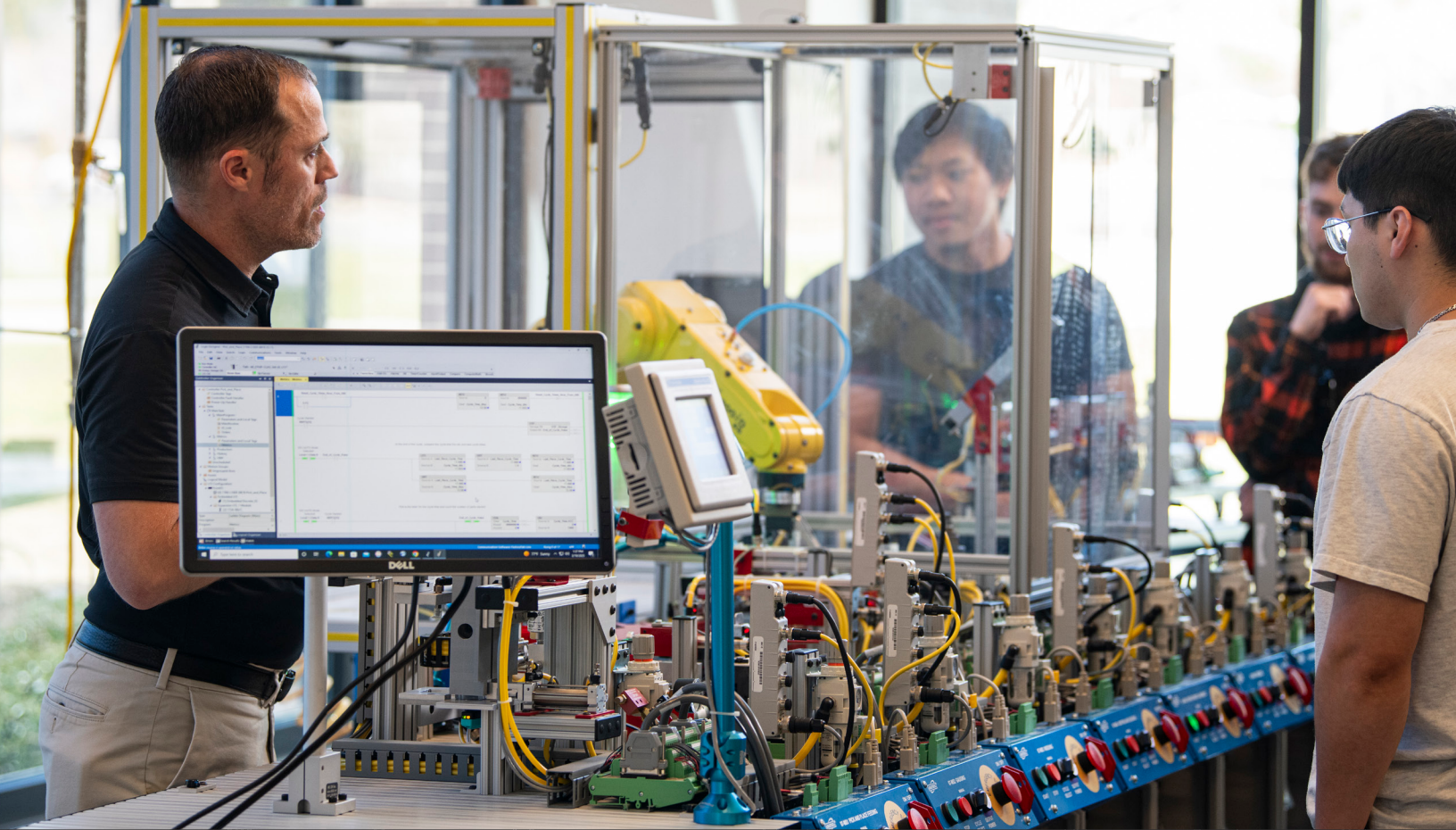




INDUSTRIAL OPERATIONS TECHNOLOGY DIPLOMA

ENROLL NOW

Learn skills from foundational basics like installing, repairing, and maintaining mechanical, electrical, hydraulic, and pneumatic systems to advanced training in the integration and servicing of robotics, programmable logic controllers, sensors, and intelligent technologies. The Industrial Operations Technology Diploma is designed to equip students with the expertise needed to succeed and grow professionally in today's automated industrial and industrial-related environments.

