We live in a world where technology is constantly changing and advancing. Keeping up with the change has become both a challenge and a necessity for you and your company. That is why TRUMPF is committed to providing the best training in the industry for its customers. No matter your skill level, no matter your background, you will obtain the critical skills and knowledge that you need to stay competitive. In our modern training centers we provide different hands-on training, technology courses, workshops and individual consultation. This makes working with TRUMPF machines even easier and more efficient. Knowledge leads to success.

Discover our range of courses now.

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At TRUMPF, learning is experiencing

Advanced technology subjects must be taught in an appropriate manner. This is why we design our training courses to be practical, effective and enjoyable. Our state-of-the-art training centers and facilities provide a safe and stimulating learning environment. You will interact with fellow students, your instructor and our training team. No matter whether in the classroom or at your machine and no matter your learning style, your training at TRUMPF will be both a unique opportunity for you to develop professionally and a rewarding and lasting experience. But during a day of training, you do not only learn more about our products – breaks provide the ideal opportunity to get to know other participants or the trainers.

Discover some facts about our training centers and our range of courses.
Always on the right course

Many customers have been with TRUMPF for years. Due to changing markets and technological developments, there are always new areas of application for our products. To stay ahead of the rapid advances in technology, TRUMPF never stops exploring new areas in which our products can be applied. It is not just our machines that are continuously modernized with the latest technologies. We make it our priority to help you identify the right courses that suit your needs and that will set you off on the right track from the very beginning. We will show you the correct procedures and steps, which will ensure that your work processes are carried out with efficiency and safety. You’ll know that you’ve made the right choice when you train with us.

Discover what TRUMPF can provide for your individual requirements.

Skills levels

Basic level

Whenever you buy a new machine, you don’t have to wait until your machine is up and running. Instead, you can receive the fundamental training on how to operate your new machine right away. Should you switch to a similar product from the TRUMPF product family, then we have other training courses available for ensuring a smooth transition to your new system.

Advanced level

Once you have completed the basic courses at TRUMPF and have set up your machine at your facilities, you can deepen your knowledge with further training. For example, our maintenance training courses will teach you how to keep your machine running smoothly. The practical maintenance advice and basic troubleshooting tips will help you to keep your machine down time to a minimum.

Expert level

TRUMPF offers supplementary in-depth courses for experienced users. In these training courses, you not only have a refresher of what you have learnt before, but also gain specific expert knowledge. These courses provide you with the perfect opportunity to develop your area of expertise even further. They also help your company to remain at the forefront of the latest technological innovations.
Knowledge acquisition with E-Learning programs

Knowledge is one of the most important keys to success. This is why we support you with new learning formats and technologies. The range combines online units with classroom-based courses and therefore provides you with a completely new learning experience. Benefit from knowledge transfer and develop your market position.

Benefit from our E-Learning range.

Your advantages at a glance

- **Individual & self-guided learning**
  It is you who determines the time and location of your own training, based on your personal preferences. You may also repeat the training as often as you want.

- **Blended Learning**
  Benefit from the combination of E-Learning and classroom-based sessions, linked with an integrated teaching and learning concept.

- **Collective Learning**
  Learn together with colleagues and benefit from the exchanging of experiences and discussions.

- **Cost effective and time saving**
  E-Learning reduces the time in which employees are away and, therefore, saves costs for your company.
The fast route to my training program

TRUMPF’s training courses are as diverse as you. No matter whether you’re looking for entry-level courses to learn how to operate your machine, or advanced courses that focus more on programming – TRUMPF has the right program for every participant. Our training catalog is easy to navigate and will quickly help you to identify the courses that are best suited to your personal training objectives. The following pictures explain how this training catalog has been structured and illustrate the type of information that you will find on each page.

You can now find out more and register online:
www.mytrumpf.com/training
www.trumpf.com
2D lasers

Take full advantage of the power of your TruLaser machine. Our machine and programming courses provide step by step guidance on how to use your machine with maximum efficiency. You'll not only learn how to improve the fast cutting process but also understand how to optimize the upstream and downstream processes.

Machine types
### Machine courses

#### Beginner

**Objective**
You will learn the basics of how to use the technology and the machine. You will master the skill of preparing, introducing and influencing the production sequence.

**Course content**
- Machine setup and assembly and overview of machine functions
- Handling the user interface, the operating elements, diagnostics and online help
- Set-up processes and executing programs
- Structure and setting of the cutting unit
- Optimization of the cutting technology
- Machine and technology options

**Requirements**
Beginner/changeover, operation

#### LiftMaster

**Objective**
You will become confident in automated operation (manual, semi-automatic and fully automatic) and will be able to prepare, introduce and optimize production sequences.

**Course content**
- Structure and function of the LiftMaster Compact/LiftMaster Sort
- Handling the user interface and the operating elements with a separate control panel
- Set-up processes and executing programs using a LiftMaster Compact/LiftMaster Sort
- Automation options

**Requirements**
Beginner/changeover, operation

#### Changeover

**Objective**
You will become familiar with the new features compared to your previous machine and will learn how to use these new features in your production sequences.

**Course content**
- New features in the structure of the machine, the user interface, the operating elements, diagnostics and online help
- Changes regarding the structure and setting of the cutting unit
- New machine and technology options

**Requirements**
Operator course on a predecessor machine or at least 3 months of experience in using the machine

#### RotoLas

**Objective**
You will learn how to set up the tube cutting system for the machining process and master the skill of preparing, introducing and optimizing production sequences.

**Course content**
- Structure and function of the tube cutting system
- Handling the user interface and the operating elements
- Set-up processes and executing programs
- Optimization of the cutting technology and clamping system

**Requirements**
Beginner/changeover, operation

#### Machine and laser

**Objective**
You will acquire the skills to carry out maintenance work on the machine in accordance with the specified maintenance intervals.

**Course content**
- Setting work and handling
- Diagnostics options
- Maintenance work on the machine and machine options

**Requirements**
Basic electrical knowledge for maintenance work at the electrical cabinet

#### Production support

**Objective**
You will gain confidence in handling your machine and acquire the basic skills for productive manufacturing.

**Course content**
- Joint preparation and setting up of the machine
- Running in of individual production parts
- Explanation of influencing factors on the production process
- Initial optimization of process parameters
- Programming support

**Requirements**
Basics course in operation and programming

#### Laser cutting

**Objective**
You will learn how to optimize your cutting quality and determine the cutting parameters for special materials.

**Course content**
- Cutting-specific basics for lasers
- Influential parameters on laser cutting, such as process, machine, laser and workpiece parameters
- Laser power control influential parameters
- Cutting of special materials
- Quality assessment and optimization of laser cuts

**Requirements**
Beginner/changeover operation course and at least 3 months of experience in using the machine

#### Application consulting

**Objective**
You will improve the potential of your machine and the part quality and produce with greater productivity.

**Course content**
- Analyzing and optimizing production and programming
- Teaching of application expertise directly on your machine. The content can be customized to your previous machine and will learn how to use these new features compared to your previous machine

**Requirements**
Basics course in operation and programming
Programming courses

Basics

Objectives
You will gain basic technical knowledge regarding the technology and the machine as preparation for the programming course.

Course content
- Structure and assembly of the machines and their functions
- Technical data
- Basics of laser processing
- Machine and technology options
- Framework conditions and correlations when programming the machine

Requirements
Comprehensive experience in the use of parameterized 3D CAD systems

Cut 2D laser module I

Objectives
You will gain the skills to create practical NC programs for the machine and automation.

Course content
- Introduction to the programming system
- Importing and managing drawings in the HomeZone
- Nesting and processing parts in an order-based manner
- Modification of laser technology
- Specification and programming of practical processing strategies
- Output of NC programs

Requirements
Basics course in programming or extensive experience in using the machine

Design module I 2D

Objectives
You will learn how to create and import 2D geometries. You will understand how to redesign these in line with production requirements.

Course content
- Introduction to the CAD system
- Creation of simple 2D drawings
- Importing and processing of 2D geometries
- Manual and order-based nesting of part geometries on sheets

Requirements
- Recommendation: participation in a TruTops Boost technology programming course

Design module II 3D

Objectives
You will understand how to create practical NC programs.

Course content
- Introduction to the programming system
- Modification of laser technology
- Output of NC programs
- Maintenance and adaptation of the database

Requirements
Basics course in programming or extensive experience in using the machine

Cut 2D SortMaster

Objectives
You will deepen your knowledge of creating and adapting materials, laser tables and rules.

Course content
- Introduction to processing strategies for safe cutting processes and their optimization
- Creation and processing of special materials

Requirements
Cut 2D laser module I TruTops Boost

Changeover from TruTops Laser

Objectives
You will develop the knowledge to create practical NC programs for the machine.

Course content
- Introduction to the programming system
- Importing of drawings in line with production requirements
- Managing parts in the HomeZone
- Specification of processing strategies
- Modification of the technology
- Creation of NC programs

Requirements
- Technology TruTops Laser
- Experience in programming using TruTops
Programming courses

### 3D tube construction

**TruTops**

**Objectives**
You will understand how to design individual tubes and complex 3D tube models and how to create tube unfoldings for further processing in TruTops Tube.

**Course content**
- Introduction to 3D design
- Creation of tube models in 3D
- Importing and processing of 3D models
- Programming and optimizing tube processing
- Exporting tube designs

**Requirements**
TruTops drawing and TruTops Tube technology

**Design module III professional TruTops Boost**

**Objectives**
You will understand how to design individual tubes and complex 3D tube models and how to create tube unfoldings for further processing in TruTops Tube.

**Course content**
- Creation of 3D models
- Importing and processing of 3D models
- Programming and optimizing tube processing
- Exporting tube designs
- Reduced practice phases

**Requirements**
TruTops drawing and TruTops Tube technology and comprehensive experience in using parameterized 3D CAD systems

---

### 3D tube construction for experienced 3D designers

**TruTops**

**Objectives**
You will understand how to design individual tubes and complex 3D tube models and how to create tube unfoldings for further processing in TruTops Tube.

**Course content**
- Introduction to 3D design
- Creation of tube models in 3D
- Importing and processing of 3D models
- Programming and optimizing tube processing
- Exporting tube designs
- Reduced practice phases

**Requirements**
TruTops drawing and TruTops Tube technology

---

### 2D lasers – overview of range of courses

**Range of courses – 2D lasers**

- **Beginner Operation**
- **LiftMaster Operation**
- **Changeover Operation**
- **RotoLas Operation**
- **Machine and laser Maintenance**
- **Production support**
- **Laser cutting Technology**
- **Application consulting**

**MACHINE COURSES**

- **Basics Programming**
- **Cut 2D laser module I TruTops Boost**
- **Design module I 2D TruTops Boost**
- **Cut 2D laser module II TruTops Boost**
- **Changeover from TruTops TruTops Boost**
- **Cut 2D-SortMaster TruTops Boost**
- **Design module II 3D TruTops Boost**
- **Design module III professional TruTops Boost**

**PROGRAMMING COURSES**

- **Basics Programming**
- **Drawing and nesting TruTops**
- **Technology TruTops Laser**
- **SortMaster TruTops Laser**
- **RotoLas TruTops**
- **3D tube construction TruTops**
- **3D tube construction for experienced 3D designers TruTops**
- **Professional TruTops Laser**

---

### 3D lasers

- **TruLaser Series 1000**
- **TruLaser Series 2000**
- **TruLaser Series 3000**
- **TruLaser Series 5000**
- **TruLaser Series 7000**
- **TruLaser Series 8000**
- **TruLaser Center 7030**

**Course length in days**
- Beginner Operation: 3 – 5
- LiftMaster Operation: 1
- Changeover Operation: 3
- RotoLas Operation: 2
- Machine and laser Maintenance: 2 – 5
- Production support: 3
- Laser cutting Technology: 3
- Application consulting: 3

---

### 3D tube construction for experienced 3D designers

**TruTops**

**Objectives**
You will develop the knowledge to use the TruTops functions more effectively, increase process reliability on the machine and reduce part times.

**Course content**
- Optimization possibilities for processing with increased reliability and efficiency
- Geometry processing
- Use of interactive processing functions and customer cycles
- Manipulation of NC texts
- Creating technology tables and rules
- Use of fixtures

**Requirements**
TruTops Laser technology or at least 3 months of experience in programming

---

### Professional TruTops Laser

**Objectives**
You will develop the knowledge to use the TruTops functions more effectively, increase process reliability on the machine and reduce part times.

