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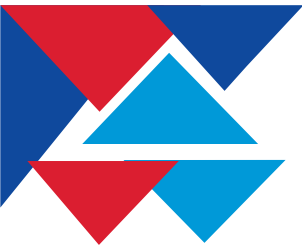
**MANİSA TECHNICAL SCIENCES
VOCATIONAL SCHOOL**

LABORATORY CATALOG

2023



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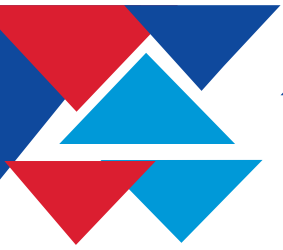
COMPUTER PROGRAMMING LABORATORY



Computer Aided Design class, Computer Aided Manufacture class, Computer Aided Drawing class are performed in Computer Programming Laboratory.

User	Amount	Model
Student	51	DELL/ Intel Core i5-10500T 2.3 GHz 8 GB RAM, 256 GB SSD Hard drive
Lecturer	1	DELL/ Intel Core i5-10500T 2.3 GHz 8 GB RAM, 256 GB SSD Hard drive

Device Photo	Device Name/Model	Amount	Usage Purpose
	DELL/ Intel Core i5-10500T 2.3 GHz 8 GB RAM, 256 GB SSD Hard drive	52	Usage in computer classes

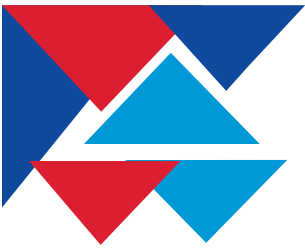




COMPUTER LABORATORY 1

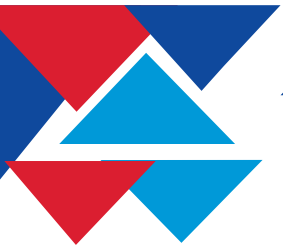


Computer Aided Design class, Computer Aided Manufacture class, Computer Aided Drawing class are performed in Computer Laboratory 1.

User	Amount	Model
Student	26	ASUS/ Intel Core i3-4150T 3.0 GHz 4 GB RAM, 128 GB SSD
Lecturer	1	DELL/ Intel Core i5-10500T 2.3 GHz 8 GB RAM, 256 GB SSD Hard drive



Device Photo	Device Name/Model	Amount	Usage Purpose
	ASUS/ Intel Core i3-4150T 3.0 GHz 4 GB RAM, 128 GB SSD	26	Usage of Computer Aided Programs (computer aided design, computer aided manufacture, Word, excel, computer programming)
	DELL/ Intel Core i5-10500T 2.3 GHz 8 GB RAM, 256 GB SSD Hard drive	1	Usage of Computer Aided Programs (computer aided design, computer aided manufacture, Word, excel, computer programming)

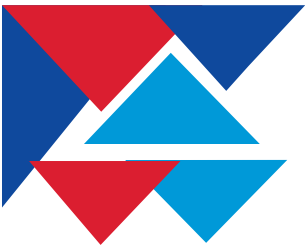




COMPUTER LABORATORY 2

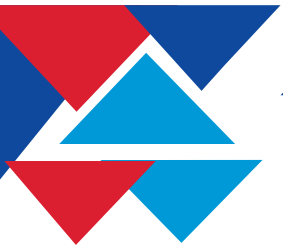


Computer Aided Design class, Computer Aided Manufacture class, Computer Aided Drawing class are performed in Computer Laboratory 2.