GEORGIA
TRAINING CENTER
FOR INDUSTRIAL OPERATIONS



A DIVISION OF OGEECHEE TECHNICAL COLLEGE

ogeecheetech.edu/IOT



VISIT US ONLINE OR IN-PERSON

GRAND OPENING OCT. 15, 2026



PROGRAM AT A GLANCE

Program Courses	Credit Hours	SACA Credentials
ISAT 1102 Electrical Systems	4	C-201, C-206
ISAT 1103 Programmable Logic Control I	4	C-207, C-212
ISAT 1104 Programmable Logic Control II	4	C-208
ISAT 1105 Motor Control Systems and Troubleshooting	4	C-202, C-204
ISAT 1110 Mechanical Systems	4	C-210, C-301
ISAT 1120 Hydraulic & Pneumatic Systems	4	C-209, C-255, C-304
ISAT 1130 Sensors in Industrial Smart Automation	4	C-205, C-203, C-213
CIST 1601 Information Security Fundamentals	3	
ISAT 2010 Industrial Robotics I	3	C-215, C-103
ISAT 2020 Industrial Robotics II	3	C-216, FANUC-1
ISAT 2030 Operations Technology I	4	C-101, C-104, OSHA 10
ISAT 2040 Operations Technology II	4	C-102
Program Course Totals:	45	

General Education Courses	Credit Hours
EMPL 1000 Interpersonal Relations and Professional Development	2
ENGL 1010 Fundamentals of English I	3
MATH 1111 College Algebra	3
General Education Totals:	8

Program Totals

53
Hours

As the credentialing agency for the credentials listed in the matrix above, the Smart Automation Certification Alliance (SACA) is a non-profit organization whose mission is to develop and deploy modular Industry 4.0 credentials for a wide range of industries. SACA is the new standard across technical credentials.

Built with industry at the table, SACA credentials are designed to meet the needs of modern employers who demand both knowledge and hands-on ability from their workforce. Whether a company is hiring for advanced manufacturing, industrial automation, or smart systems integration, SACA credentials offer a reliable signal of a candidate's workforce readiness.

SACA credentials are developed in accordance with ISO 17024 standards, the global benchmark for personnel certification. This means they're not just well-designed, but they're also credible, consistent, and globally recognized.



ISAT 1102 Electrical Systems

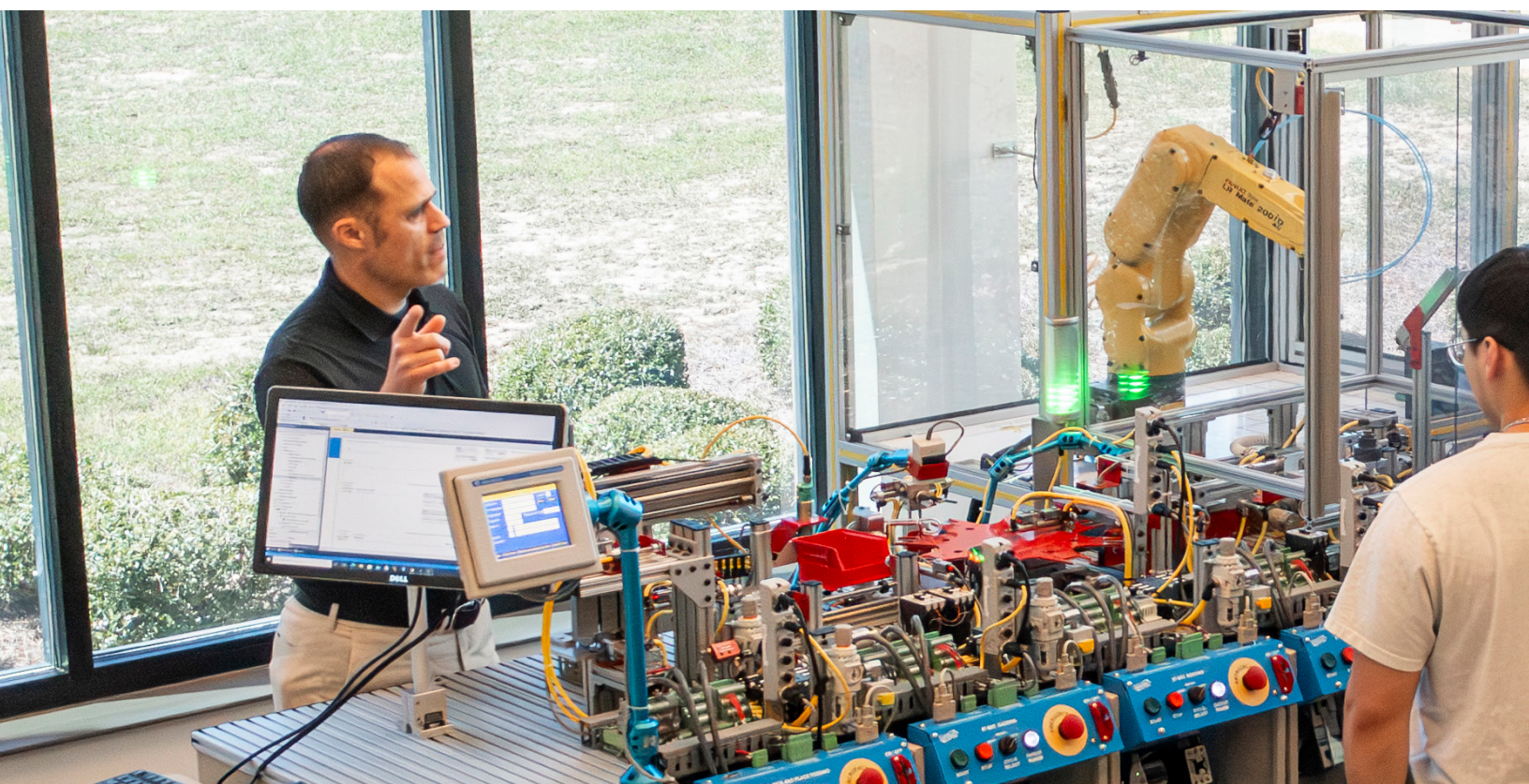
- Apply electrical system safety
- Connect and operate basic electrical circuits
- Interpret electrical schematics and diagrams
- Use a digital multimeter (DMM) to make electrical measurements
- Analyze basic load circuits
- Test and replace/reset fuses and circuit breakers
- Connect and operate basic reactive components
- Analyze basic combination circuits
- Troubleshoot basic series and parallel electrical circuits
- Analyze inductive circuits
- Analyze capacitive circuits