**Course content**
- Optimization possibilities for processing with increased reliability and efficiency
- Geometry processing
- Use of interactive processing functions and customer cycles
- Manipulation of NC texts
- Creating technology tables and rules
- Use of fixtures

**Requirements**
TruTops Laser technology or at least 3 months of experience in programming

---

### 3D lasers

- **TruLaser Series 1000**
- **TruLaser Series 2000**
- **TruLaser Series 3000**
- **TruLaser Series 5000**
- **TruLaser Series 7000**
- **TruLaser Series 8000**
- **TruLaser Center 7030**

**Course length in days**
- Beginner Operation: 3 – 5
- LiftMaster Operation: 1
- Changeover Operation: 3
- RotoLas Operation: 2
- Machine and laser Maintenance: 2 – 5
- Production support: 3
- Laser cutting Technology: 3
- Application consulting: 3
3D printing

The introduction of using metal for 3D printing has shifted the boundaries in industrial-scale production. Take advantage of this new technological development by using the additive manufacturing systems from TRUMPF, which are guaranteed to lead your business to even greater success. Benefit from our range of integrated solutions – all designed to be used on an industrial scale. These include various machines, lasers, software and services, and industrial parts and powder management. Why not also take part in our training courses and acquire the relevant knowledge to give you a leading edge in the market.

Machine types
TruPrint Series 1000 | TruPrint Series 3000 | TruPrint Series 5000
Machine courses

Beginner
Operation

Objectives
You will learn the basics of how to use the technology and the machine. You will master the skill of preparing, introducing and influencing the production sequence.

Course content
- Basics of the laser metal fusion process
- Machine set up and assembly and overview of machine functions
- Handling the user interface, the operating elements, diagnostics and online help
- Set-up processes and executing programs
- Handling powder

Production support

Objectives
You will gain confidence in handling your machine and acquire the basic skills for productive manufacturing.

Course content
Support for smooth production start-up. Content can be customized, for example:
- Joint preparation and setting up of the machine
- Running in of individual product- on parts
- Explanation of influencing factors on the production process
- Initial optimization of process parameters
- Programming support

Requirements
Basics courses on operation and programming

Application consulting

Objectives
You will improve the potential of your machine and the part quality and produce with greater productivity.

Course content
- Analyzing and optimizing production and programming
- Teaching of application expertise directly on your machine. The content can be customized to you
- Support and optimization of technology parameters
- Strategies to reduce production times
- Programming support
- Processing of special materials

Requirements
Basics courses on operation and programming

Programming courses

Magics Programming

Objectives
Processing and preparation of components in STL format for the laser metal fusion process. You will learn to adapt parameters to components and carry out initial optimization processes.

Course content
- Digital process chain
- Adapting and optimizing components in STL format
- Managing machines and laser metal fusion parameters
- Support generation for components
- Parameter adaptation for optimizing the LMF process
- Special functions for component analysis and series production

Requirements
Knowledge of CAD/CAM component programming

CAMbridge Programming

Objectives
Processing and preparation of dental components for the laser metal fusion process. You will learn how to adapt dental components and carry out initial optimization of the LMF process.

Course content
- Digital process chain
- Managing machines and laser metal fusion parameters
- Support generation for dental components
- Parameter adaptation for optimizing the LMF process
- Importing and processing of file formats

Requirements
Knowledge of CAD/CAM component programming

Siemens NX Programming

Objectives
Processing and preparation of dental components for the laser metal fusion process. You will learn how to adapt dental components and carry out initial optimization of the LMF process.

Course content
- Design of simple components
- Digital process chain
- Functions of the AM module
- Managing machines and laser metal fusion parameters
- Support generation for components
- Parameter adaptation for optimizing the LMF process
- Importing and processing of file formats

Requirements
In-depth knowledge of CAD/CAM component programming

Basic level
Advanced level
Expert level

Application consulting

Objectives
You will gain confidence in handling your machine and acquire the basic skills for productive manufacturing.

Course content
Support for smooth production start-up. Content can be customized, for example:
- Joint preparation and setting up of the machine
- Running in of individual product- on parts
- Explanation of influencing factors on the production process
- Initial optimization of process parameters
- Programming support

Requirements
Basics courses on operation and programming

Production support

Objectives
You will gain confidence in handling your machine and acquire the basic skills for productive manufacturing.

Course content
Support for smooth production start-up. Content can be customized, for example:
- Joint preparation and setting up of the machine
- Running in of individual product- on parts
- Explanation of influencing factors on the production process
- Initial optimization of process parameters
- Programming support

Requirements
Basics courses on operation and programming

Application consulting

Objectives
You will improve the potential of your machine and the part quality and produce with greater productivity.

Course content
- Analyzing and optimizing production and programming
- Teaching of application expertise directly on your machine. The content can be customized to you
- Support and optimization of technology parameters
- Strategies to reduce production times
- Programming support
- Processing of special materials

Requirements
Basics courses on operation and programming

Programming courses

Magics Programming

Objectives
Processing and preparation of components in STL format for the laser metal fusion process. You will learn to adapt parameters to components and carry out initial optimization processes.

Course content
- Digital process chain
- Adapting and optimizing components in STL format
- Managing machines and laser metal fusion parameters
- Support generation for components
- Parameter adaptation for optimizing the LMF process
- Special functions for component analysis and series production

Requirements
Knowledge of CAD/CAM component programming

CAMbridge Programming

Objectives
Processing and preparation of dental components for the laser metal fusion process. You will learn how to adapt dental components and carry out initial optimization of the LMF process.

Course content
- Digital process chain
- Managing machines and laser metal fusion parameters
- Support generation for dental components
- Parameter adaptation for optimizing the LMF process
- Importing and processing of file formats

Requirements
Knowledge of CAD/CAM component programming

Siemens NX Programming

Objectives
Processing and preparation of dental components for the laser metal fusion process. You will learn how to adapt dental components and carry out initial optimization of the LMF process.

Course content
- Design of simple components
- Digital process chain
- Functions of the AM module
- Managing machines and laser metal fusion parameters
- Support generation for components
- Parameter adaptation for optimizing the LMF process
- Importing and processing of file formats

Requirements
In-depth knowledge of CAD/CAM component programming

Basic level
Advanced level
Expert level
### 3D Printing

<table>
<thead>
<tr>
<th>Course Type</th>
<th>TruPrint Series 1000</th>
<th>TruPrint Series 3000</th>
<th>TruPrint Series 5000</th>
<th>Course Length (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner Operation</td>
<td></td>
<td></td>
<td></td>
<td>1–4</td>
</tr>
<tr>
<td>Production support</td>
<td></td>
<td></td>
<td></td>
<td>Individual</td>
</tr>
<tr>
<td>Application consulting</td>
<td></td>
<td></td>
<td></td>
<td>Individual</td>
</tr>
</tbody>
</table>

#### Programming Courses

<table>
<thead>
<tr>
<th>Programming Type</th>
<th>TruPrint Series 1000</th>
<th>TruPrint Series 3000</th>
<th>TruPrint Series 5000</th>
<th>Course Length (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magics Programming</td>
<td></td>
<td></td>
<td></td>
<td>3.5</td>
</tr>
<tr>
<td>CAMbridge Programming</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Siemens NX Programming</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

- = Attendance seminar; □ = E-Learning; ▲ = Blended Learning; ⚫ = Upon request.

### Training

- Machine Courses
- Programming Courses

#### 3D Printing – Overview of Range of Courses

- Laser welding
- Laser devices
- Laser tube cutting
- Marking
- Punching

### Basic Level
- Rough laser
- Process optimization
3D lasers

In this day and age, 3D components, 3D profiles and 3D tubes are used in almost every type of industry. At TRUMPF we can provide you with a full range of tools for your 3D laser processing. This doesn't just entail the actual laser devices, but also entire machines and systems. Our tailored courses will equip you with all of the practical knowledge that you need, in order to succeed in the world of 3D lasers.

Machine types
TruLaser Cell Series 3000 | TruLaser Cell Series 5000 | TruLaser Cell Series 7000
TruLaser Cell Series 8000

Programming courses

Machine courses

<table>
<thead>
<tr>
<th>Basics</th>
<th>DepositionLine</th>
<th>Configurable control interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation and programming</td>
<td>Operation</td>
<td>Operation and programming</td>
</tr>
<tr>
<td>Beginner</td>
<td>SeamLine</td>
<td>Laser welding</td>
</tr>
<tr>
<td>Operation</td>
<td>Machine and laser</td>
<td>Technology</td>
</tr>
<tr>
<td>TruTop Cell Basic</td>
<td>Production support</td>
<td>Application consulting</td>
</tr>
<tr>
<td>Programming</td>
<td>VisionLine Detect</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Machine types</th>
</tr>
</thead>
<tbody>
<tr>
<td>TruLaser Cell Series 3000</td>
</tr>
<tr>
<td>TruLaser Cell Series 8000</td>
</tr>
</tbody>
</table>

Our range of courses is categorized into three skill levels which each build on one another.
### Machine courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Basics</th>
<th>Beginner</th>
<th>TruTops Cell Basic</th>
<th>Machine and laser</th>
<th>Laser welding</th>
<th>VisionLine Detect</th>
<th>Configurable control interface</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Operation and programming</td>
<td>Operation</td>
<td>Programming</td>
<td>Maintenance</td>
<td>Technology</td>
<td>Operation and programming</td>
<td>Operation and programming</td>
</tr>
<tr>
<td><strong>Objectives</strong></td>
<td>You will gain basic knowledge for the beginner operator course and the technological foundations for programming with TruTops Cell.</td>
<td>You will learn the basics of how to use the technology and the machine. You will master the skill of preparing, introducing and influencing the production sequence.</td>
<td>You will understand how to correct graphically supported NC programs.</td>
<td>You will acquire the skills to carry out maintenance work on the machine in accordance with the specified maintenance intervals.</td>
<td>You will gain the theoretical and practical basics for laser welding.</td>
<td>You will acquire the theoretical and practical foundations for programming and operating the machine and will learn to use the configurable control interface to the full extent.</td>
<td></td>
</tr>
<tr>
<td><strong>Course content</strong></td>
<td>- Structure and assembly of the machines and their functions</td>
<td>- Structure and assemblies and the operating elements</td>
<td>- Introduction to and operation of the programming system</td>
<td>- General introduction to laser devices and conventional filler materials</td>
<td>- Analyzing and optimizing production and programming</td>
<td>- Programming the configurable control interface</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Basics of 3D processing and programming</td>
<td>- Setting work and handling</td>
<td>- Optimizing processing specifications and the technological foundations for the beginner operator course and conventional filler materials</td>
<td>- Operating, maintaining and calibrating the powder feeder</td>
<td>- Teaching of application expertise</td>
<td>- Programming the configurable control interface</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Programming of processing with different types of motion</td>
<td>- Basics of teaching</td>
<td>- Incident light measuring procedure and online help</td>
<td>- Handling and setting work on the laser optics</td>
<td>- Creating, configuring and activating a module</td>
<td>- Handling the user interface, the operating elements, diagnostics and online help</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Optimizing the travel behavior of the machine</td>
<td>- Running in and optimization on the machine</td>
<td>- Incident light / light section measuring procedure</td>
<td>- nozzle adjustment</td>
<td>- Creating, configuring and activating a module</td>
<td>- Creating, configuring and activating a module</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Subroutine technology</td>
<td>- Machine and technology options</td>
<td>- Calibrating the seam sensor</td>
<td>- Initial tests based on flat samples</td>
<td>- Integrating module configuration into automatic operation</td>
<td>- Integrating module configuration into automatic operation</td>
<td></td>
</tr>
<tr>
<td><strong>Requirements</strong></td>
<td>Basics course in operation and programming</td>
<td>Basics course in operation and programming</td>
<td>Basics course in operation and programming</td>
<td>Basics course in operation and programing</td>
<td>Basics course in operation and programing</td>
<td>Beginners operation course or at least 3 months of experience in using the machine</td>
<td></td>
</tr>
</tbody>
</table>

### Course content summary:
- **DepositionLine**: You will be confident in dealing with the theoretical and practical influencing factors on laser metal deposition.
- **SeamLine**: You will learn how to use SeamLine and will be able to prepare, introduce and influence the measurement process.
- **Machine and laser**: You will acquire the skills to carry out maintenance work on the machine in accordance with the specified maintenance intervals.
- **Laser welding**: You will gain the theoretical and practical basics for laser welding.
- **VisionLine Detect**: You will learn how to use VisionLine Detect, operate the image processing and easily adapt it to your components.
- **Configurable control interface**: You will acquire the theoretical and practical foundations for programming and operating the machine and will learn to use the configurable control interface to the full extent.

### Requirements:
- Beginners operation course or at least 3 months of experience in using the machine.
- Beginners operation course or at least 3 months of experience in using the technology and running in of individual product parts.
- Beginners operation course or at least 3 months of experience in using the machine and experience in NC programming and mathematical skills (e.g. sin/cos).
### Programming courses

#### Basics

**Objectives**
- You will gain basic knowledge for the operator course and the technological foundations for programming with TruTops Cell.