User	Amount	Model
Student	24	LENOVA/ Intel Core i5-6400 2.7 GHz 8GB RAM, 256 GB SSD
Student	16	DELL/ Intel Core i5-10500T 2.3 GHz 8 GB RAM, 256 GB SSD Hard drive
Lecturer	1	DELL/ Intel Core i5-10500T 2.3 GHz 8 GB RAM, 256 GB SSD Hard drive



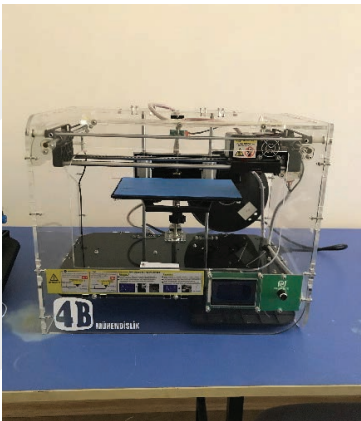
Device Photo	Device Name/Model	Amount	Usage Purpose
	LENOVA/ Intel Core i5-6400 2.7 GHz 8GB RAM, 256 GB SSD	24	Usage of Computer Aided Programs (computer aided design, computer aided manufacture, Word, excel, computer programming)
	DELL/ Intel Core i5-10500T 2.3 GHz 8 GB RAM, 256 GB SSD Hard drive	17	Usage of Computer Aided Programs (computer aided design, computer aided manufacture, Word, excel, computer programming)

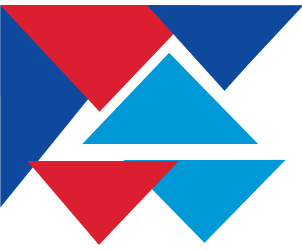


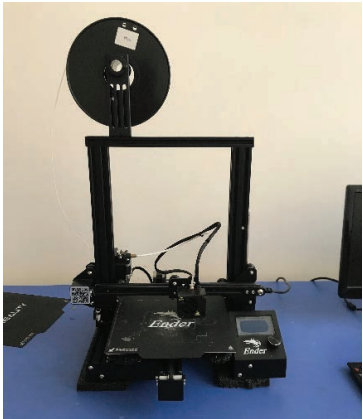

3D INDUSTRIAL DESIGN LABORATORY

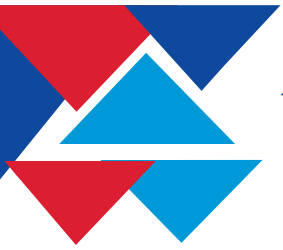


The manufacture of 3d designs and models are performed in 3D Industrial Design Laboratory.

Device Photo	Device Name/ Model	Amount	Usage Purpose
	3D Printer	1	It provides the manufacture of pre-prepared 3d models.




Device Photo	Device Name/Model	Amount	Usage Purpose
	Ender Pro 3D Printer	1	It provides the manufacture of pre-prepared 3d models.
	LG Intel Core i3 - 3.07 GHz 4 GB RAM, 500 GB SSD Hard drive HD 3450 5,2 MB Display Card	1	Design

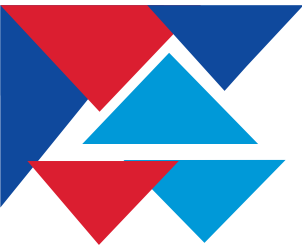




ALTERNATIVE ENERGY SOURCES TECHNOLOGY LABORATORY

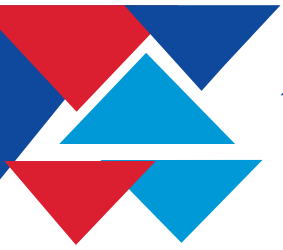




Experimental studies about alternative energy applications are performed in Alternative Energy Sources Technology Laboratory.

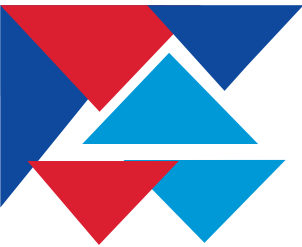
Device Photo	Device Name/ Model	Amount	Usage Purpose
	Micro-wind turbine	1	Study of wind-turbine exit voltage- Study of exit voltage with DAQ model- Study of the wind-turbine working with and without load.