SACA Credential: C-201 Electrical Systems 1

Prepares individuals to connect, adjust, operate, troubleshoot, and analyze electrical circuits using basic electrical components: resistors, capacitors, inductors, DC motors, solenoids, manual switches, relays, fuses, circuit breakers, transformers, and indicators. Other key skills include: adhering to electrical safety rules, reading electrical circuit diagrams, applying Ohm's Law and Kirchhoff's Law, using digital multimeters, interpreting series/parallel circuits, and assessing power/circuit protection.

SACA Credential: C-206 Electrical System Installation 1

Prepares individuals to install and test/commission electrical motor control circuits using these electrical components: control cabinet enclosures, 3-phase AC motors, reversing magnetic motor starters with overloads, control relays, timer relays, pushbutton switches, selector switches, limit switches, pressure switches, indicators, electro-pneumatic solenoid valves, safety disconnect switches, and circuit protection. Key skills include: adhering to motor control installation safety rules, using proper PPE, reading electrical wiring installation diagrams, sizing circuit protection, installing components on DIN rails and cabinet panels, installing and testing ground systems, wiring motors for high and low voltage, selecting and preparing wire for installation, attaching of wire to terminal strips and components/motors, and routing of wire with raceways/conduits.



ISAT 1105 Motor Control Systems and Troubleshooting

- Apply motor control safety procedures
- Connect and operate motor control circuits using 3-phase AC motors
- Connect and operate magnetic motor starters, control relays, and timer relays
- Interpret motor control ladder logic diagrams
- Check motor control circuits for proper ground connections
- Wire motors for high and low voltage
- Interpret motor control application circuits
- Apply troubleshooting safety procedures
- Troubleshoot faults in electric motor control circuits and AC variable frequency drives
- Test motor control components
- Use a digital multimeter, clamp-on ammeter, and PLC status indicators to troubleshoot motor control circuits

SACA Credential: C-202 Electric Motor Control Systems 1

Prepares individuals to connect, adjust, and operate electrical motor control circuits using these electrical components: 3-phase AC motors, reversing magnetic motor starters with overloads, drum switches, control relays, timer relays, pushbutton switches, selector switches, limit switches, pressure switches, and float switches. Other key skills include: adhering to motor control safety rules, reading ladder logic circuit diagrams, checking for proper ground connections, wiring motors for high and low voltage, and interpreting common motor control application circuits.

SACA Credential: C-204 Motor Control Troubleshooting 1

Prepares individuals to troubleshoot and remedy faults in electric motor control circuits and AC variable frequency drives. Skills include: adhering to troubleshooting safety rules, systems troubleshooting, component testing, and using digital multimeters, clamp-on ammeters, and PLC status indicators. Components include: AC VFD drives with volts per hertz capability, 3-phase AC motors, reversing magnetic motor starters with overloads, drum switches, control relays, timer relays, manual switches, limit switches, pressure switches, and float switches.



