

EDUCATE THE FUTURE



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CHAMPIONS AT WORK

RAT “ROBOTICS & AUTOMATION TECHNOLOGY”



The Robotics and Automation Technology competition at SkillsUSA offers students a valuable opportunity to gain hands-on experience in automation and robotics, simulating real-world industrial processes.

The competition's team-based problem-solving approach aligns with the skills needed for employment in the automation technology sector. Students can showcase their technical abilities in a measurable format, demonstrating proficiency in areas such as robotics, PLCs, sensors, and electrical systems.

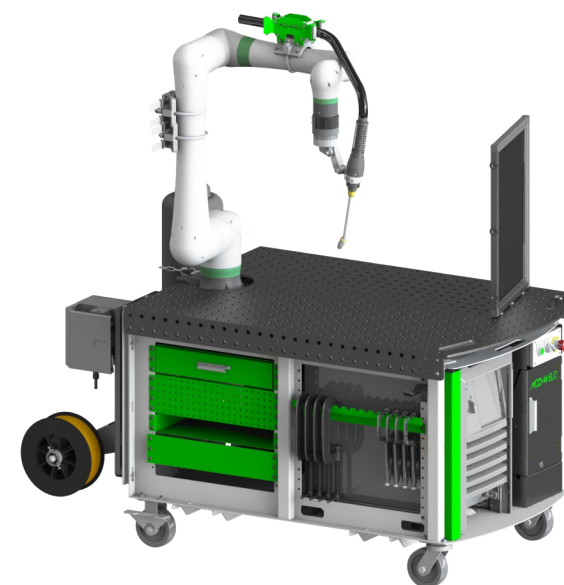
The project's focus on applying concepts in real-world contexts, such as industrial wiring techniques, linking PLCs to robots, and incorporating machine vision, is especially praiseworthy. Moreover, the necessity to adjust to a change order underscores the competition's practical emphasis.

This competition offers a remarkable opportunity for students to cultivate and showcase the skills essential for success in the automation industry.

EQUIPMENT

- FANUC CERT Cart with ER4 Industrial Robot
- FANUC Teach Pendant
- PLC Kit – Rockwell iCC PLC/HMI
- Linear variable speed conveyor
- Sensor, Stack Light
- Competition Blocks
- FANUC iRVision

TECHNOLOGY DEMONSTRATION



See page 26 for more info

This event represents an interactive experience at the National Leadership and Skills Conference (NLSC). Participants will have the opportunity to program or observe a demonstration of a FANUC collaborative robot performing welding operations utilizing industrial MOD-WELD equipment. This experience enables attendees to gain insight into the specific demands of a trade, serving as a means to explore prospective career paths through direct engagement.

Key points:

• Hands-on learning:

The primary feature is the ability to physically engage in a skill associated with a specific trade or career field.

• Career exploration:

The objective is to expose individuals to a variety of career opportunities & assist them in identifying their potential interests.

CERT CART



LEARNING OBJECTIVES

- ROBOT/COBOT PROGRAMMING
- OFFLINE PROGRAMMING
- 2D VISION GUIDANCE

NOCTI *Nocti Business Solutions* administered FANUC Certifications
Equipment qualifies for FANUC CERT Program



FANUC

ROBOT TRAINING CART



FANUC’s Mobile Training Cart is an entry level cart that teaches students basic tool handling skills as well as *i*RVision pick and place. The cart comes with standard project-based learning.

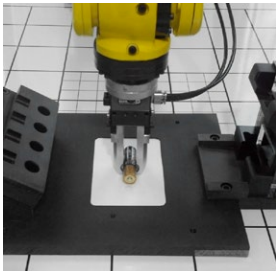
Industrial robotics training in the classroom can safely be achieved through the CERT program. FANUC America provides the necessary training to the instructor as well as a curriculum to introduce students to robot applications. To accompany the CERT program, an eligible school can purchase a new innovative educational tooling package. With this package, students will utilize the same robots & software that are used in industry. Schools can use the new package to integrate robot training into their programs and initiatives.

INCLUDES

FANUC robot/cobot, cart, optional integrated vision systems (*i*RVision), optional use of ROBOGUIDE simulation software.

PBL - PROJECT BASED LEARNING OPTIONS

Battery Package



Battery Package with Basic *i*RVision 2D & Error Proofing (using existing Gripper fingers on robot)
Includes: Machined “AA” Battery Magazine, (8) “AA” Batteries Included, Machined Loading Trays with *i*RVision target, (1) FANUC *i*RVision 2D Manual for teaching Vertical, Horizontal, and Diagonal load & unload programming.
Includes Demo Program with *i*RVision when purchased w/ CERT cart
*Requires *i*RVision 2D Guidance Hardware & Software
*Requires *i*RVision CERT Instructor Program

Pill Sorting



Pill Sorting Package with Basic *i*RVision 2D & Contrasting Colors
Includes: Pneumatic Dual Position Vacuum Gripper, (2) Pill Bottles, (16) Plastic Pills, Fixed position - Loading Tray / Sorting Surface, (1) FANUC *i*RVision 2D Manual
Includes Demo Program with *i*RVision when purchased w/ a CERT cart
**SHOP AIR Required
*Requires *i*RVision 2D Guidance Hardware & Software
*Requires *i*RVision CERT Instructor Program

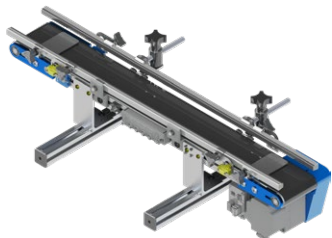
*i*RVision



FANUC’s fully integrated visual detection system that enables robots to see. As a result, production flexibility increases because expensive positioning fixtures are not required. 2D vision is suited for any material handling application including palletizing and depalletizing, as well as vision inspection.

ACCESSORIES

Tabletop Conveyor



Tabletop Swivellink® 4-1/2”W X 36”L Variable Speed Conveyor. This conveyor can be placed flat surface. Overall height (top of belt) is approximately 6.75” off the table.

Includes: Variable speed motor, side rails, sensors & endstops

PLC/HMI Trainer



To improve the CERT Cart experience for students, incorporate the PLC/HMI Trainer (see page 12) and utilize the industrial PLC to manage the robot on the cart.

ROBODRILL



LEARNING OBJECTIVES

- CNC PROGRAMMING
 - G-CODES & M-CODES
 - SPEEDS & FEEDS
- SET-UP TOOLING & VISE

Equipment qualifies for FANUC CERT Program



CNC VERTICAL MACHINING CENTER



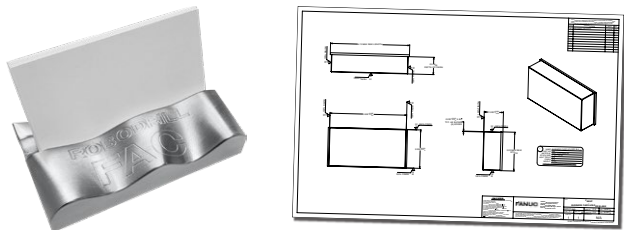
The student will be trained on a FANUC ROBODRILL, 3 axis high-performance machining center. Known worldwide as the most reliable machine in the manufacturing industry today. Used for milling, drilling, or tapping jobs. FANUC CNC controls are the most used CNC controls with over 5 million installed worldwide. This best prepares a student to be "job-ready". Also available in 5 axis models

INCLUDES

ROBODRILL α-D14MiB series, Touch panel screen, Right side auto pneumatic door, Auto oil lubricating, Coolant unit with chip flush, Outer coolant piping, Fast data server 4GB memory

PBL - PROJECT BASED LEARNING OPTION

Business Card Holder



ACCESSORIES

CNC Tooling Package



A starter package with the necessary tools for your ROBODRILL CNC machine.

Includes BT30 tool holder tightening fixture, ER20 wrench, (10) Retention knobs, (10) BT30 ER20 Collet holders, ER20 15-piece collet set 1/16" - 1/2", 1/2" carbide endmill, 3/8" carbide endmill, 1/4" carbide endmill, 1/8" chamfer mill, Edge finder

Coolant & Skimmer Package



Everything you need to start your machine up properly for both coolant and way oil

5 gallon TRIM MicroSol 585XT coolant, Brix refractometer coolant testing, Vactra No. 2 way oil, 5 gallon pail, 0.25 GPH 8" reach belt oil skimmer, 4" Aluminum Jaws

Vise Kit Package



A manual vise kit with jaws ready to be used in the machine.

Includes: 4" Vise, Handle, Aluminum jaw set, (2) 3/8 tee nuts, (2) Hold down bolts

MTEC WITH ROBODRILL



LEARNING OBJECTIVES

- ROBOT/COBOT PROGRAMMING
- ROBOT TO CNC INTEGRATION
- 2D VISION GUIDANCE
- CNC PROGRAMMING
 - G-CODES & M-CODES
 - SPEEDS & FEEDS
- AUTOMATED FIXTURING

NOCTI *Nocti Business Solutions* administered FANUC Certifications
Equipment qualifies for FANUC CERT Program



ROBOT MACHINE TENDER & VERTICAL CNC



This industry 4.0 mated system is used to teach integration of the robot to the CNC. The student will understand that both the robot & the CNC have unique tasks individually but they also need to communicate to make them work together. Additionally, by using the optional iRVision, they will learn 2D guided robot motion & part inspection.

INCLUDES

ROBODRILL includes: α-D14MiB series ROBODRILL, Touch panel screen, Right side auto pneumatic door, Auto oil lubricating, Coolant unit with chip flush, Outer coolant piping, Fast data server 4GB memory

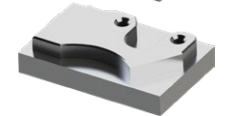
Robot machine tender includes: pre-configured program templates, part loading templates, cart, gripper, toolbox, cart, and optional iRVision. Pneumatic two jaw, self-centering, vise, Set of soft vise jaws, 24 VDC pneumatic valve. Choice of 6-axis FANUC LR Mate 200iD/7L robot or FANUC CRX-10iA cobot

PBL - PROJECT BASED LEARNING

NIMS Job Duty 2.10 (Included)

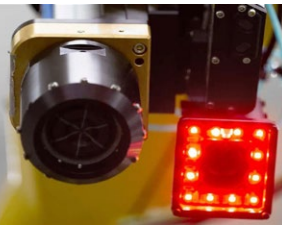


Material for set-up & running the NIMS Job Duty 2.10



Includes: 50 piece aluminum machining blank kit, 3/4" x 3-1/2" x 3-1/2", Robot part locator template, robot gripper, & vise jaws for included material blanks.

iRVision (Optional)



FANUC's fully integrated visual detection system that enables robots to see. As a result, production flexibility increases because expensive positioning fixtures are not required. 2D vision is suited for any material handling application including palletizing and depalletizing, as well as vision inspection.

ACCESSORIES

CNC Tooling Package



Two tooling packages are available, basic or deluxe, with the necessary tools for your ROBODRILL CNC machine.

Basic Includes: BT30 tool holder tightening fixture, ER20 wrench, (1) Retention knob, (1) BT30 ER20 Collet holder, ER20 collet 3/8".

Deluxe Includes: BT30 tool holder tightening fixture, ER20 wrench, (10) Retention knobs, (10) BT30 ER20 Collet holders, ER20 15-piece collet set 1/16" - 1/2". 1/2" carbide endmill, 3/8" carbide endmill, 1/4" carbide endmill, 1/8" chamfer mill, Edge finder

Coolant & Skimmer Package



Everything you need to start your machine up properly for both coolant and way oil

5 gallon TRIM MicroSol 585XT coolant, Brix refractometer coolant testing, Vactra No. 2 way oil, 5 gallon pail, 0.25 GPH 8" reach belt oil skimmer, 4" Aluminum Jaws



LEARNING OBJECTIVES

- ROBOT/COBOT PROGRAMMING
- ROBOT TO CNC INTEGRATION
- 2D VISION GUIDANCE
- CNC MILL & LATHE PROGRAMMING
 - G-CODES & M-CODES
 - SPEEDS & FEEDS
- AUTOMATED FIXTURING



NOCTI *Nocti Business Solutions* administered FANUC Certifications
Equipment qualifies for FANUC CERT Program

ROBOT MACHINE TENDER & CNC SIMULATOR

FANUC LR Mate robot



FANUC CRX cobot



This compact and mobile equipment allows you to teach CNC and robotics in a classroom environment. Students will discover that while the Robot and CNC each have distinct roles, they communicate effectively to collaborate. Additionally, by using the optional *iR*Vision, they will learn 2D guided robot motion & part inspection.