Device Photo	Device Name/Model	Amount	Usage Purpose
	Solar energy panels	1	Reading of solar panel open circuit voltage - Reading of short circuit current-Reading of exit voltages with and without load-Reading of serial and parallel connections.- Reading of shadow effect on panels.
	Control panel	1	Adjustment of current and voltage values by connecting micro-wind türbin and solar panels.

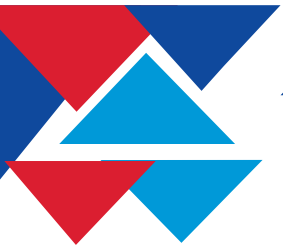


Device Photo	Device Name/Model	Amount	Experiments Conducted/ Readings
	Hydrogen energy experiment mechanism	1	Reading of hydrogen fuel cell exit voltage with oscilloscope - Study of exit voltage with DAQ model - Study of DC convertor exit current with oscilloscope and DAQ model
	Water Heater	1	It's used in order to provide the necessary hot water circulation in experiments.



Device Photo	Device Name/Model	Amount	Experiments Conducted/ Readings
	<p>Computer 1 monitor, 1 Case and Peripherals</p> <p>Intel® Core i3 CPU3.06 Hz</p> <p>4.0 GB RAM</p>	<p>1</p>	<p>It's used in presentations.</p>




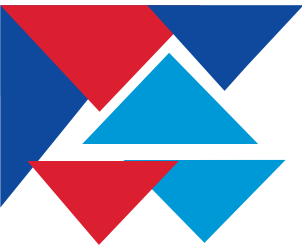




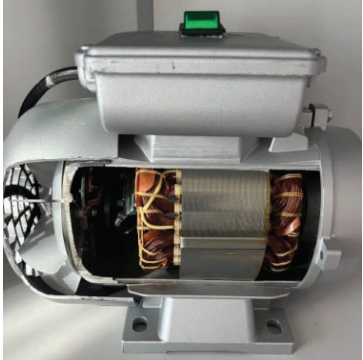
ELECTRICAL LABORATORY

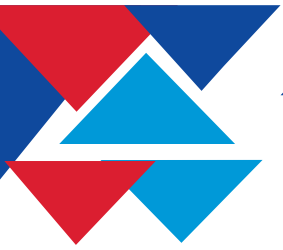


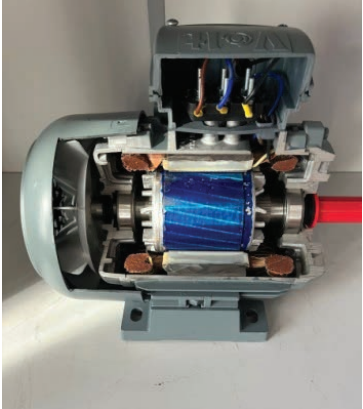
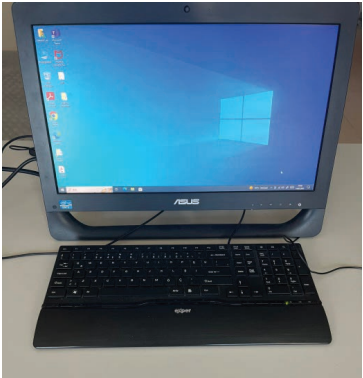
Basic electrics, electronics, control and machinery applications are performed in Electrical Laboratory.

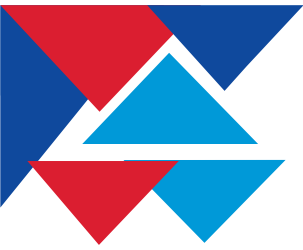
Device Photo	Device Name/Model	Amount	Usage Purpose
	Energy Experiment Tables	8	Lab tables are functionally prepared for students to perform their studies in low voltage, basic electronics, numerical electronics classes. They have energy mechanisms of 0/12 Voltage AC and DC 0/12 Volt AC ve DC levels.