ISAT 1103 Programmable Logic Control I

- Start up and shut down a PLC system
- Configure an Ethernet/IP driver
- Transfer programs between a PLC and PC via point-to-point Ethernet
- Transfer programs between a PLC and PC via USB serial
- Operate and monitor a PLC
- Connect, configure, and operate an HMI panel with Ethernet
- Configure PLC discrete I/O
- Program and operate a basic PLC logic program
- Create a PLC project
- Program and operate a PLC logic program that uses comparison instructions
- Program and operate a PLC project that uses math instructions
- Program and operate a PLC motor control sequence program
- Program and operate a basic PLC sequence program

SACA Credential: C-207 Programmable Controller Systems 1

Prepares individuals to program, configure, adjust, monitor, and operate industrial programmable logic controller (PLC) systems. Key skills include: adhering to PLC safety rules, performing normal startup/shutdown, operating PLC in different modes, performing emergency shutdown and reset, monitoring for proper operation through indicators and PC-based PLC software, configuring processor software drivers for communication to PC, configuring and loading of HMI programs, operating HMI with PLC, configuring PLC discrete I/O, transferring programs between PC and PLC processor, interpreting basic and intermediate level PLC ladder logic programs (with contacts, coils, timers, counters, math, comparison instructions), PLC project creation/editing, and interpreting common PLC program logic applications using electro-pneumatic actuators and on/off motor control systems.

SACA Credential: C-212 Ethernet Communications 1

Prepares individuals to connect, configure, monitor, and operate basic Ethernet networks in an Industry 4.0 environment. Key skills include: interpreting IP addresses, setting IP addresses (PCs, PLCs, robots, and other machines), connecting devices to an Ethernet network, setting up and configuring a basic managed Ethernet switch that uses layer 2 technology, connecting an Ethernet network in a star topology, configuring a managed switch subnet, identifying type of topology given a diagram, configuring a network for static and dynamic addressing, monitoring and interpreting status indicators on switch, viewing managed Ethernet switch network performance and diagnostics via software, and configuring port security of a managed switch network.



ISAT 1104 Programmable Logic Control II

- Use status and diagnostic indicators to troubleshoot a PLC
- Troubleshoot PLC inputs and outputs
- Troubleshoot a PLC power distribution system
- Troubleshoot a PLC processor
- Troubleshoot a PLC system with discrete I/O
- Program and operate a multi-step PLC sequence program
- Troubleshoot a multi-step PLC sequence program

SACA Credential: C-208 Programmable Controller Troubleshooting 1

Prepares individuals to troubleshoot and remedy faults in programmable logic controller systems. Skills include: systems troubleshooting and component testing using digital multimeters, PLC software, and PLC status indicators. Components include: PLC power supply, power distribution system, processor module, discrete input and output modules, chassis, and discrete field I/O devices. Troubleshooting applications include: multi-step machine sequence logic programs using electro-pneumatic actuators and on/off motor control systems.

ISAT 1130 Sensors in Industrial Smart Automation

- Identify and select an electronic sensor for an application
- Connect and test an inductive proximity sensor
- Connect and test a capacitive proximity sensor
- Connect and test a magnetic reed switch
- Connect and test a hall-effect sensor
- Connect and test a photoelectric sensor
- Interpret basic electrical control schematics
- Connect and test electro-pneumatic power circuits
- Connect and test electric-relay sequence control circuits
- Connect and test a relay sequence circuit that uses electronic sensors

SACA Credential: C-205 Sensor Logic Systems 1

Prepares individuals to connect, adjust, and operate discrete (on/off) electronic sensors and relay control sequence circuits using these components: inductive sensors, capacitive sensors, magnetic reed sensors, photoelectric sensors, hall effect sensors, limit switches, control relays, timer relays, manual switches, DC motors, indicators, electro-pneumatic solenoid directional control valves, and pneumatic actuators. Other key skills include: selecting sensor type for an application, reading ladder logic circuit diagrams, and interpreting common relay-control sequence applications circuits.

SACA Credential: C-203 Variable Frequency Drive Systems 1

Prepares individuals to connect, configure, adjust, and operate AC variable frequency motor drives using basic volts per hertz mode. Key skills include: adhering to VFD safety rules, operating VFD in manual using keypad, performing normal VFD startup and shutdown, performing emergency shutdown, viewing and editing parameters, changing speed with potentiometer, interfacing/configuring external discrete I/O, interpreting error codes, resetting drive errors, and configuring for acceleration, deceleration and braking.

SACA Credential: C-213 Smart Sensor and Identification Systems 1

Prepares individuals to connect, configure, adjust, program, monitor, and operate smart sensors (analog pressure/ultrasonic, photoelectric, and stack light), barcode readers, and RFID readers in an Industry 4.0 environment. Key skills include: connecting sensors to Ethernet network through IO-Link Masters or directly, configuring IO-Link Masters, interpreting sensor and IO-Link Master status indicators, downloading IODD and EDS files for smart sensors, wiring smart sensors, configuring PLCs to receive data from smart sensors through network, monitoring health of sensors through network, programming RFID tags or printing barcode labels, setting up and operating RFID readers, configuring RFID/barcode readers to communicate to a PLC, configuring Ethernet-serial converter to communicate sensor data to PLCs, and programming PLCs to use smart sensor/RFID/barcode data to perform common process applications.



