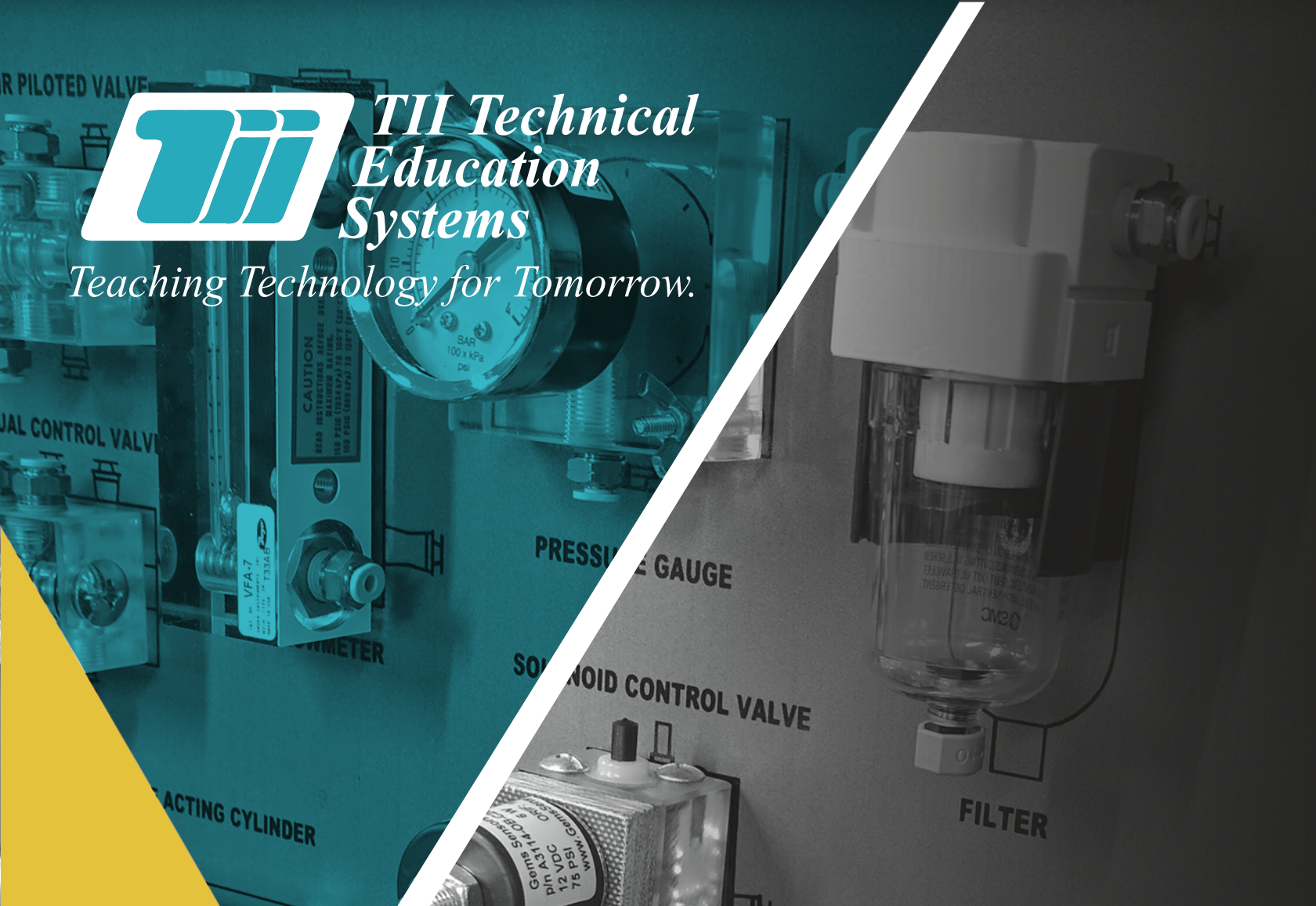




*TII Technical
Education
Systems*

Teaching Technology for Tomorrow.



TECHNOLOGY FUNDAMENTALS



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ABOUT

TII Technical Education Systems (TII) is an internationally known leader in providing integrated, hands-on learning systems. Since our founding in 1964, we have excelled at producing innovative laboratory equipment and curricula geared toward technical training, workplace skills, and industrial certifications for schools, industry and government agencies worldwide.

We're incorporating the newest technology with an extensive curriculum for academic success, preparing students for today's modern employers.