Device Photo	Device Name/ Model	Amount	Usage Purpose
	Multimeter GWINSTEK (GDM-397)	6	Devices which students use in order to conduct readings in their electrical experiments.
	Oscilloscope Memoryprime (GDS-1072A-U)	6	Devices which students use in order to conduct readings in their electrical experiments.
	Sectional Engine	1	Used by students in order to improve their knowledge about electrical machinery info.




Device Photo	Device Name/ Model	Amount	Usage Purpose
	Sectional Engine	1	Used by students in order to improve their knowledge about electrical machinery info.
	Onboard Computer Intel® Core i5 CPU2.80 GHz 8.0 GB RAM	6	Used in class presentations.

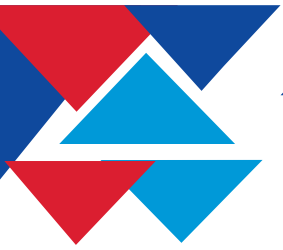





ELECTRONICS and CIRCUIT LABORATORY

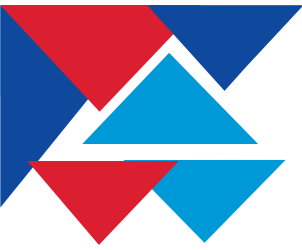




Measuring Technique, Electronics I, Electronics II and Circuit Analysis I and Circuit Analysis II classes are performed in Electronics and Circuit Laboratory.

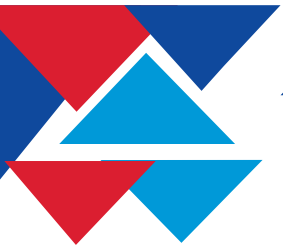
Device Photo	Device Name/Model	Amount	Usage Purpose
	Multimeter GWINSTEK (GDM-397)	11	Device which students use in order to conduct readings in their electrics-electronics circuit experiments.



Device Photo	Device Name/ Model	Amount	Usage Purpose
	Oscilloscope Memoryprime (GDS-1072A-U)	11	Device which students use in order to conduct readings of time due to signals in their electric-electronics circuit experiments.
	Single Channel Power Supply 0-15V-3A (AC ve DC)	8	Device which students use in order to conduct DC energy supply to the circuit in their electric-electronics circuit experiments.
	Double Channel Power Supply 0-30V-3A-DC AATECH (ADC-3303D)	3	Device which students use in order to conduct DC energy supply to the circuit in their electric-electronics circuit experiments.




Device Photo	Device Name/ Model	Amount	Usage Purpose
	Soldering Iron (LF-1700)	10	Device which students use in order to conduct PCB connections of circuits in their electrics-electronics circuit experiments.
	Function Signal Generator UNI-T UTG9002C-II	3	Device which is used in students' electrics-electronics circuit experiments in order to produce periodic signals in sinusoidal, square, triangle waves and adjust the amplitude and frequency of the produced signals.

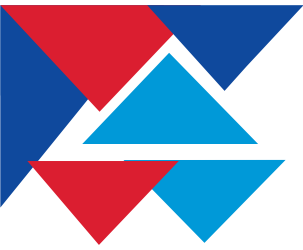


EXPANDED REALITY LABORATORY

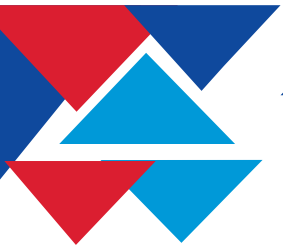


Virtual reality studies are performed in Expanded Reality Laboratory.