ISAT 1110 Mechanical Systems

- Identify mechanical power transmission type and application
- Apply mechanical power transmission safety procedures
- Use a dial indicator to measure component dimensions
- Install and mount a motor
- Select and install a shaft key and hub
- Install and adjust pillow block and flange bearings
- Install and align a shaft system with a flexible jaw coupling
- Install and adjust a basic V-belt drive system
- Install and adjust a basic chain drive system
- Install and align a gear drive system
- Monitor the performance of a mechanical power transmission system
- Apply lubrication to mechanical components

SACA Credential: C-210 Mechanical Power Systems 1

Prepares individuals to install, adjust, align, tension, operate and analyze basic mechanical power transmission drive systems using these components: motors, shafts, flexible jaw couplings, fractional horsepower (FHP) chain drives, FHP v-belt drives, spur gear drives, pillow block bearings, and flange bearings. Other key skills include: adhering to mechanical drive safety rules, mounting and leveling motors, testing and correcting for soft foot, installing components and shafts with keyways, sizing keys, aligning shafts using feeler gage and straight edge method, calculating speed and torque from component size ratios, interpreting rotary power specifications, determining mechanical efficiency, greasing bearings using a grease gun, refilling oil lubrication reservoirs, interpreting lubrication specifications, and identifying component given a model number.

SACA Credential: C-301 Mechanical Power Systems 2

Extends mechanical power transmission work to heavy-duty drives: grid, gear, and flange couplings, QD/taper-lock bushings, timing and HTD belts, and heavy-duty and silent chains. Covers mechanical troubleshooting safety procedures, installing and adjusting timing belt, heavy-duty shaft coupling, heavy-duty chain and heavy-duty V-belt drive systems, reverse dial indicator shaft alignment, detecting wear, and sizing components for a specific load.



ISAT 1120 Hydraulic & Pneumatic Systems

- Apply pneumatic system safety procedures
- Connect and adjust a pneumatic supply line
- Start up and shut down a reciprocating air compressor
- Interpret pneumatic schematics
- Connect and operate basic pneumatic circuits
- Connect and adjust flow control and needle valves
- Monitor performance of pneumatic system pressure and force
- Monitor pneumatic system operation
- Perform basic pneumatic system servicing

SACA Credential: C-209 Pneumatic Systems 1

Prepares individuals to connect, adjust, operate, and analyze pneumatic circuits using these components: quick connect fittings, tee and cross fittings, air compressors, filters, regulators, lubricators, gauges, rotameters, directional control valves, flow control valves, check valves, cylinders, and motors. Other key skills include: adhering to pneumatic safety rules, reading pneumatic circuit symbols and diagrams, applying the Force-Pressure-Area formula, converting absolute/gauge pressure units, performing reciprocating compressor startup/shutdown, applying Pascal's Law, setting pressure switch, filter draining, setting lubricator rate, lubricator refilling, and measuring delta P.

SACA Credential: C-255 Hydraulic Systems 1

Prepares individuals to install and maintain hydraulic systems. Skills include: adhering to hydraulic maintenance safety rules, replacing o-rings, replacing subplate-mounted/cartridge/threaded components, replacing hoses and steel tubing, replacing spin-on and cartridge filters, replacing hydraulic fittings, inspecting hydraulic fluid visually for presence of water or contaminants, inspecting hydraulic fluid using feel/smell for excess temperature and lubricity, taking oil samples for lab testing, using a filter cart to clean reservoir oil, using a filter cart to change or add reservoir oil, interpreting oil specifications, identifying proper oil container using machine manufacturer specifications, identifying hydraulic components given a specification, and bleeding hydraulic cylinders.

SACA Credential: C-304 Pneumatic Troubleshooting 1

Prepares individuals to troubleshoot and remedy faults in electro-pneumatic PLC-controlled systems. Skills include: adhering to troubleshooting safety rules, systems troubleshooting, component testing, and using digital multimeters and status indicators. Components include: filters, regulators, lubricators, solenoid-operated directional control valves, flow control valves, vacuum generators, vacuum cups, vacuum switches, quick exhaust valves, limit switches, electronic sensors, PLC I/O modules, check valves, cylinders, and motors.