Pneumatic Robotic System - MB500

READ. SHOW. DO.

At TII, we believe a hands-on approach should be the cornerstone of every technical training program.

Statistics prove that hands-on training creates the highest learning retention rate for students.

We recall 25% of what we hear, 45% of what we see, and 70% of what we DO.

That's why all of our programs have a hands-on focus and are supported by a comprehensive instructional curriculum: Read. Show. Do.

All of TII's training programs follow this three-step training method. This in-depth combination of coursework, demonstrations, and hands-on exercises achieves the greatest retention rate and promotes productivity, integral to the development of a Technology Fundamentals skill set.



Principles of PLCs - MB665ML-S

TECHNOLOGY FUNDAMENTALS

TII's Technology Fundamentals series is designed to introduce students to the basic principles of technology. This series emphasizes many career-focused, hands-on learning fundamentals with STEM applications. TII's Technology Fundamentals series delivers an interactive learning program consistent with the needs of a technology-driven world.

Each of TII's Fundamentals learning systems include background study, observational and hands-on experiments, and application exercises for student understanding and retention. Our globally popular Technology Fundamentals trainers are attractive, durable, and completely enclosed in a portable and lockable impact-resistant polyethylene case. Each complete, stand-alone system includes an experiment station, component kit, visual aids, and courseware. All necessary hardware and components are included, for easy plug-and-play start up and success.

TII'S CURRICULA

Our technical training solutions are user-friendly and customizable for a clear and concise learning experience. TII's curricula have been designed and reviewed by a panel of experienced secondary and post-secondary educators. Each program has received input from industry experts and has been tested by industry and educational professionals.

Students will discover the functions of the individual technology components and combine them to mimic real world operating systems. They will then master the application of learned principles through mathematic and scientific concepts, the driving forces behind each of TII's learning systems.

Fundamental Learning with TII

- Emphasizes industry-focused, hands-on learning with STEM applications
- Delivers a program consistent with a technology-driven world
- Professionally written programs increase instructor efficiency and student results
- Comprehensive 25-hour curriculum
- Easy to use instructor guide with student manuals
- Designed for individual or group study
- Stand-alone training systems
- Assessment testing included

Visit our website for more information
on TII's curriculum: www.tii-tech.com

OUR LEARNING SYSTEMS

Common features to most of the MB Series learning systems:

- Suitcase for easy portability when not in use
- Flexible use: Experiments can be conducted within the suitcase, or system panels are removable for wall mount or table-top use
- Silk-screened panels for easy identification of learning system components and symbols
- Small-scale components mimicking real world equipment and applications
- Fast and easy setup of experiments: Focus on experiment objectives, not a lengthy setup process
- All components, supplies, power system, and curriculum are included: no extras needed

ELECTRICITY & ELECTRONICS MB100

This learning system familiarizes students with electricity through an introduction to electronics applications. Our trainer provides a foundational understanding of how electricity works by illustrating how electricity is distributed throughout a variety of inputs and outputs.

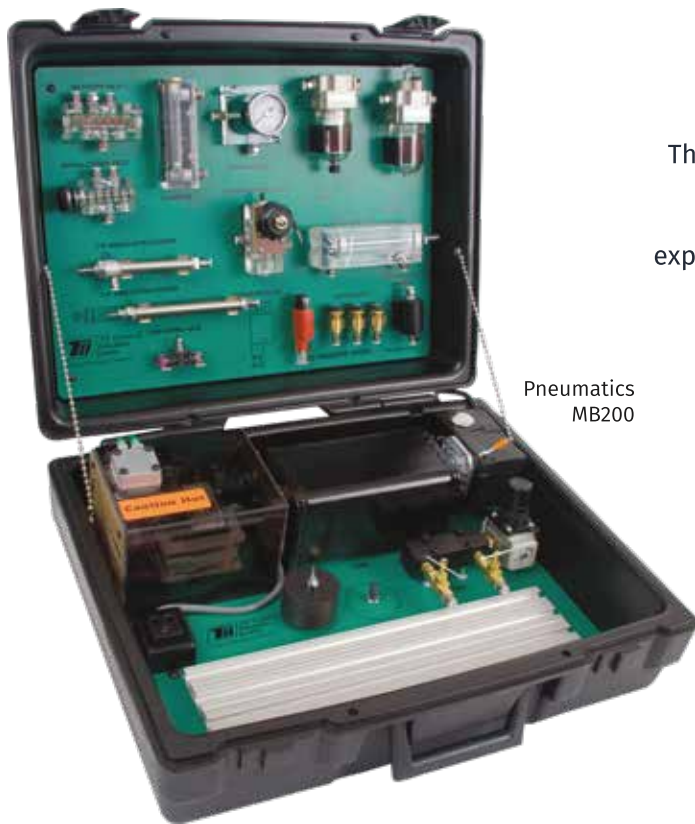
Students will learn about magnetism, electrical components (resistors, diodes, capacitors), progress to instrumentation, AC / DC power and schematics.