Device Photo	Device Name	Amount	Model
	Host	1	Intel Core i7-1270KF 3.6 GHz 32 GB RAM 1 TB SSD





Device Photo	Device Name	Amount	Model
	Portable Computer	1	İntel Core i7-1270H 3.5 GHz 32 GB 500 GB SSD
	Virtual Reality Goggles	1	HTC VIVE PRO
	Projector	1	Viewsonic DLP

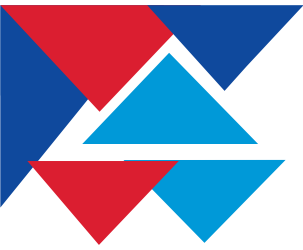


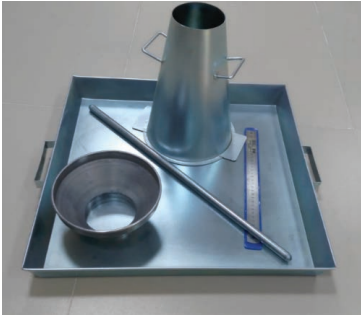

CONSTRUCTION LABORATORY



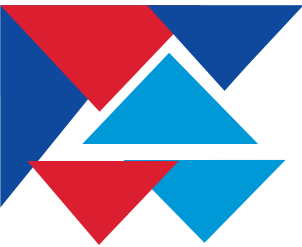
Practical training is performed for Construction Technology Program students.




Device Photo	Device Name/Model	Amount	Usage Purpose
	Permeameter Cell with Flexible Wall	5 Adet	Used in hydraulical conductivity determination of soil.
	Compaction Mold and Mallet	1 Adet	Used in soil compaction, compaction tests.







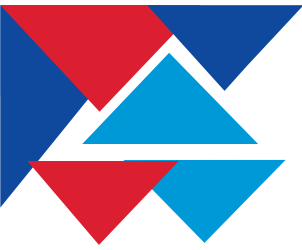
Device Photo	Device Name/Model	Amount	Usage Purpose
	Sieve Set	2 Sets	Used for sieve analysis operation in soil classification.
	Slump set	1 Adet	Used for fresh cement consistency determination.
	Concrete Mixer	1 Adet	Used in mortar mixing operation.



Device Photo	Device Name/Model	Amount	Usage Purpose
	Concrete test presser	1 Adet	Used in order to determine concrete pressure strength.
	Electronical Balance	1 Adet	Used in order to read the material weight.
	Specific Weight Mechanism	1 Adet	Used in the determination of material specific weight values.

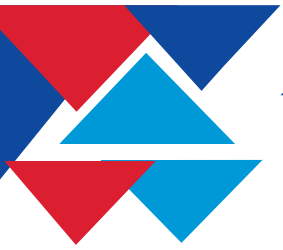


Device Photo	Device Name/Model	Amount	Usage Purpose
	Semi-automatic conical penetration	1 Adet	Used in liquid limit determination of grounds.
	Analytical balance	1 Adet	Precision Balance (with a precision of 0,0001)
	(Data Logger)	1 Adet	

Device Photo	Device Name/Model	Amount	Usage Purpose
	Lineer potentiometric displacement sensor	2	
	Oedomete test cell	2	The cell used for seating parameter determination in consolidation test.
	Balance	1	Used in order to measure material weight.
	Wheel barrows	2	Carries materials and loads




Device Photo	Device Name/Model	Amount	Usage Purpose
	Sieve shaker	1	Used for separation, fraction, particle size determination
	Sieve set with a diameter of 300 mm	1 Adet	Used in sieve analysis of concrete, mortar materials.

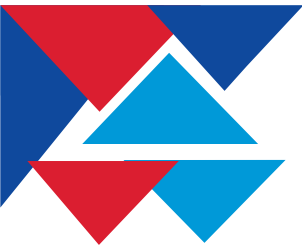


WELDMENT LABORATORY

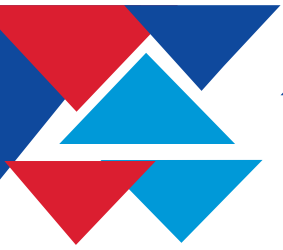


Machinery and metal technology weldment trainings are performed in Weldment Laboratory.