**Course content**
- Structure and assembly of the machines and their functions
- Basics of 3D processing and programming
- Introduction to the CAD system
- Subroutine technology

**Requirements**
- Basics course in operation and programming or extensive experience in using the machine

#### Technology

**Objectives**
- You will understand how to create practical NC programs.

**Course content**
- Introduction to the programming system
- Importing and processing of 3D models
- Positioning of 3D models in the work area
- Optimizing processing
- Retrospective corrections of the processing data
- Creation of NC programs

**Requirements**
- Basics course in operation and programming or extensive experience in using the machine

#### Design module I 2D

**Objectives**
- You will learn how to create 2D geometries and 3D models. You will develop the skills to redesign and unfold these in line with production requirements.

**Course content**
- Introduction to the CAD system
- Creation of simple 2D drawings
- Importing and processing of 2D geometries

**Requirements**
- Recommendation: participation in a TruTops Boost technology programming course

#### Design 2D and 3D for experienced 3D designers

**Objectives**
- You will acquire the skills to create and import 2D geometries. You will understand how to redesign these in line with production requirements.

**Course content**
- Introduction to the CAD system
- Creation of simple 2D drawings and 3D models
- Importing and processing of 2D geometries and 3D models
- Unfolding of individual 3D parts in line with production requirements
- Reduced practice phases in comparison to individual courses

**Requirements**
- Comprehensive experience in the use of parameterized 3D CAD systems

#### Cut 2D laser module I

**Objectives**
- You will learn how to create practical NC programs for cutting 3D parts.

**Course content**
- Creating parameterized contour fields for coating
- Optimizing the processing specifications regarding coating technology

**Requirements**
- Technology TruTops Cell

#### Manual SeamLine

**Objectives**
- You will gain the skills to program the measurement functions for CoatingLine, the measuring sensors and SeamLine, both manually and in TruTops Cell.

**Course content**
- Manual programming of the measurement functions
- Programming of the calculation cycles for correcting the coordinate system
- Programming the measurement functions in TruTops Cell

**Requirements**
- Technology TruTops Cell

#### Rotary axis

**Objectives**
- You will acquire the skills to create practical NC programs for parts clamped in the rotary axis.

**Course content**
- Rotary axis technology
- Programming of rotating components, with and without bevel cut

**Requirements**
- Technology TruTops Cell

#### Fixture construction

**Objectives**
- You will gain proficiency in designing fixtures from sheet metal for cutting parts.

**Course content**
- Design of cutting fixtures on 3D model
- Programming and export of single parts of the fixture

**Requirements**
- Technology TruTops Cell

#### Fixture construction

**Objectives**
- You will acquire the skills to create practical NC programs for parts clamped in the rotary axis.

**Course content**
- Rotary axis technology
- Programming of rotating components, with and without bevel cut

**Requirements**
- Technology TruTops Cell

#### Cut 2D laser module II

**Objectives**
- You will deepen your knowledge of creating and adapting materials, laser tables and rules.

**Course content**
- Introduction to processing strategies for safe cutting processes and their optimization
- Creation and processing of special materials

**Requirements**
- Cut 2D laser module I TruTops Boost
Programming courses

**Design module II 3D**
- **TruTops Boost**

**Objectives**
- You will understand how to create and import 3D models. You will learn how to redesign and unfold these in line with production requirements.

**Course content**
- Creation of simple 3D models
- Importing and processing of 3D models
- Unfolding of individual 3D parts in line with production requirements

**Requirements**
- Design module I 2D TruTops Boost

---

**Professional**
- **Manual Programming Cell**

**Objectives**
- You will become proficient in the further optimization of NC programs.

**Course content**
- Further NC functions that are not supported by TruTops Cell (e.g., laser power control, laser welding)
- Further options for zero point correction (e.g., flipping, scaling)
- Limiting distance regulation

**Requirements**
- Basics course in operation and programming

---

**Variable programming**
- **Manual Programming Cell**

**Objectives**
- You will be able to enhance NC programs using variable programming (e.g., superordinate automation program, processing macros, etc.).

**Course content**
- Types of variables
- Operators
- Functions
- Jump commands
- Control structures
- Subprograms
- Global programs

**Requirements**
- Basics course in operation and programming

---

**Design module III 2D and 3D**
- **TruTops Boost**

**Objectives**
- You will deepen your knowledge of 3D modeling and of the application of TruTops Boost – Design.

**Course content**
- Creation of complex 3D models
- Importing, analysis and processing of assemblies and solids
- Adaptation of system settings

**Requirements**
- Design module II 3D TruTops Boost or Design 2D and 3D for experienced 3D designers TruTops Boost

---

**PROGRAMMING COURSES**

**Basics**
- Operation and programming

**Beginner**
- Operation

**TruTops Cell Basic Programming**
- DepositorLine Operation
- SeamLine Operation
- Machine and laser Maintenance

**DepositionLine Operation**
- 1.5

**SeamLine Operation**
- 0.5

**Machine and laser Maintenance**
- 1

**Production support**
- 1–3

**VisionLine Detect**
- Operation and programming

**Configurable control interface**
- 2.5

**Laser welding**
- Technology

**Application consulting**
- 2.5

---

**3D LASERS**

**Cut 2D laser module I**
- TruTops Boost

**Design module I 2D**
- TruTops Boost

**Design 2D and 3D for experienced 3D designers**
- TruTops Boost

**Cut 2D laser module II**
- TruTops Boost

**Design module II 3D**
- TruTops Boost

**Design module III 2D and 3D**
- TruTops Boost

---

**Objectives**
- You will become proficient in the further optimization of NC programs.

**Course content**
- Further NC functions that are not supported by TruTops Cell (e.g., laser power control, laser welding)
- Further options for zero point correction (e.g., flipping, scaling)
- Limiting distance regulation

**Requirements**
- Basics course in operation and programming

---

**Objectives**
- You will be able to enhance NC programs using variable programming (e.g., superordinate automation program, processing macros, etc.).

**Course content**
- Types of variables
- Operators
- Functions
- Jump commands
- Control structures
- Subprograms
- Global programs

**Requirements**
- Basics course in operation and programming
Bending

At TRUMPF, you'll always be able to find the right solution for your bending processes, no matter whether they are manual or fully automatic. We are certain that you'll be impressed with our range of dynamic, state of the art bending machines. Their various functions not only save resources but also make the entire operating process easier and guarantee the highest level of quality. We want your bending processing to be enjoyable and a success from the very start. Our training covers a wide array of topics, including programming, operation and maintenance of your TRUMPF bending machine.

**Machine types**

TruBend Series 3000 | TruBend Series 5000 | TruBend Series 7000 | TruBend Series 8000  
TruBend Cell Series 5000 | TruBend Cell Series 7000  
TruBend Center Series 5000 | TruBend Center Series 7000

**Programming courses**

- **Basics**
  - TruBend operation
  - Programming

- **Beginner**
  - TruBend operation
  - TruBend Center operation
  - TecZone Bend machine
    - Programming (operator)
  - TruBend machine
    - Tandem version
  - Profile-T 2D and 3D
    - Delem programming

- **Advanced**
  - Changeover from TruTops
    - TruTops Boost
  - Design module II 3D
    - TruTops Boost
  - Design 2D and 3D for experienced 3D designers
    - TruTops Boost
  - Drawing
    - TruTops
  - Technology
    - TruTops Bend
  - Stand alone
    - TecZone Bend/Fold

- **Expert**
  - Automation
    - TruTops Bend

Our range of courses is categorized into three skill levels which each build on one another.
### Machine courses

**Basics**
- TruBend operation

**Objectives**
You will gain basic technical knowledge regarding the technology and the machine as preparation for the operator course.

**Course content**
- Basics on the bending process
- Machine structure and assemblies and their functions
- Basics of the tool system
- Machine and technology options
- Press beam cycle
- Calculations and tool selection criteria

**Requirements**
TruBend operation basics or 3 months of experience in using the machine

| Beginner | \n|---|---|
| **Objectives** | You will become familiar with the new features of your machine and be able to operate it. It will be possible to optimize production sequences and programs. |
| **Course content** | Structure of the machines, the user interface, the operating elements, diagnostics and online help Set-up processes, executing and handling programs Tool system Program creation at the user interface Optimizing the bending technology Machine and technology options |
| **Requirements** | Programming basics or extensive experience in using the machine |

#### TecZone Bend machine

**Programming (operator)**

**Objectives**
You will develop the knowledge to create practical NC programs for the machine.

**Course content**
- Introduction to the programming interface
- Importing of drawings in line with production requirements
- Managing parts in the HomeZone
- Defining bending strategies in TecZone Bend
- Modification of the bending sequence
- Creation of NC programs

**Requirements**
Programming basics or extensive experience in using the machine

| Beginner | \n|---|---|
| **Objectives** | You will gain proficiency in operating, programming and setting up a tandem system and ensuring part quality. |
| **Course content** | Introduction to the user interface Numerical and graphical program creation Program optimization and handling Executing various programs with/without LCB sensor tool and/or bending aid |
| **Requirements** | Programming basics or extensive experience in using the machine |

| Profile-T 2D and 3D | \n|---|---|
| **Delem programming** | \n| **Objectives** | You will learn how to define bending strategies and understand how to output practical NC programs. |
| **Course content** | Basics of bending technology Importing and processing of 2D geometries Defining bending strategies Modification of the bending sequence Product visualization for collision checks Creation of feasibility studies and tool checks |
| **Requirements** | Operation basics course or at least 3 months’ experience in using the machine |

#### Machine courses

**Machine**
- TruBend Center operation

**Objectives**
You will learn how to operate and program your machine.

**Course content**
- Structure of the machines, the user interface, the operating elements, diagnostics and online help
- Set-up processes, executing and handling programs
- Tool system
- Bending part definition and gauge finger positions
- Machine and technology options

**Requirements**
Operation basics course or at least 3 months’ experience in using the machine

| Beginner | \n|---|---|
| **Objectives** | You will become familiar with the new features of your machine and be able to operate it. It will be possible to optimize production sequences and programs. |
| **Course content** | Structure of the machines, the user interface, the operating elements, diagnostics and online help Set-up processes, executing and handling programs Tool system Bending part definition and gauge finger positions Machine and technology options |
| **Requirements** | Operation basics course or at least 3 months’ experience in using the machine |

#### Machine Maintenance

**Objectives**
You will acquire the skills to carry out maintenance work on the machine in accordance with the specified maintenance intervals.

**Course content**
- Setting work and handling
- Diagnostics options
- Maintenance work on the machine, machine options and tool options

**Requirements**
Operator course

| Beginner | \n|---|---|
| **Objectives** | You will improve the potential of your machine and the part quality and produce with greater productivity. |
| **Course content** | Support for smooth production start-up. Content can be customized, for example: Joint preparation and setting up of the machine Running in of individual production parts Explanation of influencing factors on the production process |
| **Requirements** | Basics course in operation and programming |

### Production support

**Objectives**
You will gain proficiency in handling your machine and acquire the basic skills for productive manufacturing.

**Course content**
- Analyzing and optimizing production and programming
- Teaching of application expertise directly on your machine

**Requirements**
Machine basics course

| Beginner | \n|---|---|
| **Objectives** | You will gain confidence in handling and program your machine. |
| **Course content** | Delem programming |
| **Requirements** | Basics course in operation and programming |

### Application consulting

**Objectives**
You will improve the potential of your machine and the part quality and produce with greater productivity.

**Course content**
- Support for smooth production start-up. Content can be customized, for example: Joint preparation and setting up of the machine Running in of individual production parts Explanation of influencing factors on the production process |

**Requirements**
Machine basics course

| Beginner | \n|---|---|
| **Objectives** | You will learn how to manage the machine database. |
| **Course content** | Maintenance and optimization of the database Adaptation of unfolding to the correct deduction values Creation of materials and special upper and lower tools |
| **Requirements** | Machine basics course |

### Database management

**Objectives**
You will understand how to manage the machine database.

**Course content**
- Support for smooth production start-up. Content can be customized, for example: Joint preparation and setting up of the machine Running in of individual production parts Explanation of influencing factors on the production process |

**Requirements**
Machine basics course

| Beginner | \n|---|---|
| **Objectives** | You will learn how to operate and program your machine. |
| **Course content** | Structure of the machines, the user interface, the operating elements, diagnostics and online help Set-up processes, executing and handling programs Tool system Bending part definition and gauge finger positions Machine and technology options |
| **Requirements** | Operation basics course or at least 3 months’ experience in using the machine |
### Programming courses

#### Design 2D and 3D for experienced 3D designers
- **TruTops Boost**

**Objectives**
- You will acquire the skills to create and import 2D geometries and 3D models.
- You will develop the skills to redesign and unfold these in line with production requirements.