INCLUDES

FANUC CNC simulator, robot machine tender, pre-configured program templates, part loading templates, cart, gripper, *iR*Vision, toolbox, and cart.
Choice of 6-axis FANUC LR Mate ER-4*i*A robot or FANUC CRX-5*i*A cobot

PBL - PROJECT BASED LEARNING

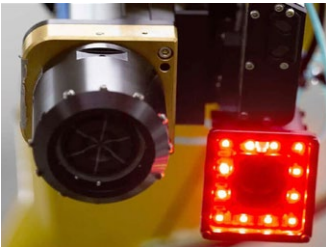
Simulated CNC Mill & Lathe (Included)



Pick and place material for either mill or lathe to load and unload by the robot from a template or vision picking area (optional robot guided vision).

Includes: Pick & place material for both mill & lathe simulated machining.

*iR*Vision (Optional)



FANUC's fully integrated visual detection system that enables robots to see. As a result, production flexibility increases because expensive positioning fixtures are not required. 2D vision is suited for any material handling application including palletizing and depalletizing, as well as vision inspection.



LEARNING OBJECTIVES

- PLC & HMI PROGRAMMING
- SEQUENCE BASED PROGRAMMING
- PLC TO ROBOT INTEGRATION
- INTEGRATION OF SENSORS & DEVICES
- NETWORKING COMMUNICATION
 - ETHERNET I/P
 - DISCRETE
 - WIRELESS



INSTRUCTOR PRODUCT TRAINING
available at aptmfg.com/product-training

PLC/HMI TRAINER



This PLC/HMI Trainer was developed for multiple learning experiences based on industry standards. The trainer has a template for the student to understand how ladder logic works before moving into programming. The trainer can then be connected via ethernet or wireless hub to communicate with other products including a FANUC robot.

Also available to be purchased as a kit; the student will use industrial schematics to mount and wire all components with wire ferrules and labels.

INCLUDES

NEMA 12 enclosure, 120VAC, 24 VDC power supply w/ cord, 5 port ethernet switch, wireless ethernet bolt, pushbuttons, selector switch, PLC: Compact Logix 5000, HMI: Panelview 5000, 10.4" color touch display

REPLENISHMENT KIT



This kit comes with all of the supplies needed to rebuild the PLC/HMI Trainer.

Includes: Push Rivets for wireway, red and blue ferules for 18 & 14 ga wire, ring terminals, wire wraps, cable ties, screws, nuts, heat shrink tubing, wires

SUITCASE TRAINERS

Sensor Kit



Sensors are used for detection of product, device location, color, etc. in industrial automation systems. The variety included allows for sensor type specific learning, operation and set up. The included brackets and hardware allow the sensors to be set up on a T-Slot tabletop plate in various scenarios.

Includes: Proximity, Optic, Hall Effect, Polarized Retro-reflective, Smart Color, Test cylinder, Cord Sets.

Pneumatic Cylinder Kit

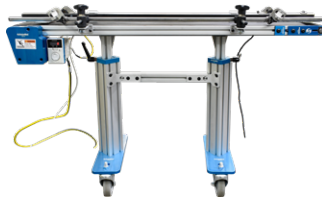


Pneumatic fluid power devices are common in industrial automation systems. The variety included allows for motion, flow control, clamping, diverting, turning, vacuum generation, or moving of products and machinery items. The included brackets & hardware allow the cylinders to be set up on a T-Slot tabletop plate in various scenarios.

Includes: Actuators (Rotary, Guided linear, Parallel Gripper, Escapement), Venturi vacuum ejector, Vacuum cups

ACCESSORIES

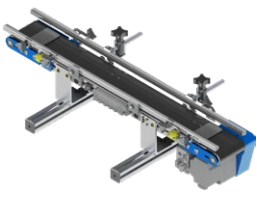
Free Standing Conveyor



Free Standing Swivellink® 4-1/2"W X 36"L Variable Speed Conveyor. Conveyor overall height from the floor is adjustable from approximately 26" up to 35" off the floor.

Includes: Variable speed motor, side rails, sensors, endstops, and adjustable height floorstand with casters

Tabletop Conveyor



Tabletop Swivellink® 4-1/2"W X 36"L Variable Speed Conveyor. This conveyor can be placed on a flat surface. The conveyor overall height (top of belt) is approximately 6.75" off the table.

Includes: Variable speed motor, side rails, sensors, & endstops. Magnetic or non-magnetic feet options

The wireless modules will expand the PLC Trainer and communicate with other items in your classroom

Electrical I/O



Includes: Configurable 16 points of input/output (using splitters on 8 access ports), Industry standard M12 5-pin port

Wireless Adapter



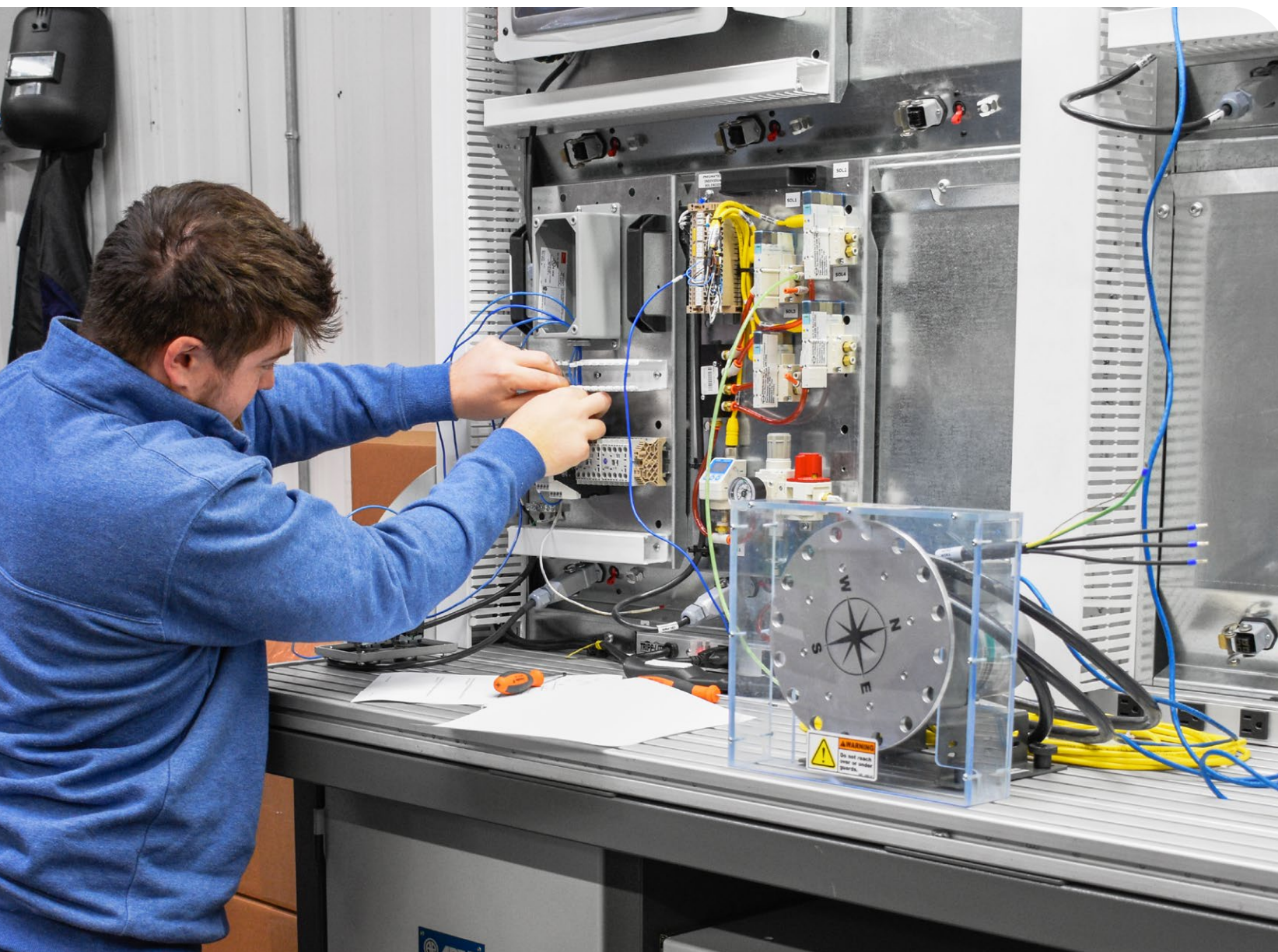
Includes: WEP, WPA, and WPA2 security protocols, Anybus wireless bolt, Add network communication to your FANUC robot

Pneumatic I/O



Includes: 4 individually controllable valves, Double solenoid 2 position blocked center ports, open center ports, & detent. Single solenoid 2 position spring return.

iLS - INDUSTRIAL LEARNING SYSTEM



LEARNING OBJECTIVES

- INDUSTRIAL AUTOMATION CONTROLS
- PROGRAMMING LOGIC & INTERFACING
- WIRING AND CIRCUITRY
- FLUID POWER
- MOTOR DRIVES
- MACHINE SAFETY



FANUC



INSTRUCTOR PRODUCT TRAINING

available at aptmfg.com/product-training

ELECTROMECHANICAL SYSTEMS TRAINER

MOBILE WORKSTATION



This industry-approved equipment is a flexible multiuse workstation with interchangeable learning lab modules. It can expand with your teaching preferences; add various modules to the workstation when you're ready to introduce a new lab in your class. Module categories, including blanks, are available for creating your own unique setup. The workbench provides air supply and is flexible enough to accommodate up to 12 modules while allowing for additional items to be added to the table surface. You can easily hang, connect, and test the modules, which can then be interconnected to create a functional industrial control system, accommodating multiple students with the same or different curricula simultaneously.

INCLUDES

120VAC Power Strip For Accessories, Quick Disconnect Plugs w/ 5A Breaker for 24VDC Module Power, On-Board Air Compressor, Wire Drawer, Spare Drawer, Tool drawer that Contains three (3) terminal screwdrivers, wire strippers, crimper, Fluke meter, tube cutter, Hex wrench, Work light

DESKTOP WORKSTATION



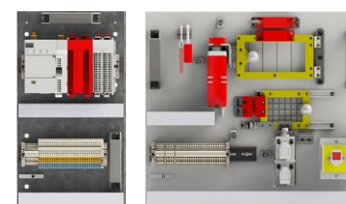
The desktop unit offers endless classroom possibilities. It is foldable, portable, cost-effective, & adaptable to any space. Arrange them for individual or group use, then connect the units for even more opportunities.

INCLUDES

Includes 120VAC Power Cord, Quick Disconnect Plugs w/ 5A Breaker for 24VDC Module Power, Non-Skid Feet, Hanging cleat design, Compressed air ready

ACCESSORIES

Modules

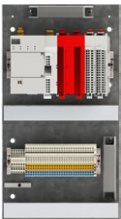
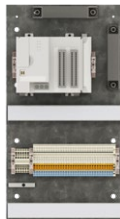
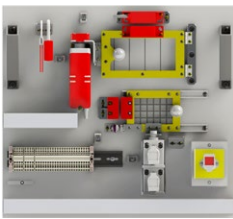
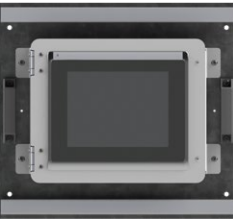
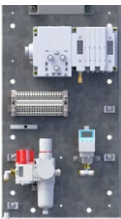
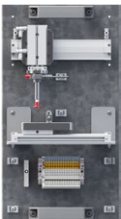


See the next pages for more details on the many iLS Modules available

PLC/HMI Trainer



To improve the iLS experience for students, incorporate the PLC/HMI Trainer (see page 12) and utilize the industrial PLC to manage the robot and every component of the iLS.