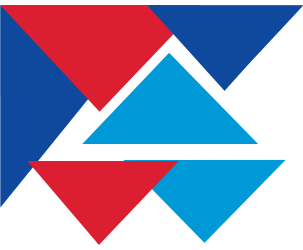
Device Photo	Device Name/Model	Amount	Usage Purpose
	Rectifier Weldment Machine	1	Used in electric arc welding.



Device Photo	Device Name/Model	Amount	Usage Purpose
	Gas Arc Welding Machines	1	Used in TiG, MiG/MAG weldings
	Gas Arc Welding Machines	1	Used in TiG, MiG/MAG weldings.
	Argon (TiG) welding machine Monotig 200i	2	Used in TiG and Elektric arc welding.




Device Photo	Device Name/Model	Amount	Usage Purpose
	MMA Welding Machine Monostick	1	Used in portable electric arc weldings.
	Grindstone	1	Used for sharpening cutting tools and cleaning the chips remaining on the surface of the machined parts.
	Welding Table	6	Used to protect from the rays emerging in the welding process and to make the connection to the chassis.

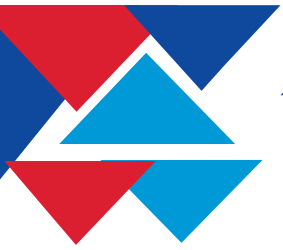


MATERIAL and MEASUREMENT LABORATORY






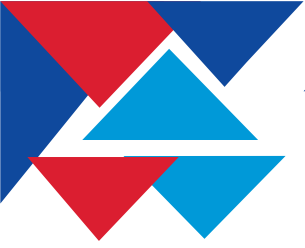
Measurement and Control, Material Technology, Machining Methods, Manufacturing Processes, Chipless Manufacturing Methods classes are performed in Material and Measurement Laboratory.


Device Photo	Device Name/Model	Amount	Usage Purpose
	Heat treatment furnace	1	Used in the hardening of metals.

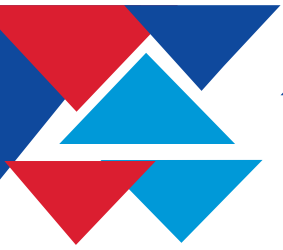


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Device Photo	Device Name/Model	Amount	Usage Purpose
	Ultrasonic bath	1	Used to remove dirt particles from an object completely and quickly.
	Oven	1	It is a laboratory oven used for the purpose of producing microbes, sterilizing, heating, cooking or drying at certain temperatures.
	Shaking Water Bath	6	Shaking Water Baths are used to dissolve, heat, mix and agitate samples.




Device Photo	Device Name/Model	Amount	Usage Purpose
	Lecturer's Computer		YÖNSİS 17 700 P/ İntel Core i5-2400 3.10 GHz 4 GB RAM, 256 GB SSD Hard drive

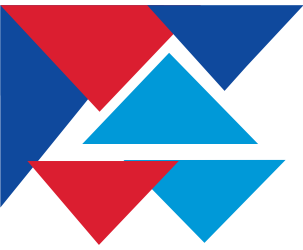


MACHINING LABORATORY



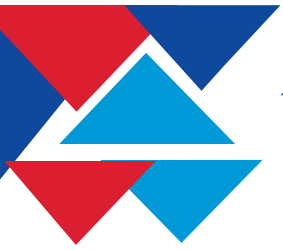
Machining application trainings are performed in Machining Laboratory.

Device Photo	Device Name/Model	Amount	Usage Purpose
	Falco Universal Lathe	2	It enables the processing of cylindrical parts.







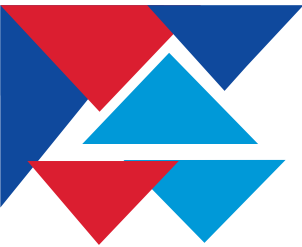
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Device Photo	Device Name/Model	Amount	Usage Purpose
	JETCO Molder Milling Machine	1	It is used in milling work. It enables the processing of prismatic parts.
	Column Drill Bench	1	It is used in drilling operations.
	Band Saw Machine	1	It is used for cutting materials.



