EDUTUS UNIVERSITY

EDUTUS UNIVERSITY LASER LABORATORY

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EDUTUS UNIVERSITY LASER LABORATORY IN BRIEF

Edutus University Engineering Institute in Tatabánya had established in September 2007, its mission was to provide the favourable circumstances for the technical higher education in the region (Komárom-Esztergom county). According to the labour market research surveys the regional economy had to face with serious human resource shortages due to the lack of the high quality, well educated, self-motivated, experiences and competent labour workforce with foreign language knowledge. In addition, another difficulties arised from the fact that there was not technical higher education in the region which can hinder the further foreign direct investments (FDI) for industrial settlement purposes.

As far as Hungary is concerned, there is lack of those highly qualified professionals, who can be develop and implemented high value added products and services. Started the mechatronic engineering higher education with laser technology specialization in close cooperation with the Zoltán Bay Applied Research Non-profit Ltd. – can solve this problem.

The Edutus University got a TruDisk 4001 Laser beam source with 4000 Watt performance and TruLaser 7020 NC cell. The new system was installed in the applied laser technology laboratory. With the TruLaser Cell 7020 laser system you have everything you need – regardless of whether you want to process two or three-dimensional components or tubes. You can change flexibly between cutting and welding. It is capable of cutting at high speeds and with very high precision and one tenth of millimetre, as well as practicing the most difficult 6-freedom degree programming. The laboratory, surrounded by "in-house" nature, is surrounded by a radiation shield, and is sheathed everywhere to meet the CE certification so that no laser beam can escape from the cell.

There is also a flatbed CO laser engraving machine in the laboratory that can cut non-metallic materials on a wide scale and even label metallic materials as well.

Such kind of higher education is currently available only at the Edutus University in Hungary, since the students get not only merely theoretical but also practical knowledge, meaning that they will be able to use not only the CNC machine but also implementing and coordinating the production processes as well. There was tremendous interest about the laser system including a large foreign automotive company (OEM) e.g. Suzuki Motor Corporation or Audi with a lack of their capacity, related to the effective supporting prototype design and manufacturing with the help of researchers, using future production technologies.


CertUnion

Certificate

We hereby certify that

EDUTUS Egyetem

EDUTUS EGYETEM

Headquarters: H-2800 Tatabánya, Stúdium tér 1.
Site: H-2800 Tatabánya, Réti utca 1-5.
Technical Institute's laser lab

in the following fields

laser material processing activities and processes

has introduced and applied Quality Management System, which satisfies the requirements of MSZ EN ISO 9001:2015 standard.

Expiry Date: 14 02 2022
Registration Number: HU-2018/01999-01291
Date of Issue: Budapest, 15 02 2019

On behalf of CertUnion

CertUnion ISO 9001

The Certificate is valid only with annual surveillance audits.

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IAF

Due to the structure and design of the laser equipment it is also suitable for research tasks. The research focuses on the positive co-ordination of laser technologies in the automotive and renewable energy sectors. These projects will develop laser technology processes and technologies that will enable the interested stakeholders to become a world leader in the field of laser technology, not only domestically but also on international scale.

The laser laboratory has implemented a quality management system for laser material processing that has been in compliance with ISO 9001: 2015 standard since January 2019. (Photo of the English version of the certificate). Certified to ISO 9001: 2015 guarantees fast, efficient, high quality work and total customer satisfaction via trust-building and commitment.

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TECHNICAL PARAMETERS OF THE SYSTEM

Trumpf TrueLaser Cell 7020 fiber

- X axis travel range: 2200 mm
- Y axis travel range: 1250 mm
- Z axis travel range: 750 mm
- B axis travel range +/- 135°
- C axis travel range: n x 360°

TrueDisk 4001 solid-state laser beam source

- Laser performance 4000 W
- Wavelength: 1030 nm
- Optical fiber parameters 100 nm/400nm (it can be changed optional)

Flat bed CO laser-cutting, engraving machine

- X axis travel range: 2200 mm
- Y axis travel range: 1250 mm

Flat bed CO laser

- Laser beam performance: 100 W
- Laser beam source: fix filled CO_2 laser tube
- Operational size: 600x900 mm