LOGIC SYSTEMS		SAFETY DEVICES	
PLC Module - Guardlogix iLSM-W1-E-RAGLX  Teaches: PLC Ladder logic programming using Studio 5000, discrete I/O, safety I/O, SIL 2/PLd Works with: E-Stop, Door Interlock, Light Curtain, Area Scan, Interface, and many more Includes: AB GuardLogix 5380 Series Safety PLC, Safety, & Discrete I/O	PLC Module - CompactLogix iLSM-W1-E-RACLX  Teaches: PLC Ladder logic programming using Studio 5000, discrete I/O, analog I/O, counter Works with: Interface, Relay, Pneumatics, Drive, Sensors, & many more Includes: AB CompactLogix 5370 Series PLC, Discrete I/O, Analog I/O, High speed counter	E-Stop Module iLSM-W1-S-RAESTOP  Teaches: Wire discrete safety circuits, E-stop, safety relay, pushbuttons Works with: Conveyor, PLC, VFD, Contactor, Interface, Light Curtain, Area Scan, Door Interlock Includes: E-Stop button, Safety Relays, Illuminated Pushbuttons	Door Interlock Module iLSM-W2-S-INTLK  Teaches: Program and troubleshoot safety interlock devices, door interlocks, solenoid locks, trapped key locking, LOTO principles Works with: Safety PLC, E-Stop Includes: Door interlocks, non-contact coded magnet, solenoid locking, trapped key, LOTO
OPERATOR INTERFACE		MOTOR CONTROL	
Push Button Interface Module iLSM-W1-I-RAPB9  Teaches: Interface devices, push buttons, switches, potentiometer, E-Stop, indicator lights, panel wiring Works with: PLC, Relay, VFD, Contactor, Discrete pneumatic, & more Includes: Illuminated buttons, E-Stop, Selector Switches, Potentiometer, Joystick, Light, & Buzzer	HMI Module iLSM-W2-I-RAPV10  Teaches: Graphical interface with PLC, operators, diagnostics, status, data Works with: PLC (required) Includes: AB PanelView 5000 HMI, 10", 5310	Light Curtain Module iLSM-T4-S-RALC300  Teaches: Program safety circuits, alignment, and troubleshooting Works with: Safety PLC, E-Stop Includes: AB 450L-Series Light Curtain Emitter/Receiver Pair, 300mm Length, Cables	Area Scan Module iLSM-T4-S-HKSCAN  Teaches: Program safety circuits, area masking, zoning, and troubleshooting Works with: Safety PLC, E-Stop Includes: Hokoyo Area Scanner, E-Stop and Warning OSSD Outputs, 270 Degree sweep
ELECTRICAL/ELECTRONICS		MOTOR CONTROL	
Relay Module iLSM-W1-E-RARLY2B  Teaches: Relay use and type, timer relay, start/stop pushbutton interface Works with: Conveyor, Sensors, Pushbutton interface, Sensors, Discrete Valves Includes: (2) Illuminated Buttons, Contactors, Ice Cube, Terminal, & Timing Relays	Breadboard Module – Basic DC Circuits iLSM-W1-C-BBDC  Teaches: Fundamental DC circuit design principles, Basic Circuits, Boolean Logic, and Microprocessors. Includes: Solderless breadboards, test leads, sound, switches, potentiometer, Arduino, motors, servo, stepper, display, sensors, encoder, temperature, accelerometer, resistors, capacitors, and LEDs	VFD Module iLSM-W1-D-RAPFXVFD  Teaches: Motor starter circuits, 3 Phase, Variable Frequency, Jogging, Speed Control Works with: Pushbutton Interface, Relay, 3-phase motor, Contactor, PLC Includes: AB PowerFlex Variable Frequency Drive	Contactor / Overload Module iLSM-W1-D-CONOL  Teaches: Motor control circuits, Forward/Reverse, Overload, 3-Phase, Circuit breakers Works with: Pushbutton Interface, Relay, 3-phase motor, PLC, VFD (required for 3-Phase) Includes: Non-Reversing Contactor, Starter Protector, Reversing, Circuit Breaker, Overload
PNEUMATICS		MOTOR CONTROL	
Pneumatic Module - Ethernet IP iLSM-W1-P-SMC4PV  Teaches: Fluid power principles, pneumatic valve type use, PLC connection over Ethernet IP Works with: PLC (required), Cylinders, Pick and Place Includes: Pneumatic Manifold, (4) Valve Types, Pressure regulator, LOTO, Pressure switch, Ethernet IP to PLC	Pneumatic Module - Discrete iLSM-W2-P-SMC4VIND  Teaches: Fluid power principles, pneumatic valve type use, discrete connection Works with: Pushbutton Interface, Relay, Cylinders, Pick and Place, PLC Includes: Individual Valves, (4) Valve Types, Pressure regulator, LOTO, Pressure switch	3-Phase Gear Motor Module iLSM-T4-M-OR3PHGM  Teaches: 3-Phase motor principles, variable speed, coarse and fine positioning. Works with: VFD (required), Interface, Contactor, PLC Includes: Inverter-Duty 3-Phase Gearmotor 230VAC, Disc, Proximity and photoeye for positioning	Conveyor Module CON-4536TNM-BL-E  Teaches: Brushless DC motor control, drive, sensors, Discrete or Ethernet communication Works with: PLC, Interface, Relay, E-Stop Includes: 4-1/2" W x 36" L belt conveyor, brushless DC motor, Photo eyes, EIP Remote I/O
PNEUMATICS		MOTOR CONTROL	
Project Module: Pneumatic Pick & Place iLSM-W1-P-SMCPNP4V  Teaches: Multi axis pick and place mechanisms, sensor technology, vacuum, automated operation Works with: Pneumatic valves (required), Pushbutton Interface, Relay, PLC Includes: Pneumatic actuators, sensors, vacuum suction, vacuum sensor			
PNEUMATICS		MOTOR CONTROL	
		Sensor Kit iIM-SENSOR-T  Teaches: Industrial sensing technology, Optic, Proximity, Hall Effect, Smart color, programmable optic Works with: Pushbutton Interface, Relay, PLC, Conveyor Includes: Proximity, Optic, Hall Effect, Polarized Retro-reflective, Smart Color, Test cylinder, Cord Sets	Pneumatics Cylinder Kit iIM-CYLINDER-T  Teaches: Fluid power motion, various cylinder technology, vacuum generation by venturi Works with: Pneumatic Valves, Sensors, PLC, Pushbutton Interface Includes: Actuators (Rotary, Guided linear, Parallel Gripper, Escapement), Venturi vacuum ejector, Vacuum cups

Learning outcomes for most modules can be further enhanced with the integration of additional modules.
For more information, visit our website: aptmfg.com/iLS

iLS TRAINING MODULES

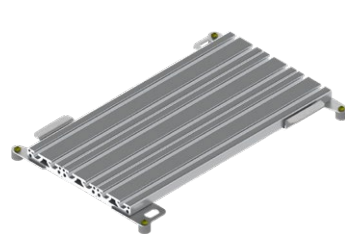
ACCESSORIES

T-Slot Hanging Module
iLSM-W1-G-TSLOT



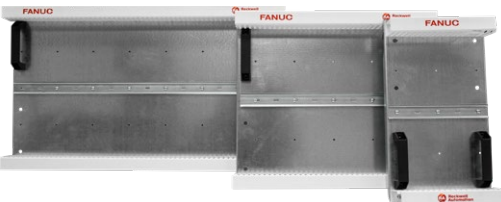
T-Slot Mounting Board

T-Slot Desktop Module
iLSM-T4-G-TSLOT



T-slot mounting board is designed to be used on a table top or work bench allowing the students to set up and build what they would like. It is equipped with rubber feet for stability and scratch resistant to the desk.

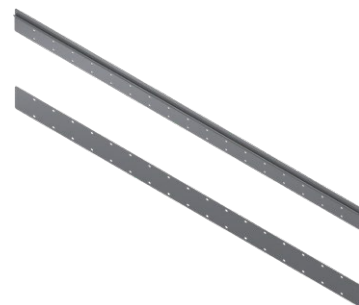
Blank Modules - Sizes 1, 2, & 3
iLSM-W1-G-APTBLNK



Size 1 Hanging Module
9-7/8" W x 18" H
Size 2 Hanging Module
19-7/8" W x 18" H
Size 3 Hanging Module
29-7/8" W x 18" H
Blank Module For Customizing.
Includes Handles, Wire Duct, & DIN Rail
Available in Sizes 1, 2, & 3

STORAGE

Wall Mount Storage Rails
iLSM-WSR72



72" W x 18" H x 1/2" D

Wall Mount Storage Rails made from steel and powder coated for protection

Mobile Storage Rack
iLSM-MSR



42-1/4" W x 78" H x 26-1/2" D

Stand Alone Storage Rack with castors for ease of moving and storing. The rack contains (4) Size 3 storage panels on the inside and (6) Size 2 panels on sides, providing storage for up to 24 Size 1 panels. The Storage Rack also has two stationary shelves for extra storage.

WIRELESS EXPANSION REMOTE I/O

The wireless modules will expand the industrial learning system to add communication with other items in your classroom.

Electrical I/O



Includes: Configurable 16 points of input/output (using splitters on 8 access ports), Industry standard M12 5-pin port

Wireless Adapter



Includes: WEP, WPA, and WPA2 security protocols, Anybus wireless bolt, Add network communication to your FANUC robot

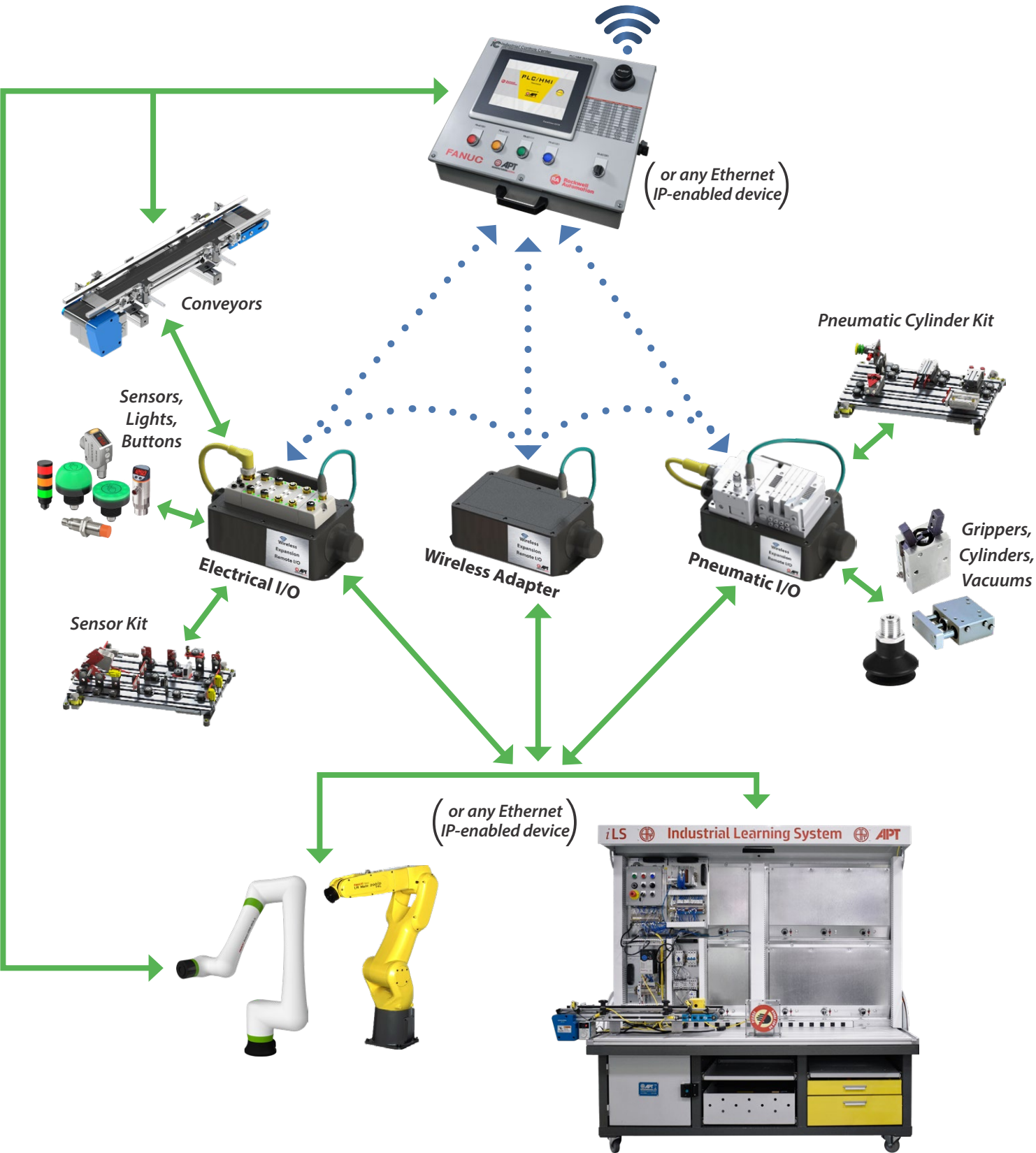
Pneumatic I/O



Includes: 4 individually controllable valves, Double solenoid 2 position blocked center ports, open center ports, & detent. Single solenoid 2 position spring return.