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Device Photo	Device Name/Model	Amount	Usage Purpose
	Crane	1	It is used to transport heavy materials
	Grindstone	1	It is used in cutting tool sharpening
	Comparator Clock	1	It provides linearity and runout control
	Caliper Micrometer		It is used for workpiece measurement

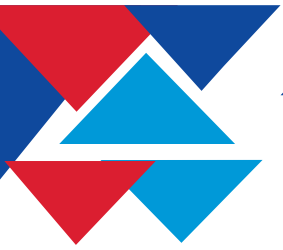


CNC LABORATORY



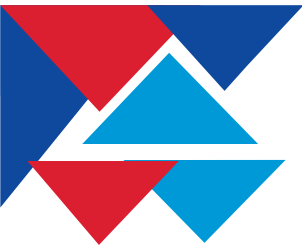
CNC trainings are performed in CNC Laboratory.

Device Photo	Device Name/Model	Amount	Usage Purpose
	CNC Vertical Machining (Milling) Machine	2	It is used for machining prismatic parts.



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MACHINERY and METAL TECHNOLOGIES DEPARTMENT


Device Photo	Device Name/Model	Amount	Usage Purpose
	CNC Lathe	1	It is used for machining cylindrical parts.
	Air Compressor	1	It is used in the production of compressed air
	Crane	1	It is used for material handling
	Computer	1	DELL/ Intel Core i5-10500T 2.3 GHz 8 GB RAM, 256 GB SSD Hard drive

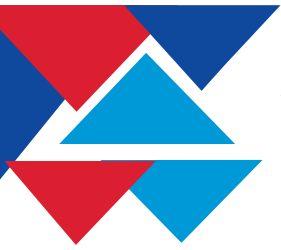


MECHATRONICS LABORATORY

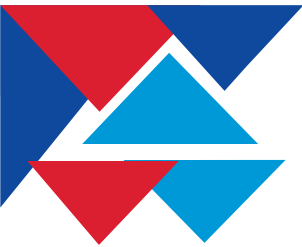



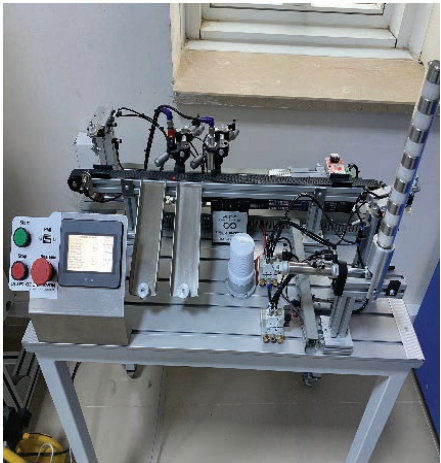
Automation, Pneumatic and Hydraulic trainings are carried out in Mechatronics Laboratory.

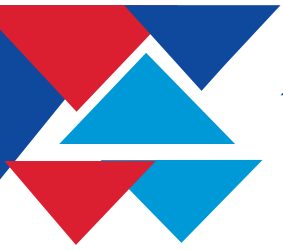
Device Photo	Device Name/Model	Amount	Usage Purpose
			<p>Mechatronics Laboratory Experiment Tables: It is designed for students to use PLC experiment sets and Electrical Experiment Sets. The energy of each desk is controlled by the control buttons on the desk where the Instructor is located. There are 3 220V sockets on each table, protected by a fuse.</p>