**Course content**
- Introduction to the CAD system
- Creation of simple 2D drawings and 3D models
- Importing and processing of 2D geometries and 3D models
- Unfolding of individual 3D parts in line with production requirements
- Reduced practice phases in comparison to individual courses

**Requirements**
- Comprehensive experience in the use of parameterized 3D CAD systems

---

#### Design module I 2D
- **TruTops Boost**

**Objectives**
- You will learn how to create and import 2D geometries.
- You will understand how to redesign these in line with production requirements.

**Course content**
- Introduction to the programming system
- Importing of the drawing and management in the HomeZone
- Creation of simple 2D drawings
- Importing and processing of 2D geometries

**Requirements**
- Recommendation: participation in a TruTops Boost technology programming course

---

#### Design module II 3D
- **TruTops Boost**

**Objectives**
- You will learn how to program automation processes and how to create practical NC programs.

**Course content**
- Structure and function of the automation process
- Definition and programming of automation strategies in line with processes
- Output of NC programs

**Requirements**
- Design module II 3D TruTops Boost or Design 2D and 3D for experienced 3D designers TruTops Boost

---

#### Design module I 3D
- **TruTops Bend**

**Objectives**
- You will become confident in creating and importing 3D models.
- You will develop the skills to redesign and unfold these in line with production requirements.

**Course content**
- Creation of simple 3D models
- Importing and processing of 3D models and unfolding of individual 3D parts in line with production requirements

**Requirements**
- Design module I 2D TruTops Boost

---

#### Design module II 3D
- **TruTops Bend**

**Objectives**
- You will deepen your knowledge of 3D modeling and of the application of TruTops Boost – Design.

**Course content**
- Creation of complex 3D models
- Importing, analysis and processing of assemblies and solids
- Adaptation of system settings

**Requirements**
- Design module II 3D TruTops Boost or Design 2D and 3D for experienced 3D designers TruTops Boost
### Training

**Course length in days**

<table>
<thead>
<tr>
<th>TruBend Series 3000</th>
<th>TruBend Series 5000</th>
<th>TruBend Series 7000</th>
<th>TruBend Series 8000/Tandem</th>
<th>TruBend Cell Series 5000</th>
<th>TruBend Cell Series 7000</th>
<th>TruBend Center Series 5000</th>
<th>TruBend Center Series 7000</th>
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<td>1-5</td>
<td>2-3</td>
<td>4-5</td>
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### Machine Courses

<table>
<thead>
<tr>
<th>Basic</th>
<th>Advanced</th>
<th>Expert</th>
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<tbody>
<tr>
<td>TruBend operation</td>
<td>Beginner</td>
<td>TruBend Center operation</td>
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<tr>
<td>1-5</td>
<td>2-3</td>
<td>5-8</td>
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<tr>
<td>TecZone Bend machine</td>
<td>Programming (operator)</td>
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<td>2-3</td>
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<tr>
<td>Profile-T 2D and 3D</td>
<td>Delcam programming</td>
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</tr>
<tr>
<td>Beginner</td>
<td>TruBend Cell operation</td>
<td>Machine Maintenance</td>
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<tr>
<td>Bending Technology</td>
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<tr>
<td>Production support</td>
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<tr>
<td>Application consulting</td>
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<tr>
<td>Database management</td>
<td>Delcam programming</td>
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### Programming Courses

<table>
<thead>
<tr>
<th>Basic</th>
<th>Advanced</th>
<th>Expert</th>
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<tbody>
<tr>
<td>TruTops Boost</td>
<td>Programming</td>
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<tr>
<td>TecZone Bend</td>
<td>TruTops Boost</td>
<td>Design module I 2D</td>
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<tr>
<td>Design 2D and 3D for experienced 3D designers</td>
<td>TruTops Boost</td>
<td>Changeover from TruTops</td>
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<td>Design module II 3D</td>
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<td>Design module III 2D and 3D</td>
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<td>Drawing</td>
<td>TruTops Bend</td>
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<tr>
<td>Stand alone</td>
<td>TecZone Bend</td>
<td>Field</td>
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</tbody>
</table>

### Bending Overview

- **TruBend Center 7030**

- **TRUTOPS BOOST**
  - Basics
  - Programming
  - Design module I 2D
  - Design module II 3D
  - Design module III 2D and 3D

- **TRUTOPS**
  - Basics
  - Programming
  - Drawing
  - Technology
  - Automation

- **TECZONE**
  - Basics
  - Programming
  - Drawing
  - Technology

- **Process optimization**
- Laser welding
- Laser devices
- Laser tube cutting
- Laser cutting
- Laser welding
- Laser marking
Laser tube cutting has become a lucrative business venture. Laser-cut tubes are used in all manner of industries, including plant engineering and furniture construction. This is a market that is currently experiencing a steep growth trajectory and will continue to offer excellent return on investment for a long time to come. The laser cutting machines from TRUMPF will open up a whole new world of design possibilities, which will give you and your customers that crucial competitive edge. In our training courses, you will gain all the necessary skill that you need to succeed.

**Machine types**
TruLaser Tube Series 5000 | TruLaser Tube Series 7000

<table>
<thead>
<tr>
<th>Machine courses</th>
<th>Machine and laser Maintenance</th>
<th>Production support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>Changeover</td>
<td>Tube cutting</td>
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<tr>
<td>Operation</td>
<td>Operation</td>
<td>Technology</td>
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<tr>
<td>Adaptive clamping system</td>
<td>Operation</td>
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<tr>
<td>Technology package for tapping</td>
<td>Operation</td>
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<tr>
<td>TruTops Tube</td>
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</table>

<table>
<thead>
<tr>
<th>Programming courses</th>
<th>3D tube construction for experienced 3D designers</th>
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</thead>
<tbody>
<tr>
<td>Basics</td>
<td>TruTops</td>
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<tr>
<td>Programming</td>
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<td>Drawing</td>
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<td>TruTops</td>
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<tr>
<td>Technology</td>
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<tr>
<td>TruTops Tube</td>
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</tbody>
</table>

Our range of courses is categorized into three skill levels which build on one another.
### Machine courses

#### Changeover Operation

**Objectives**
- You will become familiar with the new features compared to your previous machine and will learn how to use these new features in your production sequences.

**Course content**
- New features in the structure of the machine, the user interface, the operating elements, diagnostics and online help
- Changes regarding the structure and setting of the cutting unit
- New machine and technology options

**Requirements**
- Operator course on a predecessor machine

#### Adaptive clamping system Operation

**Objectives**
- You will be confident in handling both options and can load special profiles fully automatically and produce them with process reliability.

**Course content**
- Structure and function of the adaptive clamping system and profile detection
- Handling the user interface and the operating elements
- Manual set-up in conjunction with open profiles
- Automatic set-up of closed profiles with profile detection
- Set-up processes and executing programs

**Requirements**
- Operator course, operation

### Machine and laser Maintenance

**Objectives**
- You will acquire the skills to carry out maintenance work on the machine in accordance with the specified maintenance intervals.

**Course content**
- Setting work and handling
- Diagnostics options
- Maintenance work on the machine and machine options

**Requirements**
- Basic electrical knowledge for maintenance work at the electrical cabinet

### Production support Operation

**Objectives**
- You will gain confidence in handling your machine and acquire the basic skills for productive manufacturing.

**Course content**
- Support for smooth production start-up. Content can be customized, for example:
  - Joint preparation and setting up of the machine
  - Running in of individual production parts
  - Explanation of influencing factors on the production process
  - Initial optimization of process parameters
  - Programming support

**Requirements**
- Basics courses on operation and programming

### Technology package for tapping Operation

**Objectives**
- You will acquire the know-how to set up and operate the tools and learn how to produce threads with process reliability.

**Course content**
- Structure and function of this option
- Handling the user interface and the operating elements
- Manual set-up of the tools
- Creating bores using (flow) drilling
- Creating thread using thread cutter/forming tap

**Requirements**
- Beginner/changeover, operation

### Application consulting

**Objectives**
- You will improve the potential of your machine and the part quality and produce with greater productivity.

**Course content**
- Analyzing and optimizing production and programming
- Teaching of application expertise directly on your machine. The content can be customized to your needs
- Support through and optimization of technology parameters
- Strategies to reduce production times
- Programming support
- Processing of special materials

**Requirements**
- Basics course in operation and programming

---

### Machine courses

#### Tube cutting Technology

**Objectives**
- You will learn how to optimize your cutting quality and determine the cutting parameters for special materials.

**Course content**
- Cutting-specific basics for lasers
- Influential parameters on laser cutting, such as Process, machine, laser and workpiece parameters
- Laser power control influential parameters
- Laser cutting of special materials
- Quality assessment and optimization of laser cuts

**Requirements**
- Beginner/changeover operation course and programming experience with TruTops Tube or at least 3 months of experience in using the machine

#### Special profiles Technology

**Objectives**
- You will gain confidence in planning and processing special profiles systematically.

**Course content**
- Systematic procedure for processing of open special profiles and subsequent practical implementation

**Requirements**
- Operator course and programming experience with TruTops Tube or at least 3 months of experience in using the machine
Programming courses

Basics Programming

Objectives
You will gain the necessary basic technological knowledge for participation in a programming course for TruLaser Tube.

Course content
- Structure and assembly of the machines and their functions
- Basics of laser and tube processing
- Machine and technology options
- Framework conditions and correlations when programming the machine

Course content
- Introduction to the programming system
- Creation of round and rectangular tubes and any profiles
- Programming of tube processing
- Modification of the tube technology
- Output of NC programs and production plans

Requirements
Basics course in programming or extensive experience in using the machine and TruTops drawing

3D tube construction TruTops

Objectives
You will understand how to design individual tubes and complex 3D tube models and how to create tube unfoldings for further processing in TruTops Tube.

Course content
- Creating, importing and processing of 3D models
- Contour preparation for special profile and bevel cut processing
- Programming and optimizing tube processing
- Exporting tube designs
- Reduced practice phases

Requirements
TruTops drawing and TruTops Tube technology

Technology TruTops Tube

Objectives
You will gain proficiency in creating practical tube programs.

Course content
- Introduction to the programming system
- Creation of round and rectangular tubes and any profiles
- Programming of tube processing
- Modification of the tube technology
- Output of NC programs and production plans

Requirements
Basics course in programming or extensive experience in using the machine and TruTops drawing

Drawing TruTops

Objectives
You will acquire the skills to draw part geometries and to import drawings in TruTops. You will develop the knowledge to create and import workpiece geometries. You will understand how to redesign these in line with production requirements.

Course content
- Introduction to the CAD system
- Creation of simple workpiece geometries
- Importing and processing of 2D geometries

Requirements
TruTops drawing and TruTops technology

3D tube construction for experienced 3D designers TruTops

Objectives
You will understand how to design individual tubes and complex 3D tube models and how to create tube unfoldings for further processing in TruTops Tube.

Course content
- Creating, importing and processing of 3D models
- Contour preparation for special profile and bevel cut processing
- Programming and optimizing tube processing
- Exporting tube designs
- Reduced practice phases

Requirements
TruTops drawing and TruTops Tube technology and comprehensive experience in using parameterized 3D CAD systems

3D tube construction for experienced 3D designers TruTops

Objectives
You will understand how to design individual tubes and complex 3D tube models and how to create tube unfoldings for further processing in TruTops Tube.

Course content
- Creating, importing and processing of 3D models
- Contour preparation for special profile and bevel cut processing
- Programming and optimizing tube processing
- Exporting tube designs
- Reduced practice phases

Requirements
TruTops drawing and TruTops Tube technology and comprehensive experience in using parameterized 3D CAD systems

Laser tube cutting overview of range of courses

Objectives
You will understand how to design individual tubes and complex 3D tube models and how to create tube unfoldings for further processing in TruTops Tube.

Course content
- Creating, importing and processing of 3D models
- Contour preparation for special profile and bevel cut processing
- Programming and optimizing tube processing
- Exporting tube designs
- Reduced practice phases

Requirements
TruTops drawing and TruTops Tube technology and comprehensive experience in using parameterized 3D CAD systems
Laser welding

Almost no other production step in the sheet metal process chain has the potential to produce such high savings as the joining of sheet metal. Using lasers for this process means that you can manufacture seams of the highest quality, very often without the need for any rework. They also have the potential for welding extremely quickly and efficiently. Register for one of our training sessions, so that you’re armed with the necessary skills for producing more orders more quickly, using your TRUMPF laser welding system.

Machine types
TruLaser Robot Series 5000 | TruLaser Weld Series 5000
### Machine courses

**Module I**  
**Operation and programming**

**Objectives**  
You will learn the basics of how to use the technology and the machine. You will master the skill of preparing, introducing and influencing the production sequence.

**Course content**  
- Preparatory e-Learning  
- Machine set up and assembly  
- Overview of machine functions  
- Handling the user interface, the operating elements, diagnostics and online help  
- Setup processes, executing and optimizing programs  
- Additional axes  
- Creating welding programs and using welding parameters  
- Video tutorials providing support after your training course

**Requirements**  
Module I Operation and programming

---

**Module II**  
**Operation and programming**

**Objectives**  
You will become proficient in creating more in-depth program structures, in creating new tools and bases and in adapting the welding parameters to your needs.