CONNECTIVITY ROADMAP

APT has the items needed to mix robots, PLCs, HMI, sensors, fluid power, and other industrial devices together via a wired or wireless connection to train system integration.



iIM5.0 - MECHATRONICS CERT CART



LEARNING OBJECTIVES

- ROBOT/COBOT PROGRAMMING
- 2D VISION GUIDANCE
- MACHINE OPERATION
- MAINTENANCE & TROUBLESHOOTING
- PRODUCTION PROCESSES
- APPLICATION OF ELECTROMECHANICAL CONCEPTS
- PROJECT ENGINEERING METHODS
- PLC TO ROBOT INTEGRATION

NOCTI *Nocti Business Solutions* administered FANUC Certifications
Equipment qualifies for FANUC CERT Program



MECHATRONICS TRAINER

FANUC LR Mate robot



FANUC CRX cobot



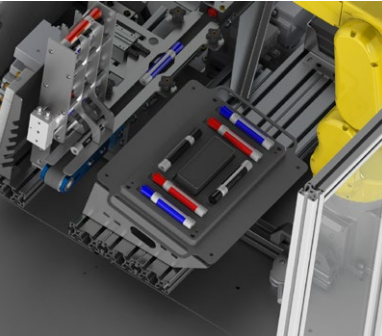
This cart provides a hands-on learning experience for the student to integrate a PLC, robot, and many industrial devices, such as sensors, area scan, & intelligent pneumatic devices. The system comes with your choice of a PBL, and additional PBLs can be purchased. Students will learn to call robot programs from the PLC. They will test I/O, motor operation, safety inputs, and vision.

INCLUDES

Robot/Cobot, iCC PLC/HMI trainer, I/O Blocks, area scanner, onboard air compressor, valve bank, cart.
Choice of 6-axis FANUC LR Mate ER-4iA robot or FANUC CRX-5iA cobot

PBL - PROJECT BASED LEARNING OPTIONS

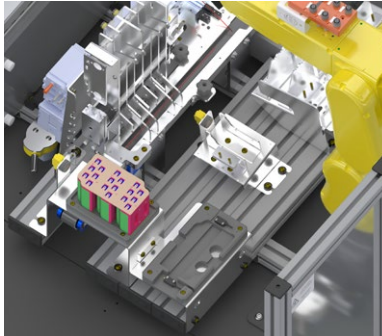
Dry Erase Marker Packaging



This operation utilizes a smart color sensor to verify the marker cap color to determine the location in a two color package tray. The marker can also be rejected by being the wrong cap color, or loaded backwards.

Includes: Red, Blue, & Black Markers (12 each), Reversible Packout Tray with "A" Packout Nest and "B" Packout Nest, (4) Erasers

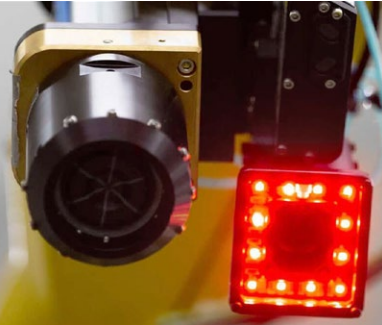
EV Assembly



The EV Assembly project-based learning module sits on & integrates with the mechatronics CERT cart creating a very nice teaching tool for the student. On a basic system the student will understand the assembly of batteries for the EV automotive manufacturers today.

Includes: (18) 18650 Battery Cells, (3) Battery Pack Top Housings, (3) Battery Pack Bottom Housings, (2) Battery Power Bank Bus Bar

iRVision



FANUC's fully integrated visual detection system that enables robots to see. As a result, production flexibility increases because expensive positioning fixtures are not required. 2D vision is suited for any material handling application including palletizing & depalletizing, as well as vision inspection.



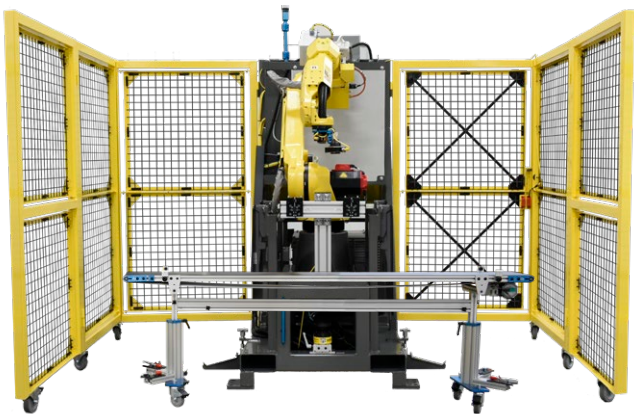
LEARNING OBJECTIVES

- ROBOT PROGRAMMING
- 2D VISION GUIDANCE
- END OF ARM TOOL CHANGE
- PLC & HMI PROGRAMMING
- PLC TO ROBOT INTEGRATION
- INTEGRATION OF SAFETY & SENSORS

NOCTI *Nocti Business Solutions* administered FANUC Certifications
Equipment qualifies for FANUC CERT Program



ADVANCED MANUFACTURING MATERIAL HANDLING



Get great hands-on experience with this industrial piece of equipment. Integrate the PLC to the robot cell for advanced material handling, which includes a PLC safety circuit, and vision guidance. The adjustable conveyor is designed to supply parts to and from the robot. Students will learn to call robot programs from the PLC. They will test I/O, motor operation, safety inputs, & vision. The robot can be programmed to retrieve the gripper or vacuum using the automatic tool changer.

INCLUDES

Robot/Cobot, 2D iRVision, Rockwell CompactLogix/Compact GuardLogix, 10" PanelView touch screen for cell functions. Safety interlock door, light curtain with optional area scanner, SMC pneumatics, robot gripper, rectangular blocks material kit, optional automatic tool change.
Choice of 6-axis FANUC M10iD/12 or M20iD/25 robot, or FANUC CRX-10iA cobot

PBL - PROJECT BASED LEARNING

Vision Guided Pick & Place



Material handling using the 2D vision guidance to locate items before picking with the robot. Use the gripper or the vacuum to transport. Conveyor can be used to transport product to and from the robot. Two pick and place tabletops for parts. Industrial automation integration of safety devices, PLC, HMI, vision systems, and robotics.

OPTIONS

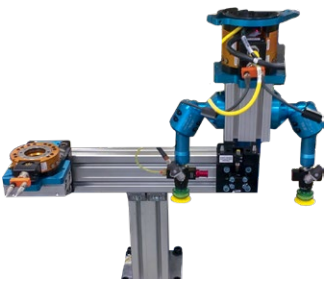
Safety PLC



Upgrade to Rockwell Automation GuardLogix PLC Safety I/O module for all safety devices

Includes: Rockwell Automation GuardLogic PLC & Safety Armorblock EIP module

Automatic Tool Changer



Automatic tool changer for robot EOAT. Separate mechanical gripper with sensors & vacuum gripper with two controllable vacuum cups & sensors. Tool stand with docking for two EOATs. Industry standard automatic tool changer on robot.

Includes: Robot automatic tool changer. Mechanical gripper with tool change. Two zone vacuum with tool change. Tool holder stand with two docking stations.



LEARNING OBJECTIVES

- ROBOT PROGRAMMING
- PLC HMI PROGRAMMING
- 2D VISION GUIDANCE & INSPECTION
- NETWORK COMMUNICATIONS
- MANUFACTURING PROCESSES
- FAULT DETECTION & TROUBLESHOOTING
- DATA ANALYTICS
- LASER ETCHING SERIALIZATION
- ASSEMBLY, PACKAGING & PALLETIZING
- INTRODUCTION TO SAFETY SYSTEMS
- RECIPE MANAGEMENT & BATCH SCHEDULING

NOCTI *Nocti* Business Solutions administered FANUC Certifications
Equipment qualifies for FANUC CERT Program



CONNECTED SMART MANUFACTURING SYSTEM



This program will cover a complete manufacturing line, starting with raw materials and concluding with a finished product. Students will learn how to adjust the equipment for maintenance, production schedules, and cycle times. The program is equipped with RFID tracking to monitor parts throughout the line and features laser marking for part verification, assembly, pack-out, and palletizing. Different operations are wirelessly connected, allowing them to be removed and taught individually in a classroom setting. This setup includes Rockwell PLC, HMI, SMC valve banks, and onboard air compressors. Challenge your students by introducing faults for them to identify using the schematics or tracing wires and consider adding new buttons and functions to the PLC and HMI.

OP10

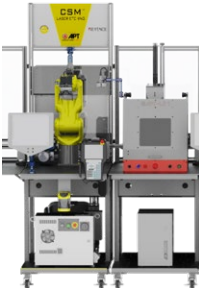
Machine Tending



Serves as a load and unload station for the FANUC Robodril and marks the start of the production line. When purchased along with OP20, the product will be moved by a conveyor and monitored via RFID to the next station.

OP20

Laser Etching or Serialization



Offers knowledge on laser etching and serialization. Students will program the industrial laser marker to engrave the school logo, a name, or a date. This is a crucial aspect of any manufacturing plant.

OP30

Assembly



The assembly process for the PBL. The student will understand the many functions that an individual cell can perform while also working with each cell on both sides, receiving the product, assembling it, and sending it on to the next station.

OP40

Packaging



There are various ways to pack out a product; the students will learn to package the product based on the PBL that was ordered.

OP50

Palletizing



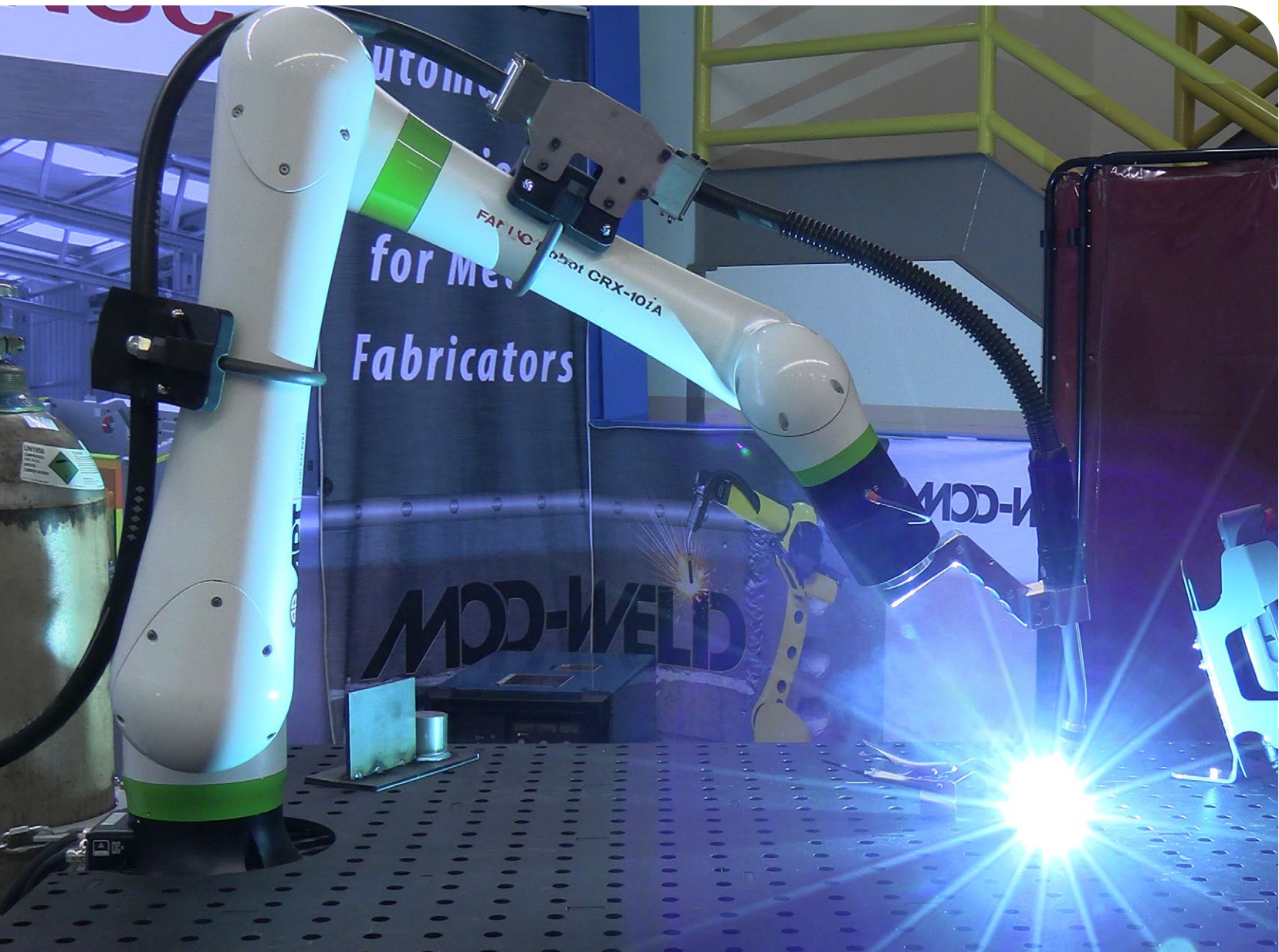
Once the product is packaged, it will be stacked on a pallet for transport to the warehouse