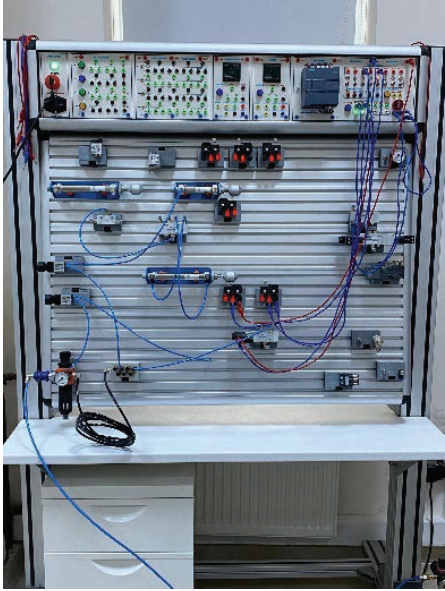
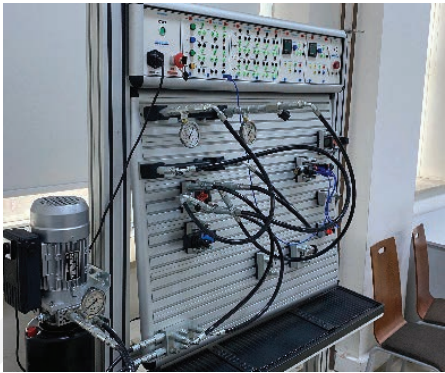


Device Photo	Device Name/Model	Amount	Usage Purpose
	<p>Instructor Host Intel i5 6400 Ram 4 Gb SSD: 256 Gb Vga: Onboard AllinOne</p>	<p>1</p>	<p>It is used in presentations.</p>
	<p>Intel i3 4150 Ram:4 GB SSd: 128 Gb Vga OnBoard AllinOne</p>	<p>5</p>	<p>It is used as a student application computer.</p>
	<p>PLC automation sets by Siemens S7-1200 CPU 1215-C DC/DC/DC processor</p>	<p>5</p>	<p>Students are supported to receive practical training in automation courses and to develop algorithms. Software is developed with TIA portal v16 program</p>
	<p>Sensors Experiment Set</p>	<p>1</p>	<p>It is used with the aim of reinforcing the theoretical knowledge that students get in the Sensors course with practice. 18 separate experiments can be conducted.</p>



Device Photo	Device Name/Model	Amount	Usage Purpose
 A blue metal case containing an electrical experiment kit. The kit includes a breadboard, various electronic components like resistors, capacitors, and integrated circuits, along with a printed circuit board (PCB) and a manual.	Electrical Experiment Set	1	Experiments of the topics covered for the Circuit Analysis course can be conducted.
 A mechatronics experiment set mounted on a metal table. It features a motor, a sensor, a PLC (Programmable Logic Controller) unit, and various pneumatic and electrical components connected by wires and tubes.	Mechatronics Experiment Set	1	All the elements of the mechanic system are available and applications related to PLC, Pneumatics and Sensors courses can be performed. It is envisaged that students will have knowledge about a Mechatronics System.



Device Photo	Device Name/Model	Amount	Usage Purpose
 A photograph of a pneumatic test set. It consists of a metal frame with a control panel at the top containing various gauges, valves, and switches. Below the panel, there are several horizontal manifolds and a network of blue and red pneumatic lines connected to various components. The entire setup is mounted on a white table.	Pneumatic Test Set	1	It includes all the equipment in the Pneumatics section related to the Hydraulic and Pneumatics course. Control part with PLC is supported and the related circuit is set up for the solution of both PLC and Pneumatic Problems.
 A photograph of a hydraulic test set. It features a similar metal frame and control panel to the pneumatic set. The hydraulic system is more complex, with a large black reservoir on the left, a pump, and a dense network of black hydraulic hoses connected to various valves and gauges. The setup is also on a white table.	Hydraulic Test Set	1	It includes all the equipment in the Hydraulics section related to the Hydraulic and Pneumatics course. Circuit installation system installation related to hydraulic problems is carried out.



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