They will learn how to construct and measure series and parallel circuits, apply electrical principles and physical properties, including Ohm's Law, to the developed circuits.

- Experimentation station is protected with an internal fuse and circuit breaker
- Maximum voltage is limited to 12 VDC for student safety
- Component and circuit protection
- Banana jack and patch cords for easy wiring



Electricity & Electronics - MB100
Shown in upright stand option
instead of standard suitcase.



Pneumatics
MB200

PNEUMATICS MB200

This trainer introduces students to pneumatic technology and its applications. Each lesson requires students to conduct an experiment in pneumatic technology using one or more of the 20+ components including different types of valves, cylinders and measuring instruments.

Students will learn about air preparation, vacuum and pressure regulation. They will understand how to directionally control air flow using manual, solenoid, and air piloted control valves to operate actuators and other devices in order to generate useful work. They will construct pneumatic circuits replicating real-world applications. Students will apply Pascal, Charles, and Boyle Gas Laws to pneumatic circuits.

- Many see-through components allow for student observation and increased understanding of system functions
- Built in power supply includes air compressor 60 PSI with a safety relief valve
- Quick connect fittings, hoses, for easy assembly of experiments

MECHANISMS MB300

The Mechanisms learning system provides a comprehensive look at power transmission and the basic elements found in all machines. Each lesson includes an experiment that requires students to construct and operate a simple machine or device. Among the 30+ mechanical components are a variety of gears, pulleys, and assemblies. Students will use the components to design their own solutions to meet common problems that occur in industrial and everyday situations.

Experiments will teach about simple machines and their application: first, second, and third class levers; inclined plane, screw, wheels and axles, as well as pulleys and gears to generate mechanical advantage. They will use these machines to design and build a variety of mechanical systems—gear and drive trains, block and tackle systems, linkage motion, and cam operation. Principles learned will be applied to the physical properties of mechanisms including force, work, power, friction/efficiency, kinetic and potential energy.

Visit our website for more information
on TII's curriculum: www.tii-tech.com

MECHANISMS MB300

- No power is needed: All experiments are operated manually to enhance the understanding of simple machine operation and mechanical advantage.
- Curriculum uses simple machines as "building blocks" to construct compound machines
- Variety of commonly used gear types and sizes included

Mechanisms
MB300



HYDRAULICS MB400

This trainer familiarizes students with hydraulic technology and its applications. Each lesson requires students to conduct an experiment in hydraulic technology using one or more of the 20+ components including different types of valves, cylinders and measuring instruments. Students will use these components to emulate industrial applications. Students will develop skills in problem solving, data management, hydraulic concepts, and unit conversion.

Students will learn about hydraulic fluid and filtration, how to control and direct hydraulic fluid using pressure control devices, directional valves, and flow control valves. They will use the components and schematics to construct hydraulics systems commonly found in industry like a hydraulic press, jack or positioner applications. They will study the physical properties of force, work, power, and energy used in these applications.

