training - Programming

Programming training, **basic course**

After the programming training has been completed, the training participant should be able to create machining programs and enter these in the control.

**Target group:**
Operators, setters, maintenance and service personnel

**Conditions:**
None or little basic knowledge of CNC programming

**Topics:**
- Safety and accident prevention regulations
- Functional description of the machines
- Basics of CNC programming
- Machine commands
- Drilling and milling cycles
- Milling with radius correction
- Circular interpolation
- Polar coordinates
- Contour program

**Facts**

- **Duration**
  4 days

- **Dates**
on request

- **Participants**
  Max. 10 participants

- **Location**
  CHIRON Werke, Tuttlingen, Germany

- **Control / Order Number**
  Siemens / 1437488
  Fanuc / 1437502
  Heidenhain / 1437505
Programming training, **advanced course**

After the programming training has been completed, the training participant should be able to create drilling and contour programs and enter these in the control.

**Target group:**
Operators, setters and programmers

**Conditions:**
Basic Siemens programming training course or basic knowledge of CNC programming

**Topics:**
- Safety and accident prevention regulations
- Functional description of the machines
- Machine commands
- Drilling and milling cycles
- Milling with radius correction
- Circular interpolation
- Polar coordinates
- Contour program
- Basics of subroutine techniques
- Simple program jumps and control structures
- REPEAT function
- Soft starting and stopping
- ROT, TRANS, MIRROR, SCALE

**Facts**

- **Duration**
  5 days
- **Dates**
  on request
- **Participants**
  Max. 10 participants
- **Location**
  CHIRON Werke, Tuttlingen, Germany
- **Control / Order Number**
  Siemens / 1437489
Training - Programming

Programming training, swivel cycles for table kinematics

After completing training, the training participants should be able to practically use table kinematics swivel cycles.

Target group:
Operators, setters and programmers

Conditions:
DIN / ISO programming knowledge and its practical application

Topics:
- Safety and accident prevention regulations
- Functional description of the machines
- Machine commands
- Drilling and milling cycles
- Milling with radius correction
- Contour program
- Swivel cycle basics
- Deactivation of a swivel data block
- Machining examples with FIVE-AXIS machining centres
- Afterwards simulation of the NC-program with CHIRON virtual machine

Control-specific training content
- Siemens CYCLE 800 input mask
- Fanuc swivel cycle G68.2 and CHIRON swivel cycles G800 – G803
- Swivel machining with Heidenhain cycle 19 and plane function

Facts

- Duration
  5 days

- Dates
  on request

- Participants
  Max. 5 participants

Location
CHIRON Werke, Tuttlingen, Germany

Control / Order Number
Siemens / 1437501
Fanuc / 1437504
Heidenhain / 1437507
Service and maintenance training [04-13]
Operator training [16-17]
Programming training [18-23]
Component training [24-25]
Robot training [26-27]
Customer-specific training [28-29]

Programming training, **swivel cycles for swivel head kinematics**

After completing training, the training participants should be able to practically use swivel head kinematics swivel cycles.

**Target group:**
Machine operators, setters and programmers

**Conditions:**
DIN / ISO programming knowledge and its practical application

**Topics:**
- Safety and accident prevention regulations
- Functional description of the machines
- Machine commands
- Drilling and milling cycles
- Milling with radius correction
- Contour program
- Swivel cycle basics
- Deactivation of a swivel data block
- Machining examples with swivel head machining centres
- Retracting in swung system
- Afterwards simulation of the NC-program with CHIRON virtual machine

**Facts**

- **Duration**
  5 days
- **Dates**
  on request
- **Participants**
  Max. 5 participants

**Location**
CHIRON Werke, Tuttlingen, Germany

**Control / Order Number**
- Siemens / 1437490
- Fanuc / 1437503
- Heidenhain / 1437506

**Control-specific training content**
- Siemens CYCLE 800 input mask
- Fanuc swivel cycle G68.2 and CHIRON swivel cycles G800 – G803
- Swivel machining with Heidenhain cycle 19 and plane function
Programming training for machining centres with MT technology

After the programming training has been completed, the training participant should be able to create turning and milling programs and run these on several channels.

Target group:
Operators, setters and programmers

Conditions:
DIN / ISO programming knowledge, swivel cycles and their practical application.

Topics:
- Safety and accident prevention regulations
- Functional description of the machines
- Explanation of the machine components
- Machine commands
- Drilling, milling and turning cycles
- Multi-channel programming
- How to work with swivel cycles
- Afterwards simulation of the NC-program with CHIRON virtual machine

Facts
- Duration
  5 days
- Dates
  on request
- Participants
  Max. 3 participants

Location
CHIRON Werke, Tuttlingen, Germany
Siemens / 1441984
Fanuc / 1441985
Programming training, probes

After completing the probe training, the training participants should be able to practically use measurement programs and probes.

**Target group:** Operators, setters and programmers

**Conditions:**
Basic knowledge in the operation of the respective Siemens / Fanuc / Heidenhain control.

**Topics:**
- Safety and accident prevention regulations
- Basic principles for measuring with probes
- Result / supply parameters
- Function test, probes
- Calibrating probes, X, Y and Z axes
- Workpiece measurement: Borehole, shaft, groove, web, surface
- Determining the zero point: Borehole, shaft, groove, web, surface

**Facts**

- **Duration**
  2 days

- **Dates**
  on request

- **Participants**
  Max. 5 participants

- **Location**
  CHIRON Werke, Tuttlingen, Germany

- **Control / Order Number**
  Siemens / 1437510
  Fanuc / 1437511
  Heidenhain / 1437513
Training - Programming

**Facts**

- **Duration**: 5 days
- **Dates**: on request
- **Participants**: Max. 6 participants
- **Location**: CHIRON Werke Tuttlingen, Germany

Additionally, two days on-site training are recommended. Additional days on request.
Programming training CHIRON PROCESSLine

In this course you will become familiar with the functions and possibilities of the NX CAM module in the areas of 3-axis roughing, and 2- and 3-axis finishing and simple drilling. Using practical examples, the handling of NX CAM operations is demonstrated. In addition, the integration and consistency of the ProcessLine / NX process chain is shown. The customer’s application environment is analysed and configured. Introduction to multi-sided milling.