PBL - PROJECT BASED LEARNING

Dice Holder



Manufacturing solution from raw stock to finished product with serialization and vision guided sortation and assembly



LEARNING OBJECTIVES

- ROBOT/COBOT PROGRAMMING
- MIG WELDING
- WELDING MATERIALS & METHODS
- TOUCH SENSING
- THROUGH-ARC SEAM TRACK

Equipment qualifies for FANUC CERT Program



FANUC



INSTRUCTOR PRODUCT TRAINING

available at aptmfg.com/product-training

ROBOTIC WELDING TRAINER

ARC MATE 50



FANUC ARC Mate robot

This welding cart is specifically designed for the FANUC ARCMate 50 Robot. FANUC is the most used robot in the industry due to its reliability & advanced control system. The cart features safety switches, is enclosed with tinted glass, and has wings that fold down to fit through a 36" door. While in teach mode, it allows students to work from either side or the front, thanks to its three access doors. You can choose a power supply from either Miller or Fronius. The system comes pre-loaded with Touch Sensing & Through-Arc Seam Track.

INCLUDES

FANUC ARCMate 50 Robot, cart, Fixture Table, Miller Auto-continuum/Deltaweld or Fronius TPS/i Power Supply Choice, and torch along with pre-loaded FANUC software. (Through-Arc Seam Track not available on Deltaweld)

COBOT MOD-WELD



Shown with accessories, sold separately

This welding cart is designed exclusively around the FANUC CRX-10iA Cobot. The student can program using the FANUC drag-and-drop features on the tablet and move the cobot by hand into different positions. The cart comes with 16mm fixture holes on 2" centers. You can choose from Miller or Fronius power supplies. The system comes pre-loaded with Touch Sensing & Through-Arc Seam Track.

INCLUDES

FANUC CRX-10iA, cart, Fixture Table, Miller Auto-continuum/Deltaweld or Fronius TPS/i Power Supply Choice, and torch along with pre-loaded FANUC software. (Through-Arc Seam Track not available on Deltaweld)

CHOOSE YOUR POWER SUPPLY

400i



TPS/i, air-cooled torch for welding steel. Comes with .035 wire feed rollers 3PH Power & PMC Software. Optional consumable or replacement parts up to 1/16

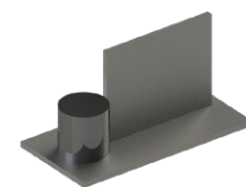
350



Auto-Continuum™ 3PH or Auto Deltaweld™ 1PH, air-cooled torch for welding steel. Comes with .035 wire feed rollers. Optional consumable or replacement parts up to 1/16

PBL - PROJECT BASED LEARNING OPTIONS

Welding Coupon Kit for CRAW TEST



This kit provides all the necessary materials to perform AWS CRAW (Certified Robotic Arc Welding) test. Components will work with either the ARC-Mate 50 or the Cobot MOD-WELD cart.

Includes: 10 sets of materials that includes bottom plate, vertical plate & solid round

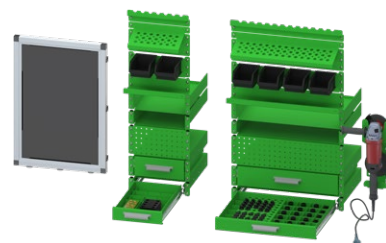
Welding Dice Coupon & Fixture Kit



This versatile project allows students to retain their kits throughout their entire welding journey. They create their own fixtures using the supplied components. The dice coupons are excellent for practicing hand, MIG, TIG, & robotic welding. The challenges posed by outside corners and thin sheet metal enhance their skills. Each dice cube features 12 seams, enabling 30 inches of welding.

Includes: Fixture components, (2) toggle clamps, (10) Dice coupon blanks. Weld and assembly print for fixture.

ACCESSORIES



See page 32 for full accessories details

Welding Dice Material Kit



Material to run additional welding dice coupons

Includes: (10) Dice coupon blanks



LEARNING OBJECTIVES

- COBOT PROGRAMMING
- ROBOTIC PLASMA CUTTING
- 2D & 3D CUTTING

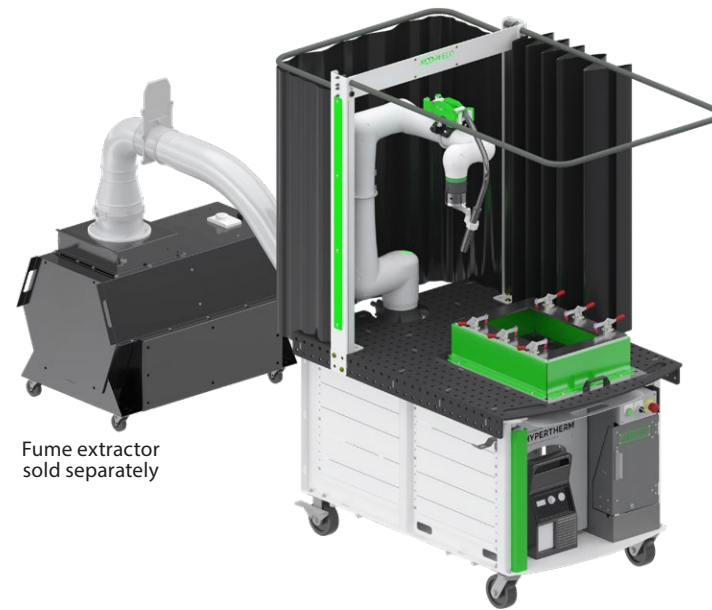
Equipment qualifies for FANUC CERT Program



FANUC



ROBOTIC PLASMA TRAINER



Fume extractor sold separately

This robotic plasma cutting system uses a FANUC CRX 10iA cobot designed to easily cut various 2D & 3D shapes with powerful and intuitive software. The students will learn to program and cut flat stock, tubing and I-beams along with promoting productivity and safety. It comes equipped to connect to a fume extraction system (sold separately). It is mobile and features 16mm fixture holes on 2" centers for repeatability. Explore the numerous accessory options to enhance this table's convenience and create a productive experience for your student. The system comes preloaded with FANUC's Shape Gen software for easy single point teaching.

INCLUDES

FANUC Cobot CRX-10iA, Hypertherm Powermax85 Sync Plasma Cutter, Clever torch, Cobot Cart, Fixture Table, 6" casters, downdraft table tray, cut box

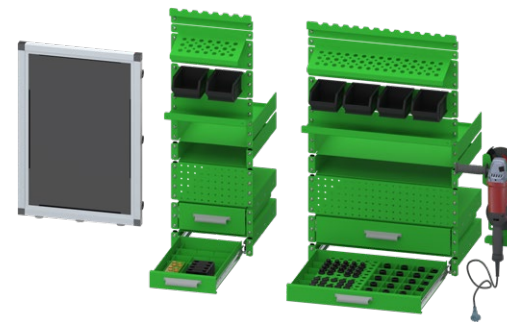
POWER SUPPLY

Powermax85 SYNC®



The Powermax85 SYNC® plasma cutter is a next-generation professional grade air plasma cutter that dramatically simplifies system operation for gouging and recommended cutting up to 25 mm (1"). Features automated system process set-up via advanced RFID-enabled SmartSYNC® torches and a revolutionary single-piece cartridge consumable that provides trackable utilization data.

ACCESSORIES



See page 32 for full accessories details

WELD TABLES



FEATURES

- ORGANIZATION FOR
 - EFFICIENCY
 - PRODUCTIVITY
 - CUSTOMIZED STORAGE
- 16MM FIXTURE HOLES
- HEAVY DUTY STEEL CONSTRUCTION
- LARGE CASTORS FOR MOBILITY



FABRICATION SHOP ORGANIZATION

DOWN DRAFT WELD TABLE



The 40" x 58" tabletop design draws airborne particles downward through a filtration system, capturing them before they can spread in the air. It is mobile and comes equipped to connect to a fume extraction system. (sold separately) It features 16mm fixture holes on 2" centers for standard tooling & repeatability. Explore the numerous accessory options to enhance this table's convenience and create a productive experience for your student.

INCLUDES

6" heavy duty casters, powder coated steel frame, 3/8" thick steel top plate, trussed construction, with black oxide surface finish, and 4" side skirts. 6" diameter connection for fume extractor. Comes with 3 drawers, 1 fixture pin storage, 4 bin box storage, 1 clamp hanger rail, & 1 drawer divider set

WELD FIXTURE TABLE



Elevate your workspace with this industrial-grade table designed for accuracy, ergonomics, and stability. Its 36" x 42" tabletop includes 16mm fixture holes on 2" centers for repeatability, standard tooling, clamping slots, and a bench vise location. Explore the numerous accessory options to enhance this table's convenience and create a productive experience for your student.

INCLUDES

6" heavy duty casters, powdercoated steel frame, 3/8" thick steel top plate with black oxide surface finish. Comes with 4 drawers, 2 pegboard panels, 1 fixture pin storage, 4 bin box storage, 1 clamp hanger rail, 1 angle grinder holder, & 1 drawer divider set

TOOLING

Basic weld set up and clamp kit

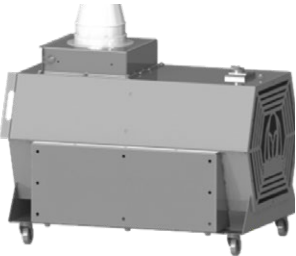


The starter setup and clamping kit designed for welding tables and robotic welding trainers. The tool kit features components for quick assembly, helping students master the use of industrial fixtures to secure materials during welding. This method enables students to program the robot to navigate around clamps and fixtures while carrying out the welding tasks.

Includes: Weld square and angle fence blocks, set up pins, rest pads, 16mm ball lock bolt, hard washers for ball lock bolts, clamp and MIG pliers, hold down clamp, and Tooling storage tray.

FUME EXTRACTORS

Fume Extractor for Downdraft Table



Prioritizing safety, add this portable fume extraction system to your downdraft table for an effective and efficient method of removing airborne contaminants before they spread in the air. It provides a robotic airflow capacity of 1200 CFM and operates at a noise level of just 69 dB(A)

Includes: Complete Portable Fume extract system for you to connect to the downdraft table

Tabletop Fume Extractor



Prioritizing safety, add this portable fume extraction system to your downdraft table for an effective and efficient method of removing airborne contaminants before they spread in the air. It provides a robotic airflow capacity of 135 CFM and operates at a noise level of just 70 dB(A)

Includes: Complete Portable Fume extract system for you to connect to the downdraft table

CART & TABLE ACCESSORIES



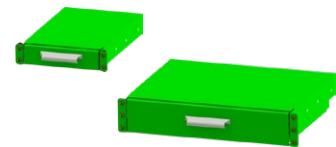
SIDE CARTS



Add up to 4 sides to your cobot cart in different configurations for customizing your work space.