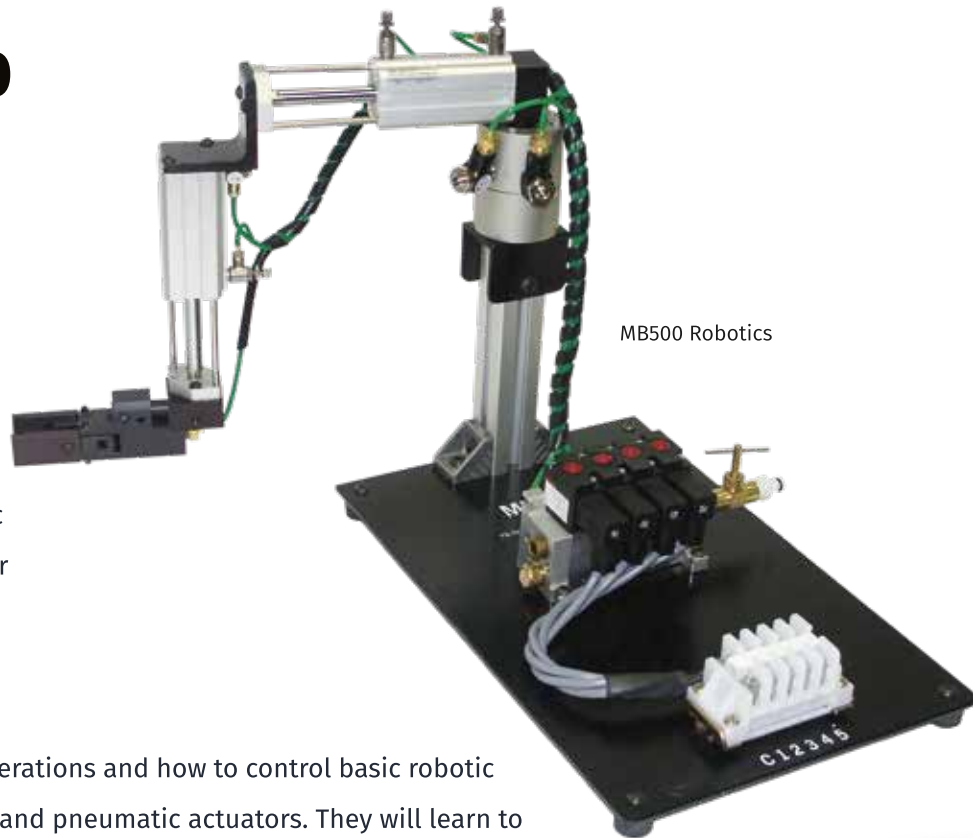
- Many see-through components allow for student observation and increased understanding of system functions
- Built in centrifugal pump with hydraulic reservoir set at 25 PSI maximum
- Quick connect fittings for easy assembly of experiments
- Reservoir and hoses pre-filled with hydraulic fluid

Hydraulics
MB400



ROBOTICS MB500

The MB500 Pneumatic Robotics Module teaches PLC control, robotic technology, and pneumatic applications. This module is designed to provide students with an understanding of how pneumatic components work together in a pick-and-place robotic arm application. Learn how to control robotic motion using a pendant or programmable logic controller (PLC) featuring ladder logic computer programming software to create, edit, run, and monitor robot programs.



Students will learn the principles of robotic operations and how to control basic robotic motion using an electrical solenoid valve pack and pneumatic actuators. They will learn to control each robot motion separately: base rotation, linear shoulder extension, linear elbow elevation, and gripper open/close. Then develop a robot motion map by combining the robot motions into a series of robot actions.

- Robotic Arm has three axes of motion and four degrees of freedom
- Each degree of freedom is individually controllable
- Safe air operating pressure of 60 PSI

Visit our website for more information on TII's curriculum: www.tii-tech.com

SENSORS MB600

The MB600 Sensors trainer offers a comprehensive approach to industry sensing devices. This system simulates the many uses of sensors in automated manufacturing. With 29 learning units, this trainer familiarizes students with sensor systems through interactive experiments. This versatile learning system can also be used with motors, lighting systems, conveyors, or as part of an automation system. Any electrically compatible PLC can be interfaced to the MB600.

Students will learn about the basic sensor types commonly used in industry including photoelectric (infrared and fiber optic), proximity (inductive), and limit switches. They will learn the advantages and disadvantages of each, as well as when to use the different sensor types based on the application. Sensors, with included target and output devices, are electrically connected by quick connect fasteners to a controller base unit. When the sensor is "tripped," the corresponding output is activated.

SENSORS MB600

- Work surface can be removed from case for setting up sensor experiments with other equipment
- Output devices: lights and horn
- Targets: Metal (Steel, Aluminum, Copper), Colorboard (black, white, silver)