ISAT 2010 Industrial Robotics I

- Identify robot type and applications
- Identify the components of an articulated servo robot
- Identify types of end-of-arm tooling
- Determine robot work envelope
- Identify robot workcell safety features
- Perform a robot workcell safety inspection
- Apply robot safety procedures
- Power up and shut down a robot
- Use a teach pendant to view menus and status indicators
- Identify robot model number and version data
- Jog an articulated robot in joint mode
- Set and test robot joint travel limits
- Identify robot position in each of 5 frames
- Jog an articulated robot using Cartesian coordinates
- Define a tool frame and user frame
- Load a robot program
- Teach robot motion points and enter program commands
- Test a robot program
- Operate a robot in production
- Recover a robot from basic faults

SACA Credential: C-215 Robot System Operations 1

Prepares individuals to set up, adjust, monitor and operate industrial robot systems in an Industry 4.0 automation environment. Key skills include: adhering to robot safety rules, identifying robot types and robot components (and end-effectors), performing normal startup and shutdown, performing emergency shutdown and recovery, identifying robot work envelope, performing robot safety inspection, using teach pendant to view menus and status indicators, using teach pendant to jog robot in joint mode or using Cartesian coordinates, adjusting jog speed, setting and testing robot joint travel limits, using teach pendant to identify robot position in each of 5 frames, defining a frame using 3-point method, loading a robot program using Ethernet or memory card, testing digital robot inputs and outputs, testing robot program in single step or continuous mode, selecting and running robot program using teach pendant, teaching/adjusting robot points using proper frame, identifying/recovering from a fault, and viewing/interpreting robot alarm history.

SACA Credential: C-103 Certified Industry 4.0 Associate III – Robot System Operations

SACA's C-103 Certified Industry 4.0 Associate III – Robot System Operations certification is an introductory credential that prepares individuals to operate industrial robots and other Industry 4.0 technologies in a modern production environment. This credential is ideal for manufacturing technicians, maintenance technicians and IT professionals seeking to become versed in robot system operations.



ISAT 2020 Industrial Robotics II

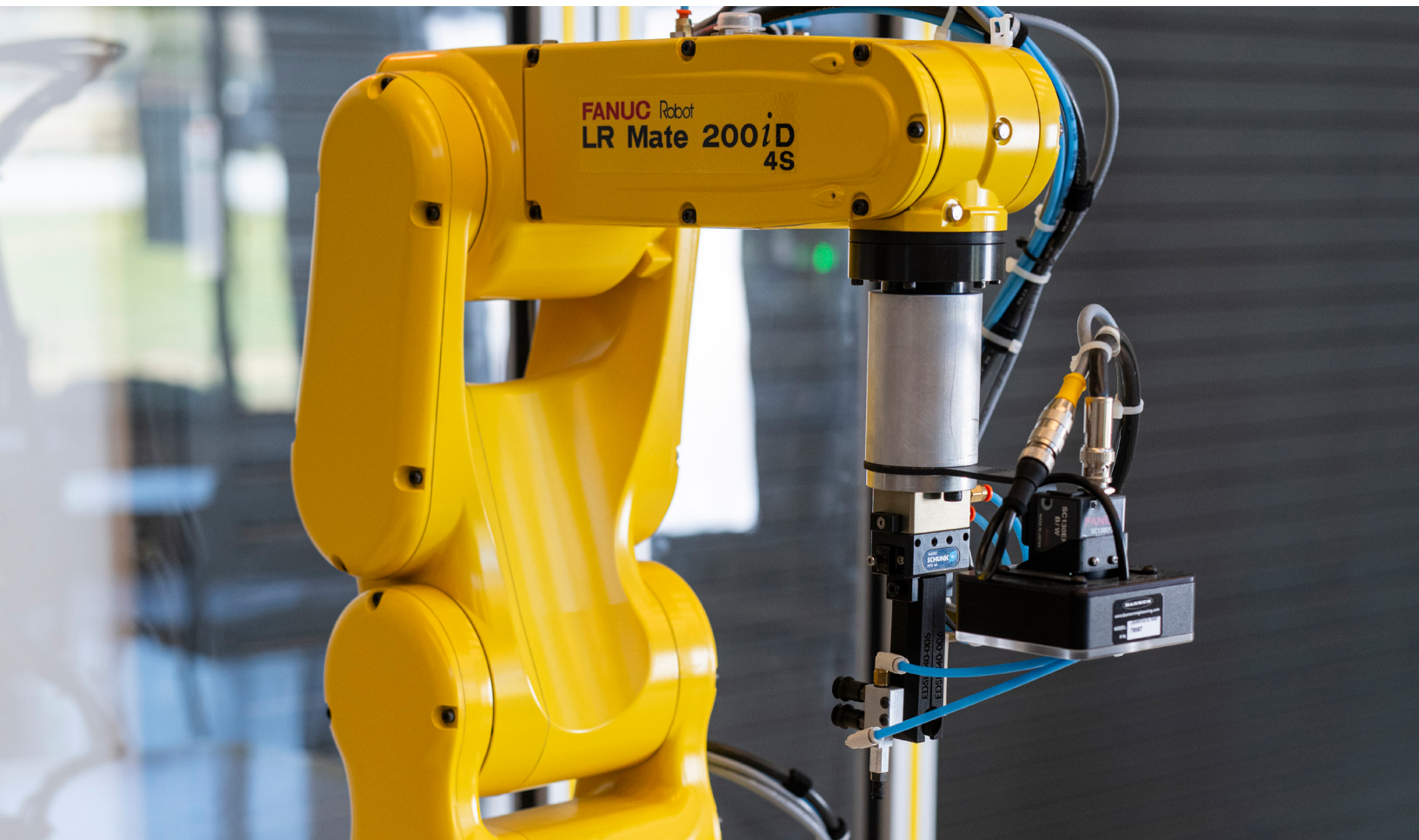
- Enter and interpret a robot program with motion commands
- Enter and interpret robot program tool and user frame offset commands
- Enter and interpret robot program data register commands
- Enter and interpret robot program branching commands
- Enter and interpret robot program looping and wait commands
- Interface and test discrete robot inputs and outputs
- Interface and test PLC I/O to a robot controller
- Enter and interpret robot programs that use discrete I/O
- Connect and test robot Ethernet network communications
- Enter and test a robot program macro command
- Develop and test a basic pick and place robot program
- Develop and test a machine load/unload robot program
- Develop and test a basic assembly robot program
- Develop and test a basic gluing robot program