**Course content**  
- Measuring and positioning of new tools  
- Switching of digital signals  
- Use of syntax programming  
- Adaptation of extended welding parameters

**Requirements**  
Module I Operation and programming

---

**TeachLine**  
**Technology**

**Objectives**  
You will learn the basics of how to determine theoretical and practical basics for operating and programming the TeachLine sensor system and be able to use TeachLine in an appropriate manner when laser welding.

**Course content**  
- Incident light and light section measuring procedure  
- Offline measurement system for edge position detection  
- Operation of PC sensor system  
- Setting fundamental parameters for the image analysis  
- TeachLine programming

**Requirements**  
Module I and II operation and programming and at least 3 months’ experience in operating and programming

---

**FusionLine**  
**TruLaser Weld technology**

**Objectives**  
You will know how to determine and optimize welding parameters and become confident in using the welding wire.

**Course content**  
- Introduction to tolerant laser welding  
- Welding wire feed and roll change  
- Calibrating the powder feeder  
- Welding wire technology on the robot control  
- Welding wire technology

**Requirements**  
Module I and II operation and programming and at least 3 months’ experience in robot operation and programming

---

**Welding wire**  
**TruLaser Robot technology**

**Objectives**  
You will improve the potential of your machine and the part quality and produce with greater productivity.

**Course content**  
- General introduction to laser metal deposition, technology and conventional filler materials  
- Operating, maintaining and calibrating the powder feeder  
- Handling and setting work on the laser optics  
- Nuzzle adjustment  
- Initial tests based on flat samples

**Requirements**  
Module I and II operation and programming and at least 3 months’ experience in robot operation and programming

---

**DepositionLine**  
**TruLaser Robot operation**

**Objectives**  
You will become proficient in developing solutions for image processing with utmost process reliability and in creating parameters for this purpose.

**Course content**  
- Support for smooth production start-up. Content can be customized, for example:  
- Joint preparation and setting up of the machine  
- Running in of individual production parts  
- Explanation of influencing factors on the production process  
- Initial optimization of process parameters  
- Programming support

**Requirements**  
TeachLine technology course

---

**DepositionLine**  
**TeachLine image processing**

**Objectives**  
You will become proficient in developing solutions for image processing with utmost process reliability and in creating parameters for this purpose.

**Course content**  
- Support for smooth production start-up. Content can be customized, for example:  
- Joint preparation and setting up of the machine  
- Running in of individual production parts  
- Explanation of influencing factors on the production process  
- Initial optimization of process parameters  
- Programming support

**Requirements**  
TeachLine technology course

---

**Application consulting**

**Objectives**  
You will improve the potential of your machine and the part quality and produce with greater productivity.

**Course content**  
- Analyzing and optimizing production and programming  
- Teaching of application expertise directly on your machine. The content can be customized to you  
- Support through and optimization of technology parameters  
- Strategies to reduce production times  
- Programming support  
- Processing of special materials

**Requirements**  
Basic course in operation and programming

---

**Laser cutting**  
**TruLaser Robot technology**

**Objectives**  
You will be confident in handling the operation and programming of the cutting optics and be able to determine and improve cutting parameters.

**Course content**  
- Cutting-specific basics for lasers  
- Robot programming for laser cutting programs  
- Influential parameters on the laser cut, such as process, machine, laser and workpiece parameters  
- Cutting different materials

**Requirements**  
Module I and II operation and programming and at least 3 months’ experience in robot operation and programming
Programming courses

Module I
Operation and programming

Objectives
You will learn the basics of how to use the technology and the machine.
You will master the skill of preparing, introducing and influencing the production sequence.

Course content
■ Preparatory e-Learning
■ Machine set up and assembly and overview of machine functions
■ Handling the user interface, the operating elements, diagnostics and online help
■ Set-up processes, executing and optimizing programs
■ Additional axes
■ Creating welding programs and using welding parameters
■ Video tutorials providing support after your training course

Requirements
Module I and II operation and programming

Module II
Operation and programming

Objectives
You will be able to create more in-depth program structures, create new tools as well as bases, and will be able to adapt the welding parameters to your needs.

Course content
■ Measuring and positioning of new tools
■ Switching of digital signals
■ Use of syntax programming
■ Adaptation of extended welding parameters

Requirements
Module I Operation and programming

TeachLine
TruTops Cell

Objectives
You will be able to program the measuring functions.

Course content
■ Programming of measuring functions and calculation functions

Requirements
Technology TruTops Cell

TeachLine
TruTops Cell

Objectives
You will be able to program the measuring functions.

Course content
■ Programming of measuring functions and calculation functions

Requirements
Technology TruTops Cell

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Course content
■ Programming of measuring functions and calculation functions

Requirements
Technology TruTops Cell
Laser devices

CO₂ or solid-state? We realize that there is a lot of discussion around the “right” kind of laser. But in our experience, there is no wrong or right answer to this question. It is your application alone that decides which laser device is the right one for you. TRUMPF’s large portfolio of lasers means that you’ll be able to find the perfect laser for your business. What’s more, why not take advantage of our comprehensive training program, so that you can achieve the best results day after day.

Machine types
TruDisk | TruMicro | TruPulse | TruDisk Pulse | TruDiode | TruFiber | Process sensor systems
Machine courses

**TruDisk**
- **Operation**
  - **Objectives**
    - You will be able to operate the laser device correctly, make changes to laser programs and create new programs.
  - **Course content**
    - Basics of laser technology, laser safety
    - Structure and function of the TruDisk solid-state laser, generations 4C, 6C and FD27
    - Structure of the laser control
    - Operation of the laser using TruControl 1000
  - **Structure of the laser control**
    - Baseline of laser technology, laser safety
    - Structure and function of the laser head and the supply unit
    - Structure of the laser control
    - Operation of the laser using TruControl 1000
    - Maintenance work
    - Diagnostics and practical troubleshooting
    - Electrical repair work

**TruDisk Pulse**
- **Operation**
  - **Objectives**
    - You will be able to operate the laser device correctly, make changes to laser programs and create new programs.
  - **Course content**
    - Basics of laser technology, laser safety
    - Structure and function of the TruDisk solid-state laser
    - Structure of the laser control
    - Operation of the laser using TruControl 1000
    - Mechanical maintenance

**TruMicro**
- **Maintenance**
  - **Objectives**
    - You will acquire the know-how to perform maintenance work on the laser, replace assemblies and control components, rectify malfunctions and perform fault diagnosis.
  - **Course content**
    - Basics of laser technology, laser safety
    - Structure and function of laser head and the supply unit
    - Structure of the laser control
    - Operation of the laser using TruControl 1000
    - Maintenance work
    - Diagnostics and practical troubleshooting
    - Electrical repair work

**TruFiber**
- **Operation**
  - **Objectives**
    - You will be able to operate the laser device correctly, make changes to laser programs and create new programs.
  - **Course content**
    - Basics of laser technology, laser safety
    - Structure and function of laser head and the supply unit
    - Structure of the laser control
    - Operation of the laser using TruControl 1000

**TruDiode**
- **Operation**
  - **Objectives**
    - You will be able to operate the laser device correctly, make changes to laser programs and create new programs.
  - **Course content**
    - Basics of laser technology, laser safety
    - Structure and function of laser head and the supply unit
    - Structure of the laser control
    - Operation of the laser using TruControl 1000

**TruLaser Station**
- **Operation**
  - **Objectives**
    - You will be able to operate the laser device correctly, make changes to laser programs and create new programs.
  - **Course content**
    - Basics of laser technology, laser safety
    - Structure and function of laser head and the supply unit
    - Structure of the laser control
    - Operation of the laser using TruControl 1000
    - Maintenance of the machine

**PFO**
- **Operation**
  - **Objectives**
    - You will know how to operate the programmable focusing optics (PFO) and become familiar with their structure. You will also be able to create, integrate and call up PFO programs.
  - **Course content**
    - Structure and function of the programmable focusing optics
    - Interfaces between the optics and the laser device
    - Programming the system with axis functions, rotation, scaling and reflection, and integration of laser programs
    - Maintenance of the machine

**Application Technology**
- **Objectives**
  - You will gain an overview of laser welding using the solid-state laser, and will be able to assess different welding results.
  - **Course content**
    - Basic knowledge of laser welding
    - Material properties of selected metals
    - Influence of the welding parameters on the welding result
    - Overview of BrightLine Weld

**Requirements**
- TruDisk/TruDisk Pulse operation and TruDisk/TruDisk Pulse maintenance
### Process sensor systems

#### VisionLine Detect – PFO Programming
**Objectives**
You will gain the knowledge to detect contours using VisionLine Detect programming and to implement a complete application using self-created PFO programs.

**Course content**
- Structure, function and programming of programmable focusing optics (PFO) using the editor in TruControl 1000
- Calibration of VisionLine Detect with PFO
- Creating programs for VisionLine Detect PFO

**Requirements**
Operator or maintenance course for a PFO operation

#### TruTops PFO Programming
**Objectives**
You will gain the knowledge to detect contours using VisionLine Detect programming and to implement a complete application using self-created PFO programs.

**Course content**
- Structure, function and programming of the programmable focusing optics (PFO) using the editor in TruControl 1000
- Calibration of VisionLine Detect with PFO
- Creating programs for VisionLine Detect PFO

**Requirements**
Operator or maintenance course for a laser device

#### VisionLine Detect – PFO
**Objectives**
You will become adept at creating simple 2D CAD drawings, converting and integrating them in a laser program and implementing a complete application.

**Course content**
- Structure, function and programming of the I-PFO
- Creation of robot programs (working and teaching programs)
- Theoretical and practical declaration of variables
- Practical application and optimization of I-PFO programs

**Requirements**
Operator or maintenance course for a laser device

#### TruTops I-PFO Programming
**Objectives**
You will acquire the skills to operate TruTops I-PFO and the know-how to create, adapt and optimize programs.

**Course content**
- Structure and function of the I-PFO
- Creation of robot programs (working and teaching programs)
- Theoretical and practical declaration of variables
- Practical application and optimization of I-PFO programs

**Requirements**
PFO operation

#### SeamLine Remote Operation
**Objectives**
You will understand how to operate the SeamLine Remote system and learn how to create, adapt and optimize programs.

**Course content**
- Structure and function of SeamLine Remote
- Operation and creation of programs, taking into account all components of the system
- Theoretical and practical declaration of variables
- Teaching of the entire system
- Adaptation of the program parameters and program optimization

**Requirements**
Operation or maintenance course on the laser device and PFO operation course. Proof of knowledge of the KUKA KR C4 robot control

#### TruTops I-PFO
**Objectives**
You will understand how to operate the SeamLine Remote system and learn how to create, adapt and optimize programs.

**Course content**
- Structure and function of SeamLine Remote
- Setting up, teaching function and communication with the robot

**Requirements**
Operation or maintenance course on the laser device and PFO operation course. Proof of knowledge of the KUKA KR C4 robot control

## LASER DEVICES

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<tr>
<td>TruDisk 6C &lt; 2 kW</td>
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<tr>
<td>TruDisk 6C &gt; 2 kW</td>
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<tr>
<td>TruDisk 2027</td>
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<tr>
<td>TruMicro 2000</td>
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<td>TruPulse</td>
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<td>TruDisk Pulse</td>
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<tr>
<td>TruDisk 2027</td>
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<td>3</td>
</tr>
<tr>
<td>TruDisk &gt; 1 kW 2–3</td>
<td>3</td>
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<tr>
<td>TruDisk &lt; 1 kW 2–3</td>
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<tr>
<td>TruFiber</td>
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<td>TruLaser Station</td>
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</table>

### Process optimization
- Basic level
- Advanced level
- Expert level
# Marking

From chunky apples to almost invisible microchips – TRUMPF’s marking lasers allow you to mark materials and components of almost any shape or size. All of our marking lasers have a modular build, and we take painstaking efforts to ensure that their integration into existing systems is seamless and hassle-free. Whether you’re new to this field or already a seasoned marker – register for one of our machine and programming training courses and attain the know-how you need to make your mark.