Selection of post-processor and output of an NC code. Calling up the virtual CHIRON machine for simulation of the NC code and collision check.

Target group:
Manufacturing engineers, NC programming, Work preparation employees

Conditions:
CAM experience of other systems

Follow-up courses:
Appropriate follow-up courses are offered by CHIRON:
Simultaneous 5-axis production milling, CAM turning, 2-channel machines, synchronisation manager.

Order Number:
1500430
Training - Components

Facts

- **Duration**: 4 hours
- **Date**: on request
- **Participants**: Max. 5 participants
- **Location**: CHIRON Werke Tuttlingen, Germany
Service and maintenance training [04-13]
Operator training [16-17]
Programming training [18-23]
Component training [24-25]
Robot training [26-27]
Customer-specific training [28-29]

CHIRON DATALine

After the training, the participant should be able to profit in an optimal manner from the data / operating figures, to configure DataLine according to customer’s specifications and to adapt it to the intra-company needs.

Target group:
Production manager, Group leaders

Conditions:
Knowledge of the operations and processes within the own manufacturing

Order Number:
1525590

Topics:
- Bases of calculation of the OEE figures
- Optimization based on the OEE analysis and loss of availability
- Identification of non-productive time of operation
- Dashboard – Overview of the production

Configuration:
- Adaption of the machining program (start-end-factor)
- Definition of the shift schedule
- Definition of the downtime reason for iQuit
- Sending of e-mails
- Utilization of NC logger
- Parts Overview, to find the outliers in the parts run-time
Training - Components

Balancing the **main spindle**

After completing balancing training, the training participants should be able to understand the setup and how to use the balancing device. The objective is to determine the condition of the main spindle based on balancing tests and to correct this, if necessary.

**Target group:**
Maintenance and service personnel

**Conditions:**
CHIRON service training, experience working with PC/laptop, programming knowledge

**Topics:**
- Safety and accident prevention regulations
- Setup and how to work with Hoffmann MI 2000 balancing device
- Balancing main spindles of the 1st and 2nd level
- Error diagnostics
- Practical exercises

**Facts**

- **Duration**
  2 days
- **Dates**
on request
- **Participants**
  Max. 5 participants

- **Location**
  CHIRON Werke, Tuttlingen, Germany
- **Control / Order Number**
  1437516
Circularity test with Renishaw Ballbar QC20

After completing training, the training participants should be able to understand the setup and how to use the Renishaw Ballbar. Based on measurement records, error diagnostics are created and are rectified on CHIRON machine tools.

Target group: Maintenance and service personnel

Conditions: CHIRON service training, experience working with PC/laptop, programming knowledge

Topics:
- Safety and accident prevention regulations
- Determining circularity deviation with Renishaw Ballbar system QC20
- Setup and handling
- Measurement
- Error diagnostics
- Troubleshooting
- Practical exercises

Facts

- Duration 2 days
- Dates on request
- Participants Max. 5 participants

Location CHIRON Werke, Tuttlingen, Germany
Control / Order Number 1437517
Training - Robots

Facts
- Duration: 3 days
- Dates: on request
- Participants: Max. 5 participants
- Location: CHIRON Werke, Tuttlingen, Germany
- Order Number: 1437515
Fanuc robot training

After completing robot training, the training participants should be able to operate the robot properly and to use it in setup mode taking the safety guidelines into account.

Target group:
Operators, setters, programmers and service/maintenance personnel

Conditions:
Technically-oriented vocational training or comparable practical experience

Topics:
- Safety and accident prevention regulations
- Setup of the robot control and the i-Pendant hand-held operating device
- Structure of a traversing command
- Handling of the robot control
- Coordinate systems of the robot
- Teaching robot positions
- Manual control of robot grippers
- Program creation and supplementation
- Data backup (backup) on USB stick and PCMCIA card
- Fanuc palletizing (palletizing pattern B)
- Practical exercises
- Minor maintenance work on robot (battery exchange)
Training - Customer-specific training

Facts

- **Duration**
on request

- **Participants**
The number of participants is agreed upon with you individually, depending on the training topic.

- **Location / Order Number**
  CHIRON Werke, Tuttlingen / 1437735
  In your factory / 1437738
Customer-specific training

Customized training for your applications - If you have not found the training you need in our training program, please contact us. We would be happy to coordinate the content with you and design the training exactly to your needs.
Ahead through qualification, because knowledge leads to success.

- **Trainers**
  Our trainers are employees of CHIRON Werke GmbH & Co.KG, who have been excellently trained for your trainer activity. In addition, our trainers are or were also project managers or employees in our customer projects and bring a great wealth of experience and practical knowledge into the training programs.

- **Certificate**
  You will receive a certificate from us after successfully participating in CHIRON training.

- **Travel / Hotel**
  After your registration, you will receive detailed information for how to get to our CHIRON Forum as well as a list of hotels.

- **Consulting**
  Our training department will be happy to help you with any questions you have regarding training content, dates and reservations -
  Give us a call or send us an e-mail:

  Tel: +49 (0) 7461 / 940-0
  E-mail: training@chiron.de

- **Seminar documents**
  The extensive seminar documents will be an indispensable reference in your daily work routine.

- **Meals**
  Lunch and drinks are included in the seminar fees.