



ISA Eastern New York Section, Inc.

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ISA Eastern New York Section, Inc. Academic Scholarship Program

The ISA Eastern New York Section, Inc. Academic Scholarship Program is for students who are pursuing or intending to pursue a college degree related to the field of automation.

Qualified applicants must meet the following criteria:

- Current Student or Professional ISA member¹.
- Student pursuing or intending to pursue a college degree related to the field of automation².
- Must be enrolled in an accredited 2- or 4-year undergraduate program for the following semester or calendar year.
- Must not hold any previous 4-year or graduate degrees.

This is a one-time **\$1,000** scholarship and is not paid annually to the recipient; however, a previous recipient may apply for another scholarship award. The scholarship is funded by and awarded through the ISA Eastern New York Section. Scholarship awards are intended to help offset the cost of tuition, textbooks, and other college-related expenses.

The merit-based scholarship is awarded based on:

- Community and extracurricular involvement.
- High school or college grade point average (GPA).
- Short essays addressing the applicant’s plans for their higher education and subsequent career.

The application deadline is **May 31st** of each calendar year. Application submissions must include all required information to be considered valid. The awardee will be invited to attend the ISA Eastern New York Section Scholarship Ceremony to receive their award.

Apply now! Scan the QR code or visit <https://isa-enys.org/isa-eastern-new-york-section-scholarship-opportunity/>

Questions? Please contact scholarship@isa-enys.org



¹ISA Membership must be associated with the Eastern New York Section. Current high school students are not eligible for ISA Membership and are therefore exempt from this requirement. Visit www.isa.org/membership/students to learn about the benefits of ISA student membership, or www.isa.org/membership for information about professional membership.

²See the reverse side for a list of fields of automation and related subtopics for reference.



ISA Eastern New York Section, Inc. Academic Scholarship Program Fields of Automation and Subtopic Examples

Digital Transformation

- Smart manufacturing
- Digital twin
- Virtual, augmented and mixed reality
- Additive manufacturing/3D printing
- Autonomous systems (driverless cars, drones, intelligent robots)
- Industry 4.0/5.0
- Blockchain
- Artificial intelligence (AI) large language models, generative AI, AI-based advisory or control systems
- Wearables
- Data science (analytics, AI, machine learning (ML), deep learning, predictive and preventive control)
- Digital strategy

Automation and Control

- Continuous control and batch processing
- Troubleshooting
- Modifications (set point softening, digital, series, velocity, etc.)
- Optimization/controller tuning
- Model-based control (advanced process control [APC], model predictive control [MPC], dynamic matrix control [DMC], smith predictor, etc.)
- Advanced classical control strategies (cascade, ratio, override, feedforward, reset feedback, etc.)
- Soft computing methods (fuzzy logic, neural networks, and evolutionary genetics algorithms)
- Procedure automation for continuous process operations
- Building automation (heating, ventilation and air conditioning, fire detection, lighting control, access control, closed circuit TV [CCTV] and intrusion monitoring)
- Control centers and control rooms (alarm management, situational awareness, human factors and ergonomics)
- Distributed control system (DCS)
- Integrated control and safety system (ICSS)
- Supervisory control and data acquisition (SCADA)

- Data historian
- Human-machine interface (HMI), graphical user interface (GUI), operator interface terminal (OIT) and mobile devices
- Programmable logic controllers (PLCs) and programmable automation controllers (PACs)
- Remote terminal units/remote telemetry units (RTUs)
- Soft PLC
- Instruments and sensors (calibration and test, signal conditioning and processing, process composition analyzers and techniques)
- Final control elements (valves, pumps, motors)
- Electrical system (control panels, marshaling cabinets, industrial computers, power supplies)
- Machine automation and control (embedded control, machine tools, CNC, DNC)
- Machine safety
- Sequential control
- Discrete control
- Motion control
- Robotics
- Automatic identification/vision systems

Safety and Cybersecurity

- Environment, health, safety and security (EHSS)
 - Process safety
 - Safety instrumented systems (SISs)
 - Burner management systems
 - Fire and gas systems
 - Functional safety
 - Hazardous areas and equipment
 - Industrial and operational technology (OT) cybersecurity
 - Network management and protection (intrusion detection, intrusion prevention, firewall, etc.)
- ### Enterprise Architecture and Networks
- Control system integration
 - Network devices (firewalls, routers, switches, gateways, data diodes, etc.)
 - Wireless networks (Wi-Fi, wireless instrumentation networks [ISA100,

- WirelessHART, etc.], LTE/5G/6G, satellite [VSAT, Starlink, etc.])
- Network protocols (OPC and OPC UA, DNP3, Ethernet/IP [CIP], PROFINET, Modbus, etc.)
- Intelligent device management (field device technology [FDT], electronic device description language [EDDL])
- Industrial internet of things (IIoT)
- Edge computing
- Cloud computing
- IT/OT convergence
- Unified name space (UNS)
- Digital thread
- Purdue Enterprise Reference Architecture (PERA)
- Monolithic
- Microservices
- Domain driven design
- Data strategy

Operations and Management

- Documentation
- Project planning and execution
- Risk management
- Modeling and simulation (dynamic, steady state, mathematical methods, model validation)
- Design engineering
- Loop checks, calibration, commissioning and FAT/SAT
- Asset management (overall equipment effectiveness [OEE], leak detection and repair, maintenance and repair [MRO])
- Changeovers and migrations
- Corporate/enterprise resource planning (ERP) (SOCs, recipes, work orders, BOMs)
- Manufacturing execution system (MES) (12 functions per ISA-95)
- Compliance, regulations and standards
- Industry maturity and readiness
- Plant/facility safety and security (personnel safety, electrical safety, physical security, personnel security awareness)
- Workforce development and training
- Sustainability (environmental management, energy management, supply chain optimization)