SACA Credential: C-216 Robot Systems Integration 1

Prepares individuals to program, interface, and optimize industrial robot systems in an Industry 4.0 automation environment for these applications: pick and place, basic assembly, machine load/unload, and gluing. Key skills include: interpreting robot programs, developing robot sequence operations and robot program for an application, entering robot programs and points using a teach pendant, interfacing on/off input sensors and solenoid output devices to digital I/O of robot, interfacing digital I/O of robot to PLC, and cycle time optimization. Program commands include: 3 types of motion, speed, offset, data register, branching, digital I/O, looping, waiting, and macros.

FANUC-1 Certification

The FANUC Certified Robot Operator – 1 certification focuses on the core Robot Operator skills needed by entry-level workers and indicates an operator level of skills and knowledge. Knowledge includes a basic understanding of robot operations and programming, material handling and its components.



CIST 1601 Information Security Fundamentals

This course provides a broad overview of information security. It covers terminology, history, security systems development and implementation. Students will also cover the legal, ethical, and professional issues in information security.

ISAT 2030 Operations Technology I

- Concepts & Terminology of Smart Manufacturing
- Basic Setup, Adjustment & Operation of Automated Machines
- Safety and Hand Tools
- Blueprint & Schematic Reading
- Precision Measurement
- Basic Electrical Control, Pneumatic, & Sensor Systems Operation
- Basic Robot Operation & Terminology Production Monitoring via HMI, Internet, Ethernet, & Smart Phones
- Smart Manufacturing System Metrics & Optimization
- Setup, Adjustment, & Operation of Computer Controlled Machines
- Basic Ethernet Network Operation
- Basic Programmable Controller Programming & Operation
- Basic Mechanical & Hydraulics System Operation & Adjustment
- Basic Mechatronic Systems Programming & Operation
- Basic Robotics & CNC Programming/Operation
- HMI Interface & Operation

SACA Credential: C-101 Certified Industry 4.0 Associate I – Basic Operations

SACA's C-101 Certified Industry 4.0 Associate I – Basic Operations certification is an introductory credential that prepares individuals to succeed in modern production environments that use Industry 4.0 controls, automation, and processes. This credential is appropriate for individuals working in any occupation in advanced manufacturing.

SACA Credential: C-104 Certified Industry 4.0 Associate IV – IIoT, Networking & Data Analytics