Sensors - MB600



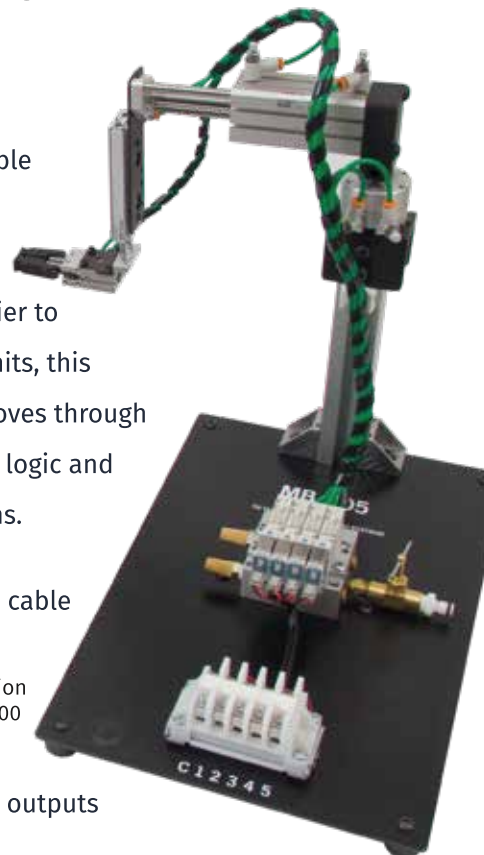
Micro Controllers - MB640A

MICRO CONTROLLERS MB640A

This introductory PLC training system enables students to develop competence in operating and programming an industrial programmable controller. TII's Micro Controllers offers students experience with an electronic control relay with PLC-like features: built-in logic, timer, counter, and real-time clock functionality. The Micro Controller is easier to use and program than a traditional PLC. Featuring over 20 learning units, this system's curriculum begins with basic wiring concepts and quickly moves through series and parallel circuits, Boolean Algebra, inputs / outputs, ladder logic and programming. Compatible with TII's MB500 and MB600 training systems.

- Programmable keypad with LCD display or software with computer interface cable
- Digital Inputs: 4
- Analog Inputs: 2
- Relay Outputs: 4
- Banana jack and patch cords for easy connect and disconnect of inputs and outputs

Robotics PLC Application
MB500





PRINCIPLES OF PLCs

MB665ML-S

Our Principles of PLCs trainer offers students a complete PLC training system featuring the Allen-Bradley MicroLogix PLC with two built-in applications: traffic intersection and bi-directional motor controlled slide. This system enables learners to develop experience in operating, programming and troubleshooting a true industrial programmable logic controller (PLC) and applying that knowledge to the included applications. Our curriculum begins with basic wiring concepts and quickly moves through series and parallel circuits, Boolean Algebra, inputs / outputs, ladder logic and programming. Each of our 23 learning units simulate PLC operations and applications within an industrial setting.

- Contains Allen-Bradley MicroLogix PLC
- Digital Inputs: 10
- Analog Inputs: 2
- Digital Outputs: 6
- RSLogix 500 Programming Software
- Banana jack and patch cords for easy connect and disconnect of inputs and outputs

ABOUT TII'S OTHER SYSTEMS

Technology Fundamentals serves as the building block for a career-focused education experience. Our uniquely designed training systems can function as stand-alone modules or integrated with other TII products to provide a more comprehensive training program.

From the entry-level student to the experienced professional looking to further their skills, our programs are designed to meet a wide variety of career-oriented needs.

ADVANCED SYSTEMS

The Advanced Systems series provide the components and hands-on training required to effectively troubleshoot and repair systems used by today's employers in modern industry. This series offers comprehensive instruction in two major concentrations of advanced industrial skills training: Industrial Fluid Power and PLC-focused Industrial Controls.

Industrial Fluid Power Series:

- Pneumatics
- Hydraulics
- Electro-Pneumatics
- Electro-Hydraulics

Industrial Controls Series:

Advanced PLCs

- Allen-Bradley
- Siemens
- Custom

PLC Applications

- HMI
- Ancillary Devices
- Machine Processes
- Analog Processes
- PAS Simulation Modules

AC Drives

Motor Control Troubleshooting

Advanced Electronic Sensors



Electro-Hydraulic EXP4

INTEGRATED AUTOMATION

The Integrated Automation series offers complete mobile Computer Integrated Manufacturing Systems (CIM, FMS, Mechatronics) for a wide range of integrated automated training configurations. Trainees will gain authentic industrial automation knowledge and skills on programming, system set up, HMI, system troubleshooting, and more on real world hardware. This series uses Windows-industrial based software communications and interfacing, real world inputs and outputs, creating industry-ready graduates.

- Mechatronics
- Multi-Station FMS
- Single Axis CIM Cell
- Dual Axis CIM Cell
- System Integration
- Supervisory Software
- Application Robotics
- Local Area Networking
- Programming, HMI and Controls



Modular Multi-Table Flexible Automation System
FMS800

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CONTACT **TII TECHNICAL EDUCATION SYSTEMS**
OR YOUR LOCAL REPRESENTATIVE FOR MORE INFORMATION



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