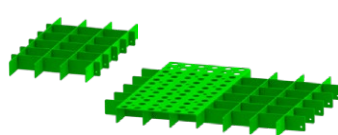
ACCESSORIES

Drawers



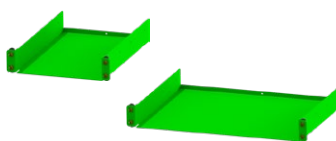
Four sizes available, two different widths and two different depths. Covered tops for cleanliness. Non-locking. Full extension slides, 100 lbs. capacity.

Drawer Dividers



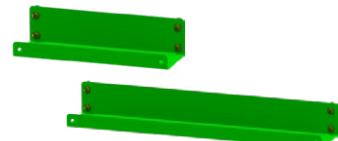
Interlocking dividers for drawers to organize small parts.

Storage Shelves



Storage shelf for larger items. Available in two widths.

Spray Can Shelves



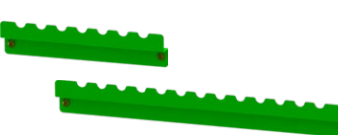
Shallow shelf for storing small items and spray cans. Available in two widths.

Bin Box Panels



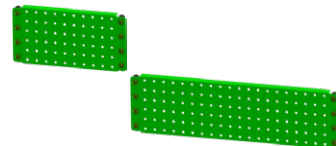
Removable plastic bin boxes and mounting rail. Available as two or four bins.

Clamp Hangers



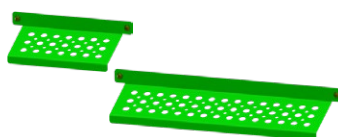
Available in two widths. Narrow width with notches for up to 7 clamps. Wide width with notches for up to 13 clamps.

Pegboard Panel



Steel panels with standard 1/4" holes, 1" spacing. Accepts standard peg board hooks and components. Available in two widths.

Fixture Setup Pin Rail



Pin rail with 16mm pin holes. Available in two widths. Narrow width has 21 holes. Wide width has 45 holes.

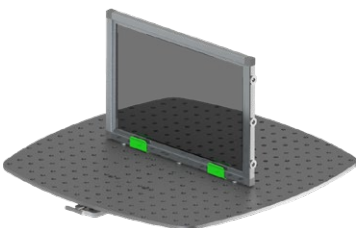
Angle Grinder Holder



Angle Grinder Holder with Cord Wrap Fits 4-1/2" Grinder

COLLABORATIVE POSITIONERS

Collaborative Manual Index Positioner for Collaborative Robot Welding



- Manual index positioning table with locking slide in 4 locations.
- Built with a 5/8 steel plate with fixture holes on 2" centers.
- Industrial heavy duty bearing for ease of rotation with a load.
- Grounding block engaged at all time includes a 6' grounding cable.

SAFETY

Pull Curtain



Pull curtain - #8 plastic curtain Magnets secure curtain seam together for added arc flash safety. This is not a safety shield from the robot

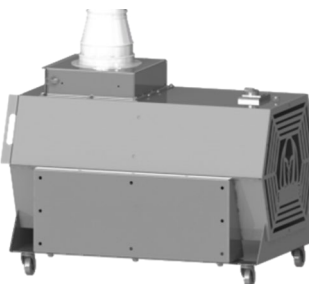
Tabletop Magnet Screen



Tabletop Magnet Screen - #8 Dark Shield Mounts in 2 directions, 18" x 26"

FUME EXTRACTOR

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BASIC WELD SET UP AND CLAMP KIT

Basic weld set up and clamp kit



The starter setup and clamping kit designed for welding tables and robotic welding trainers. The tool kit features components for quick assembly, helping students master the use of industrial fixtures to secure materials during welding. This method enables students to program the robot to navigate around clamps and fixtures while carrying out the welding tasks.

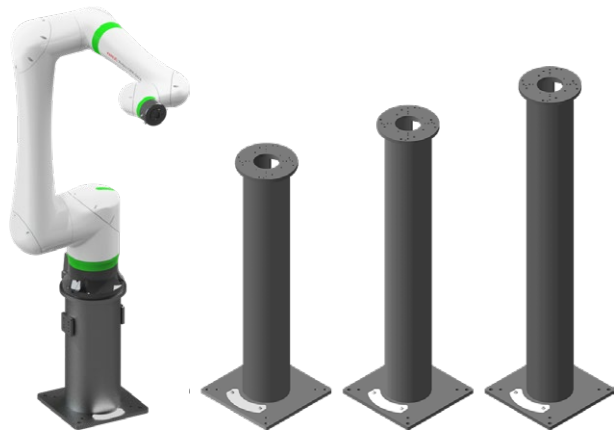
Includes: Weld square and angle fence blocks, set up pins, rest pads, 16mm ball lock bolt, hard washers for ball lock bolts, clamp and MIG pliers, hold down clamp, and Tooling storage tray.

STAND-ALONE PRODUCTS

MOUNTING OPTIONS

Elevate your classroom with a variety of reliable mounts to support various robot brands. Providing safety and reliability, these are stocked and available for quick ship.

Cobot Pedestals



Quad-pod Demo Stand



Mobile Base



Mobile Cart



FANUC ROBOTS

FANUC is the world leader in industrial robots. Offering a wide range of robots for manufacturing solutions, it is the top choice by employers for your student to gain experience.

LR Mate



CRX



ARC Mate



M-1



SCARA



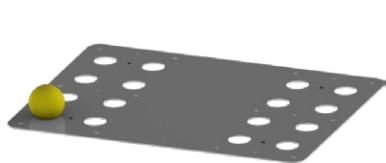
ER4



PBL - PROJECT BASED LEARNING OPTIONS

Help students develop skills through authentic, real-world projects. They will learn how the curriculum connects to real life and develop them for industry-ready jobs.

Pick and Place Template with stress balls



Parts Feeder Kit with dice



EOAT

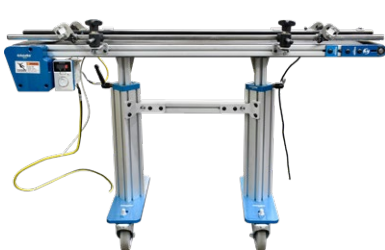


Welding Dice Material Kit



CONVEYORS

Free Standing Conveyor



Free Standing Swivellink® 4-1/2"W X 36"L Variable Speed Conveyor. Conveyor overall height from the floor is adjustable from approximately 26" up to 35" off the floor.

Includes: Variable speed motor, side rails, sensors, endstops, and adjustable height floorstand with casters

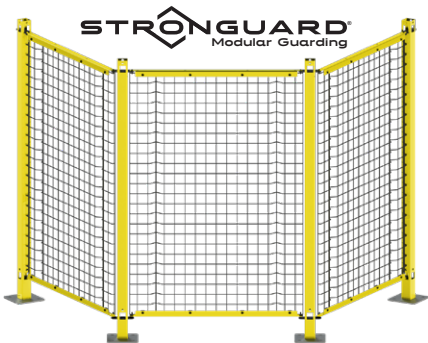
Tabletop Conveyor



Tabletop Swivellink® 4-1/2"W X 36"L Variable Speed Conveyor. This conveyor can be placed on a flat surface. The conveyor overall height (top of belt) is approximately 6.75" off the table.

Includes: Variable speed motor, side rails, sensors, and endstops. Magnetic or non-magnetic feet options

SAFETY GUARDING



Safety first is important and this guarding will provide that for your classroom. Order standard panels that are able to be customized in various configurations with multiple door designs and locks available. Set up and reuse over and over for different projects. Industrial durability & safety, easy to assemble, stocked, and available for quick ship.

CNC

CNC Simulator Controller

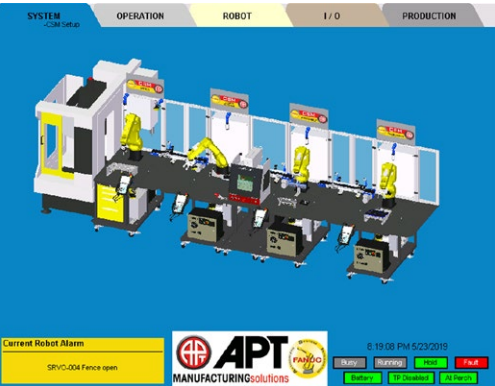


Students will experience the controls as they navigate & program a fully functioning CNC without needing a physical machine. The simulator can operate in milling or turning configurations and can connect to a FANUC robot for simulated machine tending and integration.

HMI INTERFACE



The Human-Machine Interface (HMI) is often utilized in industrial processes and serves as a connection between a person and a machine or device. It acts as a window to the link between the operator and the machine. The use of HMI facilitates how the industry interacts with the equipment, as opposed to using teach pendants. APT has a standardized industrial template that remains consistent across all equipment. Teach visual learning & troubleshoot using the recorded I/O on the machine.

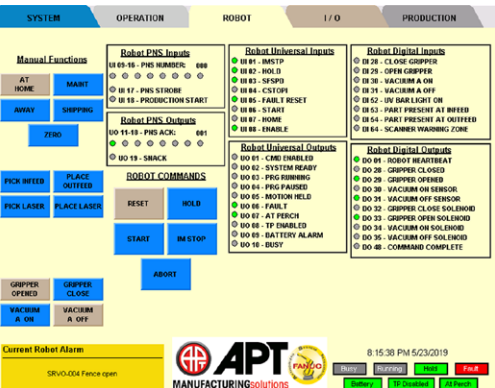


SYSTEM

The System screen facilitates general machine setup. Most functions available have security requirements for access. The System HMI screens include several functions, such as VFD frequency setup, Recipe Management System, Inspection Limits, I/O Link Setup, Login, and System Security Settings.

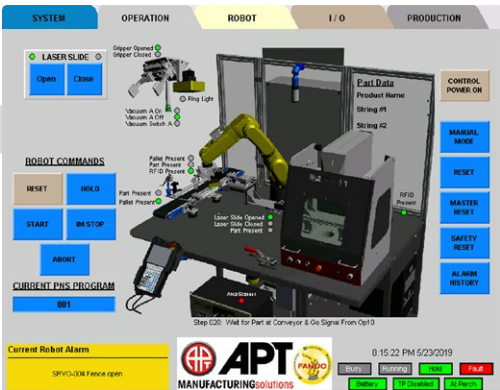
OPERATIONS

The operations screen is designed for general machine operation and functionality. 3D model images are utilized to enhance intuitiveness and ease of use. Status indicators, mode control, and manual operations, along with operational and fault messages, are shown on these screens.



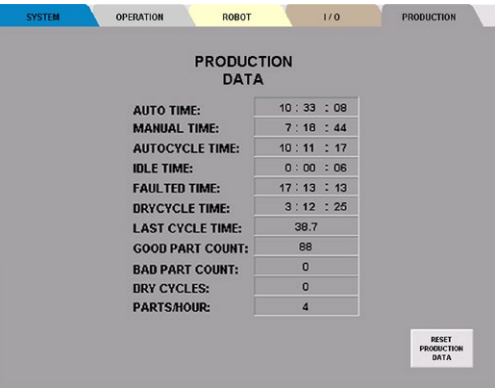
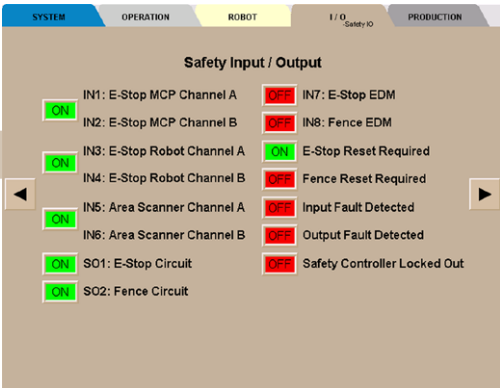
ROBOT

The Robot screen shows all communication and I/O interfaces between the system PLC and the robot. Users can also manually control the robot's functions and select a specific robot program to run from this screen.



I/O

The I/O screen allows users to see the on/off status of the input/output within the equipment, run diagnostics, and aid in troubleshooting.



PRODUCTION

The production screen allows users to view & gather production data for business analytics. Users can edit parameters and plan all products that the system is capable of running through recipe management & the production scheduler.