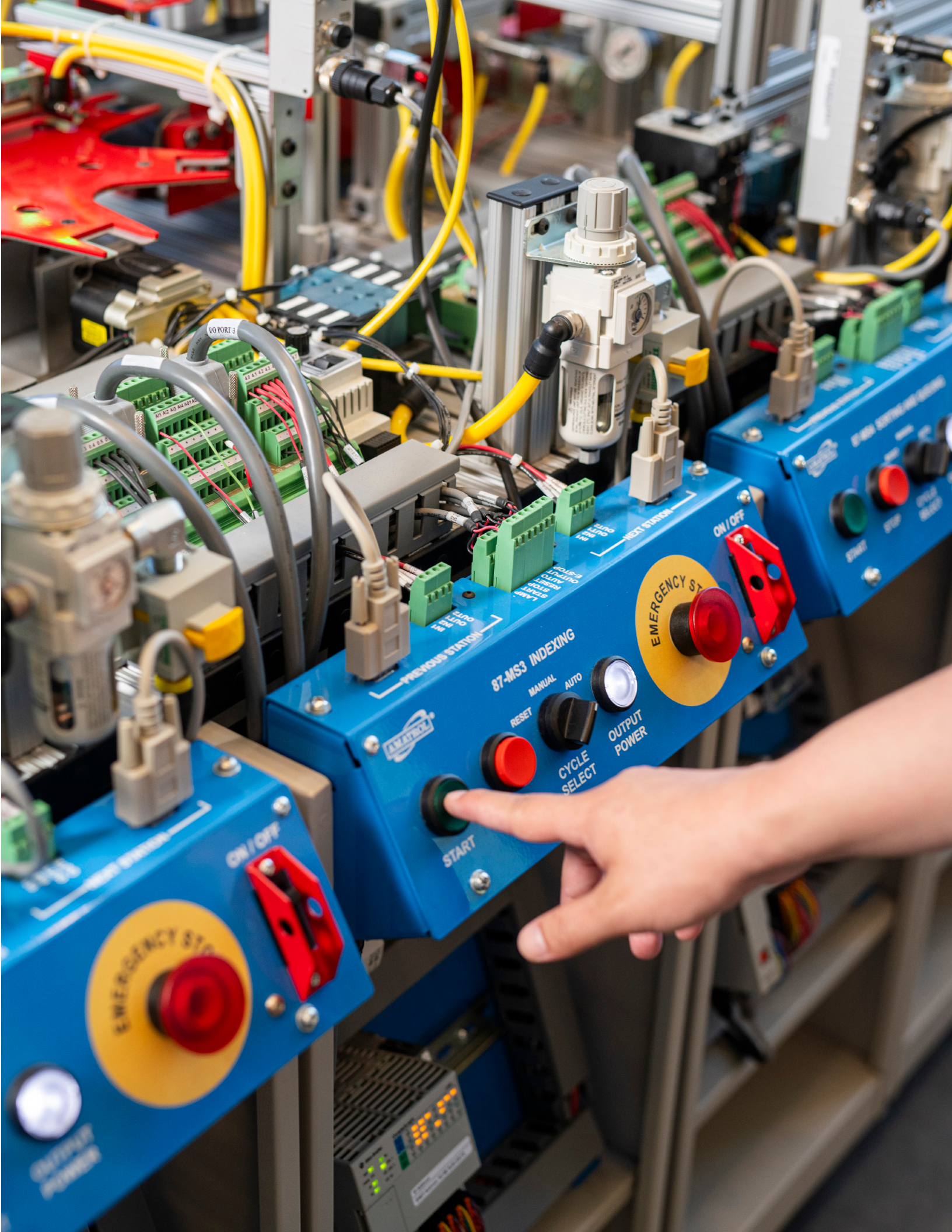
SACA's C-104 Certified Industry 4.0 Associate IV – IIoT, Networking & Data Analytics certification is an introductory credential that prepares individuals to program and optimize Industry 4.0 automation technologies such as IIoT, smart sensors/devices, networking, and data analytics software. This credential is ideal for maintenance technicians and IT professionals seeking to become versed in basics of Industry 4.0 automation.

ISAT 2040 Operations Technology II

- Concepts of Industrial Internet of Things (IIoT)
- PLC Ethernet Messaging Communications
- Barcode & RFID Programming & Operation
- Smart Sensor Programming & Operation
- Managed Ethernet Switch Configuration & Operation
- Variable Frequency Drive Programming
- SQL Database Systems
- Data Analytics & Manufacturing Execution Systems (MES)
- Lean Manufacturing & System Optimization

SACA Credential: C-102 Certified Industry 4.0 Associate II – Advanced Operations

SACA's C-102 Certified Industry 4.0 Associate II – Advanced Operations certification is an introductory credential that prepares individuals to analyze and modify modern production control systems that use Industry 4.0 automation technologies and processes. This credential is appropriate for individuals in occupations, such as maintenance, IT, and engineering seeking to become versed in manufacturing facility floor controls, automation and programming.





OGEECHEE TECHNICAL COLLEGE

One Joseph E. Kennedy Boulevard | Statesboro, GA 30458

Jan Moore – VP for Economic Development
912.688.6026 | jmoore@ogeecheetech.edu

As set forth in its student catalog, Ogeechee Technical College does not discriminate on the basis of race, color, creed, national or ethnic origin, sex, gender, religion, disability, age, political affiliation or belief, genetic information, veteran status, or citizenship status (except in those special circumstances permitted or mandated by law). The following person(s) has been designated to handle inquiries regarding the non-discrimination policies: Title IX Coordinator, Office 193, Joseph E. Kennedy Building, 912.871.1885, titleix@ogeecheetech.edu; Section 504 Coordinator, Office 189, Joseph E. Kennedy Building, 912.486.7211, adacoordinator@ogeecheetech.edu; One Joseph E. Kennedy Boulevard, Statesboro, GA 30458. Ogeechee Technical College is a unit of the Technical College System of Georgia.