We can process the following materials with the below belonging parameters:

- Structural steel: 12 mm
- Stainless steel: 10 mm
- Aluminium: 10-15 mm (depending on the composition)
- Cutting of other special materials should be based on previous negotiations
- Laser-welding after previous negotiation
- Engraving, inscription of materials

Our Services:

- 2D and 3D laser-cutting
- Laser-welding
- Inscription, engraving
- Surface hardening
- Defining parameters
- Carrying out R&D projects
- Designing CAD models
- Designing and manufacturing devices

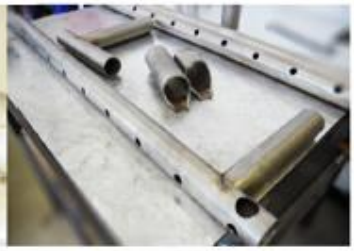
TruTops Cell software provides you with everything you need for the convenient programming of your 3D laser processing. Thanks to integrated standard optics, it covers laser cutting, laser welding or laser metal deposition. It loads 3D CAD data via numerous interfaces, and corrects it if required.

OUR REFERENCES

3D CUTTING

2D CUTTING

LASER WELDING



BUILDING DEVICES

CUTTING STAINLESS MATERIALS

Engraved products:

BENDING MACHINES

Bending is one of the most common sheet metal fabrication operations. This is done through the application of force on a workpiece. The force must exceed the material's yield strength to achieve a plastic deformation. Only then can you get a lasting result in the form of a bend. In order to achieve the best possible result, physical characteristics have to be taken into account. There are different types of machines that can be used for bending.

To bend materials, industrial companies mainly alter the shape of metall workpieces such as sheet metal or tubes. The addition or removal of other materials does not occur during the actual bending process. Bending sheet metal can result in a variety of shapes. These are often simple angles. In the range between 0° and 360° everything is possible. The right (90°) and the acute angles (0° to 90°) are particularly common in bending.

In most cases, bending in the manufacturing industry is carried out by means of die bending (folding) or swivel bending.

SCANTOOL 13S Manual Bending Machine (Edutus Laser Laboratory)

Specifications

	SCAN 10	SCAN 13
Working Length	1020 mm	1320 mm
Max. Passage	2.75 mm	2.25 mm
Bending Angle	135°	135°
A	800 mm	800 mm
B	1070 mm	1370 mm
C	1150 mm	1150 mm
Weight	310 kg	340 kg

Metallcraft GBP 1340 Basic CNC Controlled Hydraulic (40 t) Bending Machine (Edutus Laser Laboratory)

Characteristics of the Metallcraft GBP 1340 CNC Coontrollrd Hydraulic Bending Machine:

- CNC Y1, Y2, X axes and motorized crowning
- Synchronized hydraulic cylinders Y1 and Y2
- High resolution digital rules to synchronize Y1 and Y2
- Motorized rear stops mounted on linear guides and ball screws
- Backstop with two fingers, easily displaceable by hand in the longitudinal axis on linear rails
- Axis R (fingers of the backgauge) on round bar with height adjustment by a handle
- X-axis on linear guides, driven by a ball screw system
- Swivel arm control panel on the right side of the machine
- Solid quadruple guiding system with low maintenance of the moving deck
- Clamping tools, manual quick release, Promecam / Amada, horizontal change
- Monitoring the relative position between cylinders during pressing
- Hydraulic block with German components (Bosch Rexroth)
- Hydraulic system with overload protection
- Large hydraulic tank to keep the oil temperature at a constant level
- Electrical cabinet with SIEMENS, Schneider and OMRON components
- Chrome, polished and rectified pistons with superior quality gaskets

Comes standard with:

- 1 punch tool set with 75° angle / 0.8mm radius / 105mm height for complete bending length
- 1 set of multi-4V dies (16, 22, 35, 50 mm / 85° / height 60mm) for the complete folding length
- Mobile console pedal with emergency stop function
- Two of support arms for sheet metal over linear rail
- User manual in English, descriptive notes, CE marking, CE certificate according to Machine Directive 2006/42/EC, and EMC Directive 2014/30/EC