NOCTI Certifications are Widely Recognized by Employers across the U.S.

NOCTI and NBS hold accreditation from the International Certification Accreditation Council (ICAC). This accreditation confirms that the credentials, pre-employment assessments, certifications, and processes of NOCTI/NBS adhere to leading international industry standards, specifically those described in ISO 17024, which sets forth the general requirements for certification bodies. The products and services of NOCTI/NBS not only meet but also surpass the standards established by the American Psychological Association (APA), the American Educational Research Association (AERA), and the National Council on Measurement and Evaluation (NCME) in their Standards for Educational and Psychological Testing.

NOCTI/NOCTI Business (NBS): Certification

Since acquiring federal funding in the late 1960s, NOCTI has upheld a national presence and strong connections within the career and technical education (CTE) community for over 55 years. As a non-profit consortium, it encompasses all 50 states and U.S. territories. Its sister organization, NOCTI Business Solutions (NBS), has 25 years of experience working with private entities and certification bodies to provide pre-employment testing and certification services nationwide. Together, these companies offer a unique range of services crucial for creating effective assessment and certification programs. NOCTI/NBS supplies a wide array of assessment-related products and remains dedicated to providing resources for career preparation.

Importance of Third-Party Development & Delivery

Third-party certification ensures independent verification, minimizing conflicts of interest. It validates an individual's skills while emphasizing the need for the certifying organization's impartiality. The assessment development company collaborates with Subject Matter Experts (SMEs) to define essential competencies for certification in an industry. This third-party role ensures that only qualified candidates receive credentials based on SME-determined skills for success. First-party certification is self-declaration, while second-party certification involves a company or provider verifying candidates. Third-party certification confirms that products, processes, or services meet established standards. Accreditation of the assessment development company by ISO standards is necessary.



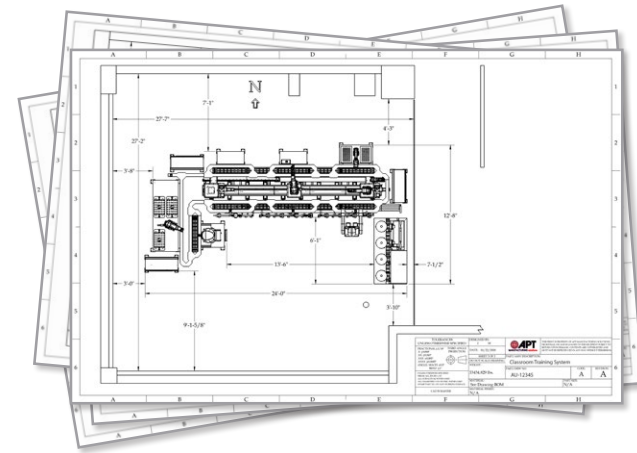
NOCTI/NBS & FANUC

FANUC partners with NOCTI to offer industry-recognized credentials for both learners and instructors in the fields of robotics and automation. NOCTI creates the credentialing assessments grounded in FANUC's CERT Program, guaranteeing that the certifications are strong and align with industry standards.

CLASSROOM DESIGN SERVICES

Ignite your student's learning with a well-designed space

Classroom design can create an inviting and innovative space that will optimize a student's learning and showcase their work. APT will work with you to understand your needs.

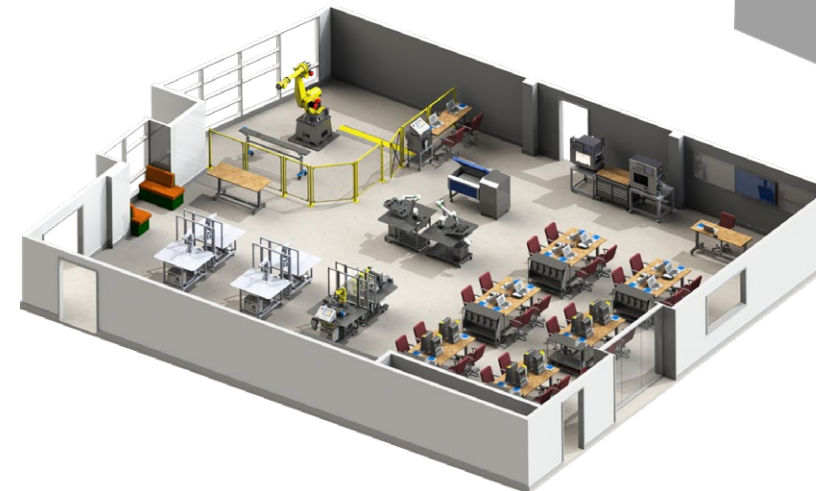
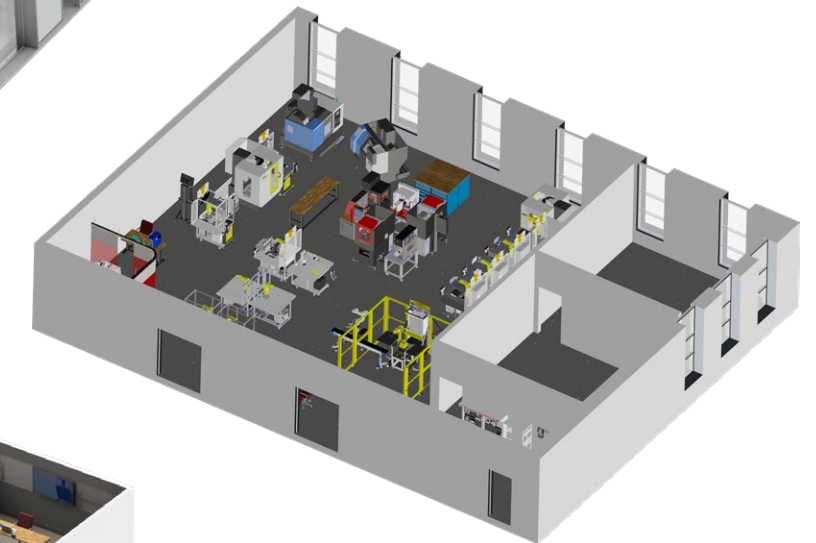
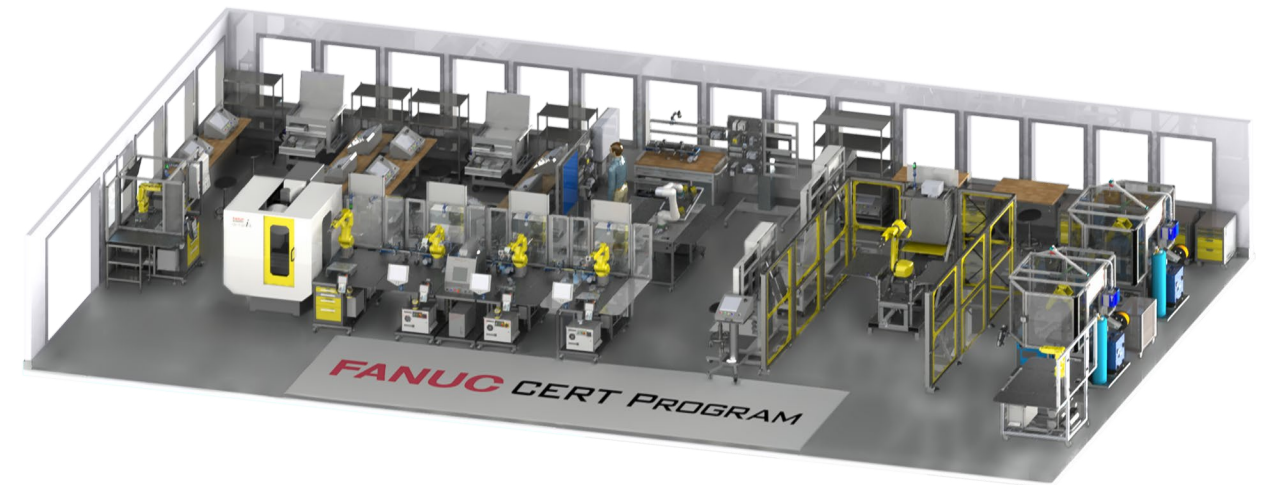


*APT's Design Team is comprised of field experts with years of experience.
Engineering • Automation • Management • Material Handling • Mechanical • Design*



DESIGN OBJECTIVES

- UNDERSTAND YOUR INITIATIVES & GOALS
- SOLUTIONS WITH BUDGET REQUIREMENTS
- INDUSTRY RECOGNIZED EQUIPMENT & CURRICULUM
- SUFFICIENT ROOM FOR TOOLS & TEAMWORK
- LOCAL INDUSTRY RELATABILITY NEEDS
- UTILITY REQUIREMENTS & LOCATIONS
- LONG TERM PLAN WITH FUTURE GROWTH



FANUC EDUCATION GRANT

Exclusive offer only on APT and FANUC developed equipment



FANUC America Corporation
3900 W. Hamlin Road
Rochester Hills, MI 48309-3253
Telephone: (248) 377-7000
Customer Service Center: (888)-FANUC-US
www.fanucamerica.com

FANUC EDUCATION GRANT

The FANUC America Corporation Certified Education Training (CERT) Program certifies instructors at educational institutions to train their students to program FANUC robots. To accompany the FANUC CERT Program, new school locations receive (1) CERT Instructor Training and Tool Kit and (1) CERT School Comprehensive Educational Package.

All CERT Program Robots include the Advanced CERT Software Configuration for education, which includes: MH - Advanced Ethernet I/P Scanner, Advanced Dual Check Safety (DCS), 4D Graphics, Motion Package, PC Remote iPendant, Collision Guard Pack, Interface Panel, Maintenance Package, Menu Utility, Remote iPendant, ROBODRILL Interface. AT - Torch Guard, Torch Mate, Collision Guard, 4D Graphics, Payload ID, Touch Sensing and TAST (Through Arm Seam Tracking). Auto Error Recovery, Bump Box, Constant Path, Password Protection, Panel Wizard, KAREL, Menu Utility, Lincoln or Miller Weld Library.

The Industry Value of the Advanced CERT Software Configuration is \$17,100.

The (MH or AT) CERT Instructor Training and Tool Kit provides your designated instructor training materials and includes the following deliverables:

- (1) online seat to take CERT Cart Safety Features web course
- (1) online seat to take Robot Operations web course
- (1) online seat to take HandlingTool or ArcTool Operation and Programming web course
- (1) online seat to take HandlingPRO or WeldPRO web course
- (1) seat to take a live HandlingTool or ArcTool Operation and Programming class at a FANUC facility
- (1) ROBOGUIDE Simulation Software license
- (1) FANUC Robot Operations Manual
- (1) FANUC HandlingTool or ArcTool Operations and Programming Manual
- (1) FANUC HandlingPRO (ROBOGUIDE Simulation) Manual

The Industry Value of the CERT Instructor Training and Tool Kit is \$15,500.