## Machine types

<table>
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<tr>
<th>TruMark Series 3000</th>
<th>TruMark Series 5000</th>
<th>TruMark Series 6000</th>
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<tbody>
<tr>
<td>TruMicro Mark 2000</td>
<td>One-Box-Laser</td>
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## 3D laser

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<td>Programming</td>
<td>Application consulting</td>
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<table>
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<th>Module II</th>
<th>Module III</th>
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<tr>
<td>Maintenance</td>
<td>Maintenance</td>
<td>Application consulting</td>
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</table>

<table>
<thead>
<tr>
<th>Module I</th>
<th>Module II</th>
<th>Module III</th>
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<tbody>
<tr>
<td>Application consulting</td>
<td>Application consulting</td>
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</tbody>
</table>

Our range of courses is categorized into three skill levels which each build on one another.
### Machine courses

<table>
<thead>
<tr>
<th>Module I</th>
<th>Application consulting</th>
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</thead>
<tbody>
<tr>
<td><strong>Objectives</strong></td>
<td>You will acquire the skills to identify laser safety and the basic functions of a marking laser and be able to perform the necessary maintenance work on the marking laser.</td>
</tr>
<tr>
<td><strong>Course content</strong></td>
<td></td>
</tr>
<tr>
<td>■ Laser safety</td>
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<tr>
<td>■ Laser theory</td>
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<tr>
<td>■ Product introduction</td>
<td></td>
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<tr>
<td>■ Structure and function</td>
<td></td>
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<tr>
<td>■ Maintenance work (OEM and/or workplace) based on the Operator’s Manual</td>
<td></td>
</tr>
<tr>
<td><strong>Requirements</strong></td>
<td>Module I or II programming and proof of corresponding operator knowledge</td>
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</table>

<table>
<thead>
<tr>
<th>Module II</th>
<th>Application consulting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objectives</strong></td>
<td>You will become confident in handling a marking laser and in configuring and operating it correctly. You will gain basic knowledge of CAD functions and be able to make changes to existing drawings, e.g. adapting and optimizing laser parameters.</td>
</tr>
<tr>
<td><strong>Course content</strong></td>
<td></td>
</tr>
<tr>
<td>■ Introduction</td>
<td></td>
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<tr>
<td>■ Documentation</td>
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<tr>
<td>■ Operating the marking laser</td>
<td></td>
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<tr>
<td>■ Settings in the graphical user interface GUI (OEM functions and workplace module)</td>
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<tr>
<td>■ Basics of the CAD editor</td>
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<td>■ Laser parameter settings</td>
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<tr>
<td><strong>Requirements</strong></td>
<td>Module I Programming</td>
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</table>

### Programming courses

<table>
<thead>
<tr>
<th>Module I</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objectives</strong></td>
<td>You will become proficient in the operation and configuration of your machine and be able to create functional marking files with different variable data and texts. You will understand how to import graphics. You will acquire the skills to create a simple sequential program.</td>
</tr>
<tr>
<td><strong>Course content</strong></td>
<td></td>
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<tr>
<td>■ Operation and configuration</td>
<td></td>
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<tr>
<td>■ Creating marking files</td>
<td></td>
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<tr>
<td>■ Working with data objects, graphic formats</td>
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<tr>
<td>■ Sequential programming</td>
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<tr>
<td>■ Navigator function</td>
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<tr>
<td><strong>Requirements</strong></td>
<td>Module II Maintenance</td>
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<table>
<thead>
<tr>
<th>Module II</th>
<th>Programming</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objectives</strong></td>
<td>You will gain the necessary knowledge to exchange components and pump modules in your system and to configure them correctly. You will learn to perform troubleshooting on the system and become familiar with the available spare parts in the spare parts list.</td>
</tr>
<tr>
<td><strong>Course content</strong></td>
<td></td>
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<tr>
<td>■ Replacing components</td>
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<tr>
<td>■ Changing the pump module</td>
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<td>■ Using the diagnostics tool</td>
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<td>■ Troubleshooting basics</td>
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<tr>
<td>■ Spare part requirements</td>
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<tr>
<td><strong>Requirements</strong></td>
<td>Module I Maintenance Recommendation: participation in an operation basics course for a laser device</td>
</tr>
</tbody>
</table>

### Objectives

- **You will acquire the skills to identify laser safety and the basic functions of a marking laser and be able to perform the necessary maintenance work on the marking laser.**
- **You will become confident in handling a marking laser and in configuring and operating it correctly.**
- **You will become proficient in the operation and configuration of your machine and be able to create functional marking files with different variable data and texts.**
- **You will gain the necessary knowledge to exchange components and pump modules in your system and to configure them correctly.**
- **You will learn to perform troubleshooting on the system and become familiar with the available spare parts in the spare parts list.**

### Course content

- **Deepening of application processes for laser theory – data matrix code and barcode theory**
- **Solving application tasks on different IR marking lasers, predominantly on metals**
- **Using TruTops Mark functions**
- **Replacing components**
- **Changing the pump module**
- **Using the diagnostics tool**
- **Troubleshooting basics**
- **Spare part requirements**

### Requirements

- **Module I or II programming and proof of corresponding operator knowledge**
- **Module I Maintenance Recommendation: participation in an operation basics course for a laser device**
- **Module I Programming**
- **Module II Maintenance**
- **Module II Programming**
- **Module III Application consulting**

### Additional Courses

- **Basic level**
- **Advanced level**
- **Expert level**
### MARKING

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<td>Maintenance</td>
<td>TruMark Series 1000</td>
<td>TruMark Series 5000</td>
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<tr>
<td></td>
<td>Application consulting</td>
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<td>TruMark Series 6000</td>
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<td>Module II</td>
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<td>Application consulting</td>
<td>TruMark Series 5000</td>
<td>TruMark Series 6000</td>
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<td>Module III</td>
<td>Application consulting</td>
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<tr>
<td>Module I</td>
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<td>Module II</td>
<td>Programming</td>
<td>TruMark Series 5000</td>
<td>TruMark Series 6000</td>
</tr>
</tbody>
</table>

Marking – overview of range of courses

- **■** = Attendance seminar
- **△** = E-Learning
- **▲** = Blended Learning
- **★** = Upon request

**Basic level** | **Advanced level** | **Expert level**
Punching

There is so much more to punching than the simple perforating of sheet metal. In fact, punching has proven to be revolutionary when it comes to saving time and money – across a wide range of applications. The possibilities are endless. Punching machines can be used to produce parts in their entirety, design contours and create different shapes. Our selection of training courses will equip you with the requisite know-how to steer your manufacturing process towards greater efficiency and productivity, and will lead your business to even greater success.

Machine types
TruPunch Series 1000 | TruPunch Series 2000 | TruPunch Series 3000 | TruPunch Series 5000

Machine courses

- Basics
  - Operation
- Beginner
  - Operation
- SheetMaster
  - Operation

Programming courses

- Basics
  - Programming
  - Cut Punch Module I
    - TruPunch Boost
  - Cut Punch extension
    - TruPunch Boost
  - Design module I 2D
    - TruPunch Boost
  - Design 2D and 3D for experienced 3D designers
    - TruPunch Boost
  - Drawing and nesting
    - TruPunch
  - Technology
    - TruPunch Punch
- Machine
  - Maintenance
  - Production support
- Punching
  - Technology

Our range of courses is categorized into three skill levels which each build on one another.
**Machine courses**

**Basics**
**Operation**

**Objectives**
You will gain the basic knowledge necessary for the operation course for beginners.

**Course content**
- Basic setup of the machines
- Technical information on punching, nibbling and forming
- Structure of the tool system, tool types and tool maintenance
- Adjusting, setting up and measuring tools
- Tool selection criteria

**Requirements**
Operation basics course or at least 3 months’ experience in using the tool system.

---

**Beginner**
**Operation**

**Objectives**
You will be familiar with the new features of your machine and will be able to prepare, introduce and optimize production sequences.

**Course content**
- New features in the structure of the machines and the user interface, the operating elements, diagnostics and online help
- Set-up processes, executing and optimizing programs

**Requirements**
Operation basics course or at least 3 months’ experience in using the tool system.

---

**SheetMaster**
**Operation**

**Objectives**
You will become confident in machine operation with the SheetMaster and will learn to prepare, introduce and optimize production sequences.

**Course content**
- Structure and function of the SheetMaster assemblies
- Set-up processes, execution and optimization with the aid of the SheetMaster

**Requirements**
Operator course.

---

**Production support**
**Maintenance**

**Objectives**
You will gain confidence in handling your machine and acquire the basic skills for productive manufacturing.

**Course content**
- Support for smooth production start-up. The content can be customized to you, for example:
  - Joint preparation and setting up of the machine
  - Running in of individual production parts
  - Explanation of influencing factors on the production process
  - Initial optimization of process parameters
  - Programming support

**Requirements**
Basics course in operation and programming.

---

**Machine courses**

**Punching**
**Technology**

**Objectives**
You will become confident in applying different manufacturing methods, such as punching, nibbling and forming, and will learn how to optimize production sequences.

**Course content**
- Basics of the punching process
- Framework conditions on the machine
- One-sided trimming
- Working with forming tools
- Causes of collisions
- Tool maintenance
- Active descending die
- Forming and calibration tool

**Requirements**
Basics course in operation.

---

**Application consulting**

**Objectives**
You will improve the potential of your machine and the part quality and produce with greater productivity.

**Course content**
- Analyzing and optimizing production and programming
- Teaching of application expertise directly on your machine. The content can be customized to you
- Support and optimization of technology parameters
- Strategies to reduce production times
- Programming support
- Processing of special materials

**Requirements**
Basics course in operation and programming.
## Programming courses

### Basics

**Programming**

- **Objectives**
  - You will gain basic technical knowledge regarding the technology and the machine as preparation for the programming course.

- **Course content**
  - Structure and assembly of the machines and their functions
  - Technical data
  - Basics of punch and laser processing and the tool system
  - Machine and technology options
  - Framework conditions and correlations when programming the machine

- **Requirements**
  - Recommendation: participation in a TruTops Boost technology programming course

### Cut Punch Module I

**TruTops Boost**

- **Objectives**
  - You will gain the skills to create practical NC programs for the machine and automation.

- **Course content**
  - Introduction to the programming system
  - Importing and managing drawings in the HomeZone
  - Nesting and processing parts in an order-based manner
  - Modifying punch laser processes
  - Specification and programming of practical processing strategies
  - Creation of NC programs

- **Requirements**
  - Basics course in programming or extensive experience in using the machine

### Cut Punch extension

**TruTops Boost**

- **Objectives**
  - You will gain the skills to create practical NC programs for the machine and automation.

- **Course content**
  - Extension to the TruTops Boost Cut Combi technology
  - Processing strategies of a pure punching machine
  - Creation of NC programs

- **Requirements**
  - Cut Combi module I TruTops Boost

### Design module I 2D

**TruTops Boost**

- **Objectives**
  - You will learn how to create and import 2D geometries. You will understand how to redesign these in line with production requirements.

- **Course content**
  - Introduction to the CAD system
  - Creation of simple 2D drawings
  - Importing and processing of 2D geometries

- **Requirements**
  - Recommendation: participation in a TruTops Boost technology programming course

### Design 2D and 3D for experienced 3D designers

**TruTops Boost**

- **Objectives**
  - You will acquire the skills to create and import 2D geometries and 3D models. You will be able to redesign and unfold these in line with production requirements.

- **Course content**
  - Introduction to the CAD system
  - Creation of simple 2D drawings and 3D models
  - Importing and processing of 2D geometries and 3D models
  - Unfolding of individual 3D parts in line with production requirements
  - Reduced practice phases in comparison to individual courses

- **Requirements**
  - Comprehensive experience in the use of parameterized 3D CAD systems

### Drawing and nesting

**TruTops**

- **Objectives**
  - You will gain the knowledge to create and import 2D geometries. You will understand how to redesign these in line with production requirements and know how to create sheet layouts.

- **Course content**
  - Introduction to the CAD system
  - Creation of simple 2D drawings
  - Importing and processing of 2D geometries
  - Manual and order-based nesting of part geometries on sheets

### Changeover from TruTops Punch technology

**TruTops Boost**

- **Objectives**
  - You will learn how to program automation processes and how to create practical NC programs.

- **Course content**
  - Structure and function of the automation process
  - Definition and programming of loading and unloading strategies in line with processes
  - Output of NC programs

- **Requirements**
  - Design module I 2D TruTops Boost

### Cut Punch Module II

**TruTops Boost**

- **Objectives**
  - You will become familiar with additional programming functions and deepen your knowledge.

- **Course content**
  - Programming of punching, nibbling, laser and forming processes
  - Implementing sheet layout strategies, blank processing and repositioning
  - Optimizing processing
  - Output of NC programs
  - Maintenance and adaptation of the database

- **Requirements**
  - Cut Punch module I TruTops Boost

### Design module II 3D

**TruTops Boost**

- **Objectives**
  - You will become confident in creating and importing 3D models.

- **Course content**
  - Creation of simple 3D models
  - Unfolding of individual 3D parts in line with production requirements

- **Requirements**
  - Design module I 2D TruTops Boost

### Automation

**TruTops Punch**

- **Objectives**
  - You will learn how to program automation processes and how to create practical NC programs.