The (MH or AT) CERT School Comprehensive Educational Package provides students training tools and ensures your instructor has the necessary tools to effectively teach their students. This package includes the following deliverables:

- (25) concurrent-user seat to take Robot Operations web course
- (25) concurrent-user seat to take HandlingTool or ArcTool Operation and Programming web course
- (25) concurrent-user seat to take HandlingPRO or WeldPRO web course
- (25) ROBOGUIDE Simulation Software license

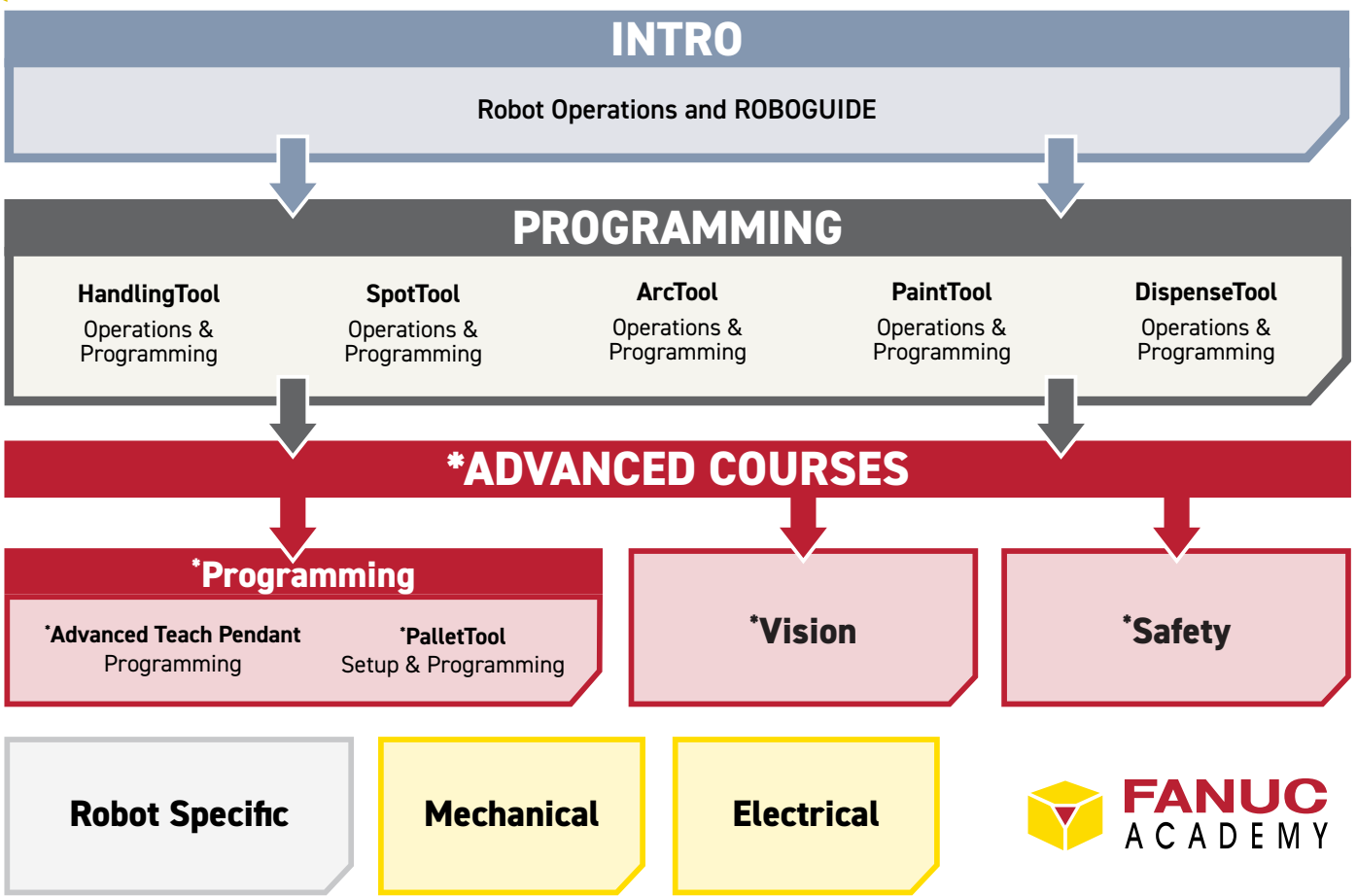
Industry Value of the CERT School Comprehensive Educational Package is \$382,900 (MH) / \$383,700 (AT)

To become a certified (MH or AT) CERT instructor, the designated instructor must:

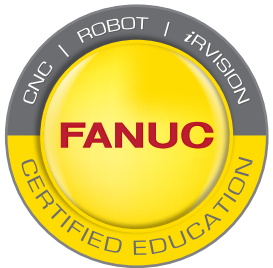
1. Successfully complete the CERT Cart Safety Features web course
2. Successfully complete the Robot Operations web course
3. Successfully complete the HandlingTool or ArcTool Operation and Programming web course
4. Successfully complete the HandlingPRO or WeldPRO web course
5. Attend the live HandlingTool or ArcTool Operation and Programming class at a FANUC facility
6. PASS the FANUC Operator Exam administered through NOCTI - Test Fee required through NOCTI (MH only)
7. Provide an outline of their robotic syllabus/curriculum
8. Provide a 15-20 min. video to FANUC of a module/chapter being presented to an audience or faculty staff

TRAINING CURRICULUM PATH

RECOMMENDED TRAINING CURRICULUM PATH



Please note: All courses marked * require completion of all prerequisites. Please view prerequisite requirements within individual course descriptions.



Contact your local Education Solution Provider for more details, pricing and program customization options

ROBOT vs COBOT

There are 3.4 million industrial robots globally, with increasing investments in automation to improve manufacturing. Robots replace dirty, dull, & dangerous jobs, reducing human risk & increasing accuracy. FANUC, the largest robot manufacturer, offers reliable, low-maintenance robots that enhance precision and efficiency in manufacturing.

When choosing between a traditional robot and a cobot, consider the factors below.

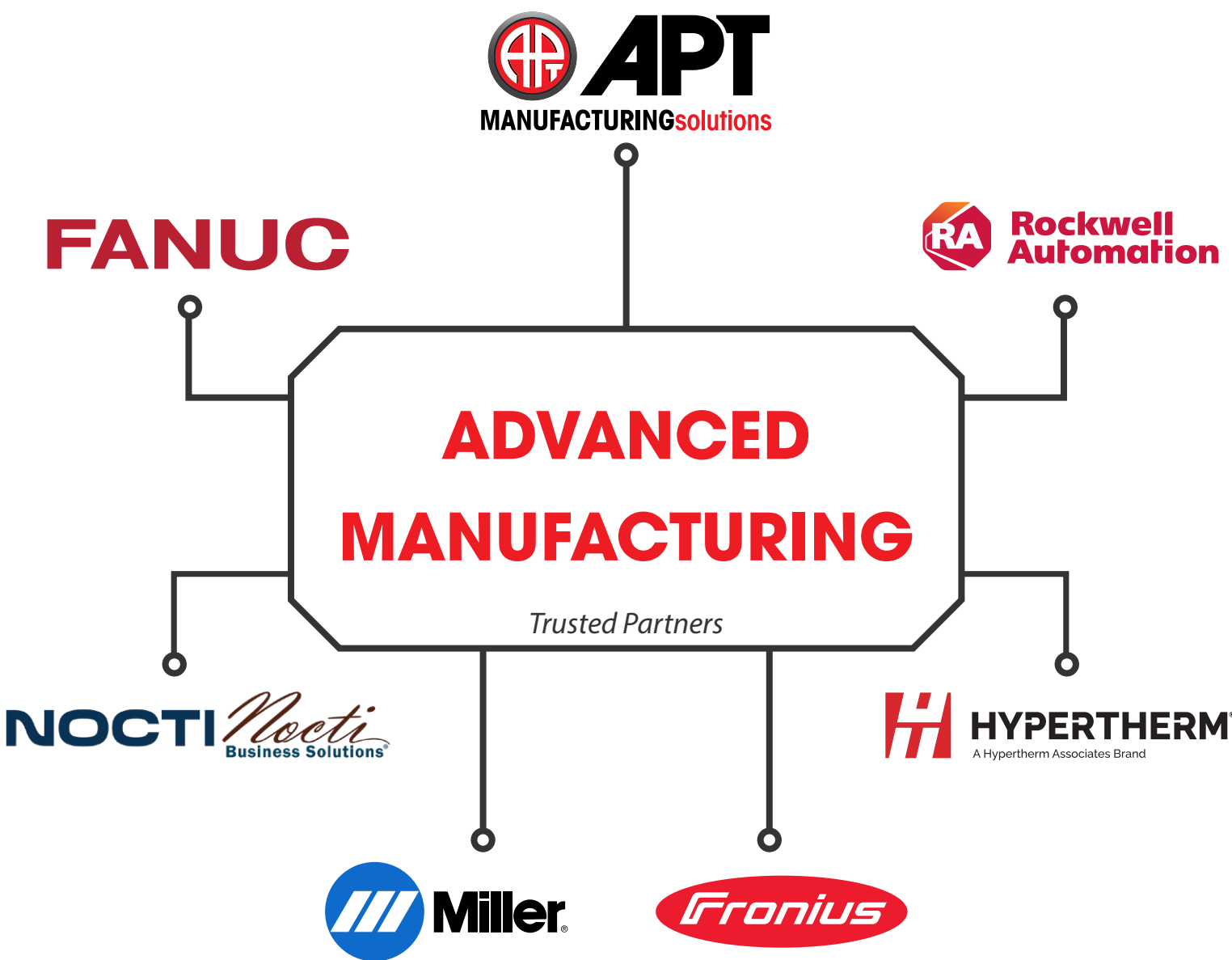
FANUC ROBOT



- Traditional robot
- Meets industrial standards for durability
- Designed to work independently without a human
- Excellent for repetitive, high-precision, or hazardous tasks; dangerous for humans to perform
- Requires a technical person to program and troubleshoot
- Safety enclosures with guarding or barriers are needed for protection

FANUC CRX COBOT

- Collaborative robot
- Meets industrial standards for durability, unlike less expensive alternatives
- Designed to work alongside humans
- Excellent for high mix low volume products
- Quick setup, easy to move and reconfigure
- Safety with built-in sensors to detect humans, allowing for smaller footprints



Sign Up Today

APT Manufacturing Solutions has a training facility and a team of experts focused on providing training for equipment designed to meet industry standards in advanced manufacturing processes.

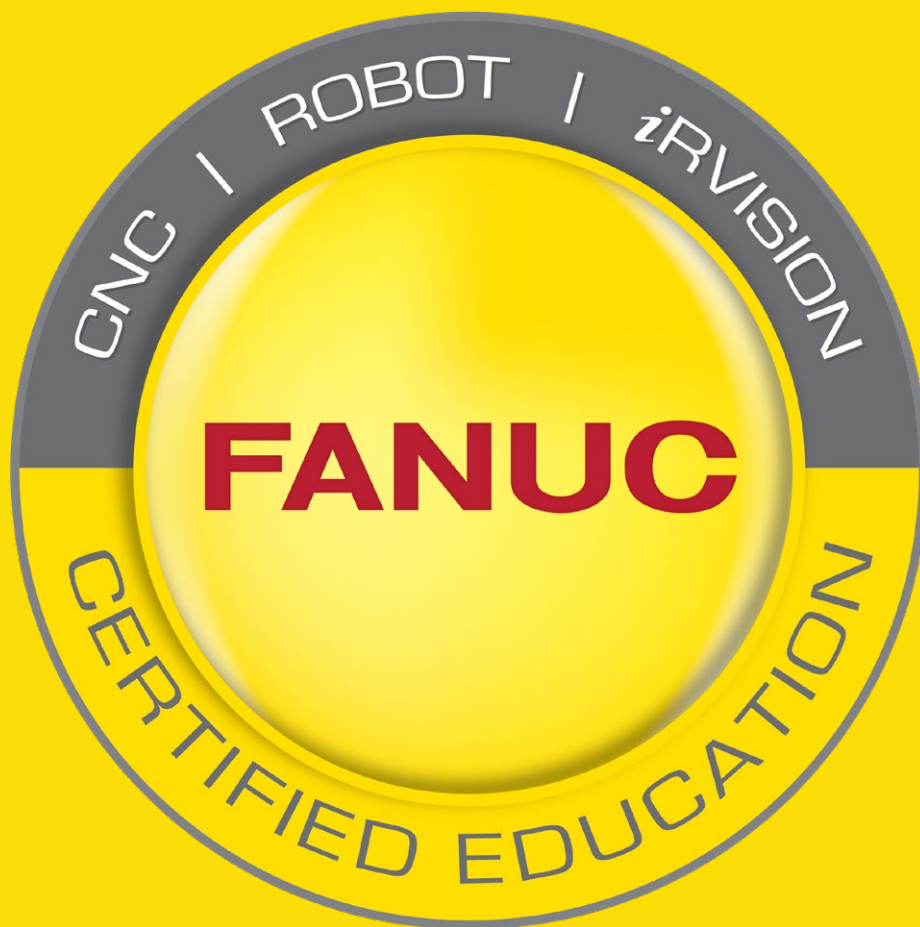
Our strong partnerships guarantee that the educational equipment incorporates the same technology found in real-world manufacturing, ensuring an authentic learning experience.



DEDICATED HANDS-ON TRAINING FACILITY

This initiative aims to provide educators and industry professionals with the essential tools & knowledge required to effectively train the upcoming generation of automation and robotics experts.

EXPLORE THE UPCOMING TRAINING SCHEDULE:
aptmfg.com/product-training



Contact your authorized FANUC education solutions provider
for more information



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