- **Course content**
  - Structure and function of the automation components
  - Definition and programming of loading and unloading strategies in line with processes
  - Output of NC programs

- **Requirements**
  - TruTops Punch technology
### Programming courses

#### Skeleton-free processing
TruTops Punch

**Objectives**
You will develop your understanding of skeleton-free processing and will learn how to optimally use the corresponding functions in TruTops. You will become confident in creating practical NC programs for skeleton-free processing.

**Course content**
- Basic principle of and system adaptation for skeleton-free processing
- Applications with TwinLine
- Punching, clamping and rotating free areas
- Automatically disposing of remainder strips
- Optimizing processing
- Output of NC programs

**Requirements**
Technology TruTops Punch

#### Design module III 2D and 3D
TruTops Boost

**Objectives**
You will deepen your knowledge of 3D modeling and of the application of TruTops Boost – Design.

**Course content**
- Creation of complex 3D models
- Importing, analysis and processing of assemblies and solids
- Adaptation of system settings

**Requirements**
Design module II 3D TruTops Boost or Design 2D and 3D for experienced designers TruTops Boost

#### Professional
TruTops Punch

**Objectives**
You will develop the knowledge to use the TruTops functions more effectively, increase process reliability on the machine and reduce part times.

**Course content**
- Optimization possibilities for processing with increased reliability and efficiency
- Optimization of geometry processing
- Special and forming tools
- Use of interactive processing functions
- Creating removal rules

**Requirements**
TruTops TruMatic technology or at least 3 months of experience in programming

### Punching

<table>
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<tr>
<th>PUNCHING</th>
<th>TruPunch Series 1000</th>
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#### Machine courses

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**Programming Courses**

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</table>

**Requirements**
Technology TruTops Punch

### Design module III 2D and 3D
TruTops Boost

**Objectives**
You will develop your understanding of skeleton-free processing and will learn how to optimally use the corresponding functions in TruTops. You will become confident in creating practical NC programs for skeleton-free processing.

**Course content**
- Basic principle of and system adaptation for skeleton-free processing
- Applications with TwinLine
- Punching, clamping and rotating free areas
- Automatically disposing of remainder strips
- Optimizing processing
- Output of NC programs

**Requirements**
Technology TruTops Punch

### Professional
TruTops Punch

**Objectives**
You will develop the knowledge to use the TruTops functions more effectively, increase process reliability on the machine and reduce part times.

**Course content**
- Optimization possibilities for processing with increased reliability and efficiency
- Optimization of geometry processing
- Special and forming tools
- Use of interactive processing functions
- Creating removal rules

**Requirements**
TruTops TruMatic technology or at least 3 months of experience in programming

### Punching – overview of range of courses

- TruPunch Series 1000
- TruPunch Series 2000
- TruPunch Series 3000
- TruPunch Series 5000

**Objectives**
You will develop the knowledge to use the TruTops functions more effectively, increase process reliability on the machine and reduce part times.

**Course content**
- Optimization possibilities for processing with increased reliability and efficiency
- Optimization of geometry processing
- Special and forming tools
- Use of interactive processing functions
- Creating removal rules

**Requirements**
TruTops TruMatic technology or at least 3 months of experience in programming

### TruTops

<table>
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<tr>
<th>TruTops</th>
<th>Basic level</th>
<th>Advanced level</th>
<th>Expert level</th>
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<td>Skeleton-free processing</td>
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<td>Professional</td>
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</tbody>
</table>

**Requirements**
Technology TruTops Punch

### Laser devices

- TruTops Punch

**Objectives**
You will develop your understanding of skeleton-free processing and will learn how to optimally use the corresponding functions in TruTops. You will become confident in creating practical NC programs for skeleton-free processing.

**Course content**
- Basic principle of and system adaptation for skeleton-free processing
- Applications with TwinLine
- Punching, clamping and rotating free areas
- Automatically disposing of remainder strips
- Optimizing processing
- Output of NC programs

**Requirements**
Technology TruTops Punch

### Professional
TruTops Punch

**Objectives**
You will develop the knowledge to use the TruTops functions more effectively, increase process reliability on the machine and reduce part times.

**Course content**
- Optimization possibilities for processing with increased reliability and efficiency
- Optimization of geometry processing
- Special and forming tools
- Use of interactive processing functions
- Creating removal rules

**Requirements**
TruTops TruMatic technology or at least 3 months of experience in programming

### Punching

- TruPunch Series 1000
- TruPunch Series 2000
- TruPunch Series 3000
- TruPunch Series 5000

**Objectives**
You will develop the knowledge to use the TruTops functions more effectively, increase process reliability on the machine and reduce part times.

**Course content**
- Optimization possibilities for processing with increased reliability and efficiency
- Optimization of geometry processing
- Special and forming tools
- Use of interactive processing functions
- Creating removal rules

**Requirements**
TruTops TruMatic technology or at least 3 months of experience in programming
Punch-laser

At TRUMPF we are constantly innovating to meet our clients’ needs. That is why we have combined all of the advantages of punching and laser processing to produce specific punch laser machines, so that you can have the best of both worlds. Combining two technologies in one machine not only results in a simplified logistics process but also reduces your throughput times. Sign up for one of our tailored courses and acquire the relevant skills to ensure that you’re taking full advantage of your TruMatic machine.

Machine types
TruMatic Series 1000 | TruMatic Series 3000 | TruMatic Series 6000 | TruMatic Series 7000

### Machine and laser maintenance
- **Beginner**
  - Operation
- **Advanced**
  - SheetMaster
  - Production support
- **Professional**
  - Technology
  - Application consulting

### Punching technology
- **Basic**
  - Operation
- **Advanced**
  - SheetMaster
  - Production support
- **Expert**
  - Technology
  - Application consulting

### Programming courses
- **Basics**
  - Operation
  - Programming
- **Advanced**
  - SheetMaster
  - Production support
- **Professional**
  - Technology
  - Application consulting

### Machine types
- **TruMatic Series 1000**
- **TruMatic Series 3000**
- **TruMatic Series 6000**
- **TruMatic Series 7000**
## Machine courses

### Basics

**Objective**
You will gain the basic knowledge necessary for the operation course for beginners.

**Course Content**
- Basic setup of the machines
- Technical information on punching, nibbling and forming
- Structure of the tool system, tool types and tool maintenance
- Adjusting, setting up and measuring tools
- Tool selection criteria

**Requirements**
Operation basics course or at least 3 months of experience with the tool system

### Beginner

**Objective**
You will become familiar with the new features of your machine and will be able to prepare, introduce and optimize production sequences.

**Course Content**
- New features in the structure of the machines and the user interface, the operating elements, diagnostics and online help
- Set-up processes, executing and optimizing programs

**Requirements**
Operation basics course or at least 3 months of experience with the tool system

### SheetMaster

**Objective**
You will gain the basic knowledge necessary for the operation course with the SheetMaster and will learn to prepare, introduce and optimize production sequences.

**Course Content**
- Structure and function of theSheetMaster assemblies
- Set-up processes, execution and optimization with the aid of the SheetMaster

**Requirements**
Operator course

### Production support

**Objective**
You will gain confidence in handling your machine and acquire the basic skills for productive manufacturing.

**Course Content**
- Support for smooth production start-up. The content can be customized, for example:
  - Joint preparation and setting up of the machine
  - Running in of individual production parts
  - Explanation of influencing factors on the production process
  - Initial optimization of process parameters
  - Programming support

**Requirements**
Basics course in operation and programming

### Machine and laser

**Objective**
You will become confident in carrying out maintenance work on the system in accordance with the specified maintenance intervals.

**Course Content**
- Setting work and handling
- Diagnostics options
- Maintenance work on the machine and machine options

**Requirements**
Operation basics course and training as a trained electrician for specified activities

### SheetMaster

**Objective**
You will become confident in carrying out maintenance work on the system in accordance with the specified maintenance intervals.

**Course Content**
- Setting work and handling
- Diagnostics options
- Maintenance work on the system

**Requirements**
Basics course in operation

### Machine courses

### Punching

**Objective**
You will become confident in applying different manufacturing methods, such as punching, nibbling and forming, and will learn how to optimize production sequences.

**Course Content**
- Basics of the punching process
- Framework conditions on the machine
- One-sided trimming
- Working with forming tools
- Causes of collisions
- Tool maintenance
- Active/descending die
- Forming and calibration tool

**Requirements**
Basics course in operation

### Laser cutting

**Objective**
You will learn how to optimize your cutting quality and determine the cutting parameters for special materials.

**Course Content**
- Cutting-specific basics for lasers
- Influential parameters on the laser cut, such as process, machine, laser and workpiece parameters
- Laser power control
- Cutting different materials
- Quality assessment of laser cuts
- Cutting tool

**Requirements**
Basics course in operation

## Application consulting

**Objective**
You will improve the potential of your machine and the part quality and produce with greater productivity.

**Course Content**
- Analyzing and optimizing production and programming
- Teaching of application expertise directly on your machine. The content can be customized to your needs
- Support and optimization of technology parameters
- Strategies to reduce production times
- Programming support
- Processing of special materials

**Requirements**
Basics course in operation and programming
Programming courses

### Basics

**Course content**
- Structure and assembly of the machines and their functions
- Technical data
- Basics of punch and laser processing and the tool system
- Machine and technology options
- Framework conditions and correlations when programming the machine

**Objectives**
You will gain basic technical knowledge regarding the technology and the machine as preparation for the programming course.

**Requirements**
- Enrolling in the programming course

**Course content**
- Introduction to the programming system
- Importing and managing drawings in the HomeZone
- Nesting and processing parts in an order-based manner
- Modifying punch laser processes
- Specification and programming of practical processing strategies
- Creation of technical data

**Objectives**
You will gain the skills to create practical NC programs for the machine and automation.

**Requirements**
- Basics course in programming or extensive experience in using the machine

---

### Design module I 2D

**Design 2D and 3D for experienced 3D designers**

**Course content**
- Introduction to the CAD system
- Creation of simple 2D drawings
- Importing and processing of 2D geometries

**Objectives**
You will acquire the skills to create and import 2D geometries and 3D models. You will develop the skills to redesign and unfold these in line with production requirements.

**Requirements**
- Enrolling in the programming course

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### Cut Combi module I

**Cut Combi extension**

**Course content**
- Introduction to the programming system
- Importing and processing of 2D and 3D models
- Unfolding of individual 3D parts in line with production requirements
- Reduced practice phases in comparison to individual courses

**Objectives**
You will gain the skills to create practical NC programs for the machine and automation.

**Requirements**
- Basics course in programming or extensive experience in using the machine

---

### Cut Combi module II

**Cut Combi module II 3D**

**Course content**
- Creation of 3D drawings and 3D models
- Importing and processing of 2D and 3D models
- Manual and order-based nesting of part geometries on sheets

**Objectives**
You will gain the skills to create practical NC programs for the machine and automation.

**Requirements**
- Basics course in programming or extensive experience in using the machine

---

### Changeover from TruTopas

**Changeover from TruTopas**

**Course content**
- Importing of drawings in line with production requirements
- Managing parts in the HomeZone
- Specification of processing strategies
- Modification of the technology
- Creation of NC programs

**Objectives**
You will become proficient in defining processing strategies and in the output of practical NC programs.

**Requirements**
- Basics course in programming or extensive experience in using the machine and TruTopas drawing and nesting

---

### Automation

**Automation**

**Course content**
- Definition and programming of loading and unloading strategies in line with processes
- Output of NC programs

**Objectives**
You will learn how to program automation processes and how to create practical NC programs.

**Requirements**
- Enrolling in the programming course
Programming courses

**Design module III 2D and 3D**
*TruTop Boost*

**Objectives**
You will deepen your knowledge of 3D modeling and the application of TruTop Boost – Design.

**Course content**
- Creation of complex 3D models
- Importing, analysis and processing of assemblies and solids
- Adaptation of system settings

**Requirements**
Design module II 3D TruTop Boost or Design 2D and 3D for experienced 3D designers TruTop Boost

**Professional**
*TruTop TruMatic*

**Objectives**
You will develop the knowledge to use the TruTop functions more effectively, increase process reliability on the machine and reduce part times.

**Course content**
- Optimization possibilities for processing with increased reliability and efficiency
- Optimization of geometry processing
- Special and forming tools
- Use of interactive processing functions
- Creating technology tables and rules for removal

**Requirements**
TruTop TruMatic technology or at least 3 months of experience in programming

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**PUNCH-LASER**

<table>
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<tr>
<th>Course Level</th>
<th>Course Length in Days</th>
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<tr>
<td>Basic Operation</td>
<td>2</td>
</tr>
<tr>
<td>Beginner Operation</td>
<td>2</td>
</tr>
<tr>
<td>SheetMaster Operation</td>
<td>1</td>
</tr>
<tr>
<td>Machine and laser Maintenance</td>
<td>3</td>
</tr>
<tr>
<td>SheetMaster Maintenance</td>
<td>0.5</td>
</tr>
<tr>
<td>Production support</td>
<td>2</td>
</tr>
<tr>
<td>Punching Technology</td>
<td>2.5</td>
</tr>
<tr>
<td>Laser cutting Technology</td>
<td>2.5</td>
</tr>
<tr>
<td>Application consulting</td>
<td>2</td>
</tr>
</tbody>
</table>

---

**PROGRAMMING COURSES**

<table>
<thead>
<tr>
<th>Course Level</th>
<th>Course Length in Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Programming</td>
<td>2</td>
</tr>
<tr>
<td>Cut Combi module I TruTop Boost</td>
<td>6</td>
</tr>
<tr>
<td>Cut Combi extension TruTop Boost</td>
<td>2</td>
</tr>
<tr>
<td>Design module I 2D TruTop Boost</td>
<td>2</td>
</tr>
<tr>
<td>Design 2D and 3D for experienced 3D designers TruTop Boost</td>
<td>2.5</td>
</tr>
<tr>
<td>Cut Combi module II TruTop Boost</td>
<td>2</td>
</tr>
<tr>
<td>Automation TruTop Boost</td>
<td>2</td>
</tr>
<tr>
<td>Changeover from TruTop TruTop Boost</td>
<td>2.5</td>
</tr>
<tr>
<td>Design module II 3D TruTop Boost</td>
<td>2</td>
</tr>
<tr>
<td>Design module III 2D and 3D TruTop Boost</td>
<td>2</td>
</tr>
</tbody>
</table>

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**TRUTOPS**

<table>
<thead>
<tr>
<th>Course Level</th>
<th>Course Length in Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Programming</td>
<td>2</td>
</tr>
<tr>
<td>Drawing and nesting TruTop</td>
<td>2.5</td>
</tr>
<tr>
<td>Technology TruTop TruMatic</td>
<td>5</td>
</tr>
<tr>
<td>Automation TruTop TruMatic</td>
<td>2</td>
</tr>
<tr>
<td>Professional TruTop TruMatic</td>
<td>2</td>
</tr>
</tbody>
</table>
Process optimization

In any business, optimization is key. Within a production facility, the greatest potential for optimization lies in between the individual processing steps. TRUMPF can support you in viewing your production process from a different perspective and help in identifying areas for optimization. We have various training courses and consultation sessions available for this very purpose. Or register for one of our individual workshops and work together with some of our TRUMPF experts. Get in touch and find your optimization potential.

### Programming courses

- **Quickjob Module**
  - TruTop Fab
- **Production Module**
  - TruTop Fab
- **Storage Module (manual store management)**
  - TruTop Fab
- **Purchase Module**
  - TruTop Fab
- **Customer Module**
  - TruTop Fab
- **Calculation Module**
  - TruTop Fab
- **Administration**
  - TruTop Fab
- **Calculate**
  - TruTop Fab

### Seminars/consulting

- **Seminar on sheet design**
- **Seminar on laser welding design**
- **Seminar on fixture design**
- **Seminar on tube design**
- **Seminar on tube fixture design**
- **Consulting on part design**
- **Technology day on part design**
- **Production support**

Our range of courses is categorized into three skill levels which each build on one another.
Programming courses

**Quickjob Module**

**TruTops Fab**

**Objectives**
You will acquire the know-how to successfully introduce and operate the TruTops Fab Quickjob Module.

**Course content**
- System overview
- TruTops Fab user interface
- Workplace management
- Definition of operations and work plans
- Management and controlling of production orders
- Important aspects of materials management
- Maintenance of material and customer data
- Monitor function

**Requirements**
TruTops Fab Quickjob Module

---

**Production Module**

**TruTops Fab**

**Objectives**
You will gain the knowledge of how to successfully use the TruTops Fab Production Module.

**Course content**
- Management and controlling of production orders with a focus on assemblies
- Definition of assembly-specific operations and work plans
- Creation of corresponding workstations and workstation groups

**Requirements**
TruTops Fab Quickjob Module

---

**Storage Module (manual store management)**

**TruTops Fab**

**Objectives**
You will learn to configure and operate a manual store.

**Course content**
- Basic concepts of store management (manual store)
- Creation and management of different storage locations and storage areas
- Batch management
- Graphical display of material process

**Requirements**
TruTops Fab Quickjob Module

---

**Purchase Module**

**TruTops Fab**

**Objectives**
You will learn how to manage requests and orders and to maintain supplier data.

**Course content**
- Management of requests
- Orders
- Supplier management

**Requirements**
TruTops Fab Quickjob Module

---

**Customer Module**

**TruTops Fab**

**Objectives**
You will become proficient in using the TruTops Fab Customer Module.

**Course content**
- Customer order function area
- Management and controlling of customer orders from the tender to invoicing
- Focus on: customer data management, tender preparation, order confirmation, production, delivery and invoicing, and dunning and credit notes

**Requirements**
TruTops Fab Quickjob Module

---

**Calculation Module**

**TruTops Fab**

**Objectives**
You will develop the knowledge to calculate your costs for workpieces and assemblies.

**Course content**
- Software adaptation and data administration
- Calculations for individual workpieces and assemblies
- Vectorization of graphic files (option)

**Requirements**
Excellent knowledge of the field of IT: PC, databases, network administration

---

**Administration**

**TruTops Fab**

**Objectives**
You will gain the skills to support a TruTops Fab system as an IT administrator.

**Course content**
- Adapting the system
- Data administration
- Print layout
- Adaptation
- Fault diagnosis and response

**Requirements**
Excellent knowledge of the field of IT: PC, databases, network administration

---

**Calculate**

**TruTops**

**Objectives**
You will develop the knowledge to support a TruTops Fab system as an IT administrator.

**Course content**
- Adapting the system
- Data administration
- Print layout
- Adaptation
- Fault diagnosis and response

**Requirements**
Excellent knowledge of the field of IT: PC, databases, network administration

---

**Programming courses**

**Administration**

**TruTops Fab**

**Objectives**
You will gain the skills to support a TruTops Fab system as an IT administrator.

**Course content**
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- Data administration
- Print layout
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**Calculate**

**TruTops**

**Objectives**
You will develop the knowledge to calculate your costs for workpieces and assemblies.

**Course content**
- Software adaptation and data administration
- Calculations for individual workpieces and assemblies
- Vectorization of graphic files (option)

**Requirements**
Excellent knowledge of the field of IT: PC, databases, network administration

---

**Basic level**

**Advanced level**

**Expert level**

---

**Basic level**

**Advanced level**

**Expert level**
### Seminars/consulting

#### Seminar on sheet design

**Objectives**
- You will be provided with potential solutions for cost-effective component design, taking into account the current production possibilities using sheet metal.

**Course content**
- Drafting design and construction rules
- Learning approaches for new, economical designs which are optimized in terms of the process
- Consideration of current production options for sheet metal processing
- Application of what has been learnt on parts from your daily design and production routine

#### Seminar on laser welding design

**Objectives**
- You will be provided with potential solutions for cost-effective component design, taking into account the current production possibilities of laser welding in sheet metal processing.

**Course content**
- Construction rules for laser welding-compliant fixtures
- Becoming familiar with the structure and design options for fixtures made from sheet metal
- Learning approaches for new, economical fixture solutions which are optimized in terms of the process
- Application of what has been learnt on parts from your daily design and production routine

#### Seminar on tube design

**Objectives**
- You will be provided with potential solutions for cost-effective component design, taking into account the current production possibilities of laser-cut tubes.

**Course content**
- Drafting design and construction rules
- Learning approaches for new, economical designs which are optimized in terms of the process
- Consideration of current production options for tube processing
- Application of what has been learnt on parts from your daily design and production routine

#### Seminar on tube fixture design

**Objectives**
- You will be provided with potential solutions for cost-effective fixture design for the welding of semi-finished products, taking into account the current production possibilities of laser-cut tubes.

**Course content**
- Drafting design and construction rules
- Becoming familiar with the structure and design options of laser-cut tubes
- Consideration of production options for tube processing
- Learning approaches for new, economical fixture solutions which are optimized in terms of the process
- Application of what has been learnt on parts from your daily design and production routine

#### Consulting on part design

**Objectives**
- You will be provided with potential solutions and optimization strategies for cost-effective component design, taking into account the current production possibilities using sheet metal and tubes.

**Course content**
- Approaches for new, economical designs which are optimized in terms of the process based on sketches
- Consideration of current production options for tube and sheet metal processing
- Application on parts from your daily design and production routine

#### Technology day on part design

**Objectives**
- You will deepen your knowledge of state-of-the-art production technology and discover how you can best use it for your sheet and tube components.

**Course content**
- State-of-the-art of TRUMPF machines and the corresponding tool options
- Potential in terms of manufacturing technology for parts from your daily design and production routine

**Requirements**
- Only for customers with TRUMPF laser welding systems

#### Production support

**Objectives**
- You will gain confidence in handling your machine and acquire the basic skills for productive manufacturing.

**Course content**
- Support for smooth production start-up. Content can be customized, for example:
  - Joint setting up of the machine
  - Running in of individual production parts
  - Explanation of influencing factors on the production process
  - Initial optimization of process parameters
  - Programming support

**Requirements**
- Basics course in operation and programming

#### Application consulting

**Objectives**
- You will improve the potential of your machine and the part quality and produce with greater productivity.

**Course content**
- Analyzing and optimizing production and programming
- Teaching of application expertise directly on your machine. The content can be customized to your needs.
- Support and optimization of technology parameters
- Strategies to reduce production times
- Programming support
- Processing of special materials

**Requirements**
- Basics course in operation and programming
### Machine Courses

<table>
<thead>
<tr>
<th>Module</th>
<th>Core Length</th>
<th>Course Length in Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quickjob Module TruTops Fab</td>
<td>❧</td>
<td>3</td>
</tr>
<tr>
<td>Production Module TruTops Fab</td>
<td>❧</td>
<td>0.5</td>
</tr>
<tr>
<td>Storage Module (manual store management) TruTops Fab</td>
<td>❧</td>
<td>1.5</td>
</tr>
<tr>
<td>Purchase Module TruTops Fab</td>
<td>❧</td>
<td>1</td>
</tr>
<tr>
<td>Customer Module TruTops Fab</td>
<td>❧</td>
<td>1</td>
</tr>
<tr>
<td>Calculation Module TruTops Fab</td>
<td>❧</td>
<td>1.5</td>
</tr>
<tr>
<td>Administration TruTops Fab</td>
<td>❧</td>
<td>2</td>
</tr>
<tr>
<td>Calculate TruTops</td>
<td>❧</td>
<td>1.5</td>
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</tbody>
</table>

### Seminars/Consulting

<table>
<thead>
<tr>
<th>Seminar</th>
<th>Core Length</th>
<th>Course Length in Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminar on sheet design</td>
<td>❧</td>
<td>3</td>
</tr>
<tr>
<td>Seminar on laser welding design</td>
<td>❧</td>
<td>2</td>
</tr>
<tr>
<td>Seminar on fixture design</td>
<td>❧</td>
<td>2</td>
</tr>
<tr>
<td>Seminar on tube design</td>
<td>❧</td>
<td>1</td>
</tr>
<tr>
<td>Seminar on tube fixture design</td>
<td>❧</td>
<td>1</td>
</tr>
<tr>
<td>Consulting on part design</td>
<td>Individual</td>
<td>Individual</td>
</tr>
<tr>
<td>Technology day on part design</td>
<td>Individual</td>
<td>Individual</td>
</tr>
<tr>
<td>Production support</td>
<td>Individual</td>
<td>Individual</td>
</tr>
<tr>
<td>Application consulting</td>
<td>Individual</td>
<td>Individual</td>
</tr>
</tbody>
</table>

*☆ = Attendance seminar  ☐ = E-Learning  ▲ = Blended Learning  ✱ = Upon request*
Your way to knowledge

The aim of this training catalog is to provide a glimpse into the diversity of the courses offered by TRUMPF and to give you an initial idea of the content that you will cover. We hope that, through having categorized the courses by technology type and by skill level, you have been able to find a course that meets your personal needs, learning objectives and prior knowledge. We would be delighted to be given the opportunity to welcome you to a training course in one of our TRUMPF training centers in the very near future.

Registration for the courses

Simply register online using the TRUMPF training portal. There you can find an overview of all dates and course offerings. As each training course only has a limited number of spaces, we recommend that you obtain the necessary information early on and analyze the training requirements in your company.

Further information

You can find further information about the diverse range of courses in the training portal. A handy filter function allows you to search for specific training courses according to different parameters. Whether it's the training location, machine type, or course duration – TRUMPF has the right offer to meet any requirement and personal situation.

Contacting the TRUMPF training centers

Do you have a question regarding our training courses, would like to place an individual course request, or have another suggestion for us? The teams at our TRUMPF training centers will be happy to help. Please use the contact form on our website, or give us a call.

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E-mail training@lasermarking.trumpf.com

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