

Distribution, Supply Chain, Logistics & Robotics Program Standards

Standard 1: Supply Chain Foundations

Students will demonstrate an understanding of supply chain systems, logistics operations, and the movement of goods from production to the end consumer.

Performance Indicators

- Define supply chain and logistics terminology.
- Explain the functions of procurement, manufacturing, distribution, and retail.
- Analyze the flow of goods through local and global supply chains.
- Identify careers within logistics and supply chain management.
- Describe the role of technology in modern supply chains.

Standard 2: Warehouse Operations

Students will demonstrate the knowledge and skills necessary to operate safely and efficiently within a warehouse and distribution environment.

Performance Indicators

- Explain warehouse layouts and operational workflows.
- Perform receiving, storing, picking, packing, and shipping procedures.
- Demonstrate inventory organization techniques.
- Apply warehouse safety procedures and OSHA standards.
- Utilize warehouse equipment safely and appropriately.

Standard 3: Inventory Management

Students will manage inventory using industry-standard practices and digital inventory systems.

Performance Indicators

- Perform inventory counts and reconciliation.
- Utilize barcode scanning and RFID technologies.

- Explain inventory control methods.
- Maintain accurate inventory records.
- Analyze inventory data to improve operational efficiency

Standard 4: Transportation and Distribution

Students will analyze transportation systems and develop efficient distribution strategies.

Performance Indicators

- Compare transportation modes including truck, rail, air, and ocean freight.
- Develop delivery routes using route optimization principles.
- Analyze transportation costs and scheduling.
- Explain last-mile delivery operations.
- Evaluate transportation solutions for efficiency and sustainability.

Standard 5: Supply Chain Technology

Students will utilize digital technologies and software systems commonly used in logistics and supply chain operations.

Performance Indicators

- Operate Warehouse Management Systems (WMS).
- Demonstrate basic use of Enterprise Resource Planning (ERP) systems.
- Utilize Transportation Management Systems (TMS).
- Track inventory using barcode and RFID technologies.
- Interpret digital logistics reports and dashboards.

Standard 6: Robotics Fundamentals

Students will demonstrate foundational knowledge of robotics, automation, and intelligent systems used in logistics and distribution.

Performance Indicators

- Explain the components of robotic systems.
- Describe industrial robotics applications.
- Identify robotic sensors and actuators.
- Explain the operation of Automated Guided Vehicles (AGVs) and Autonomous Mobile Robots (AMRs).
- Demonstrate basic robotics programming concepts.

Standard 7: Robotics Programming and Automation

Students will design, build, program, and troubleshoot robotic systems that automate warehouse operations.

Performance Indicators

- Program robotic devices to perform warehouse tasks.
- Integrate sensors into robotic systems.
- Develop automated material handling solutions.
- Build robotic prototypes for logistics applications.
- Troubleshoot robotic hardware and software systems.

Standard 8: Smart Warehouse Automation

Students will apply automation technologies to improve warehouse productivity, efficiency, and safety.

Performance Indicators

- Explain conveyor automation systems.
- Demonstrate automated sorting technologies.
- Design automated inventory movement systems.
- Integrate robotics into warehouse workflows.
- Evaluate smart warehouse technologies for operational improvement.

Standard 9: Artificial Intelligence and Emerging Technologies

Students will examine emerging technologies that support modern logistics and distribution systems.

Performance Indicators

- Explain the role of Artificial Intelligence (AI) in logistics.
- Describe machine vision applications.
- Analyze Internet of Things (IoT) technologies.
- Explain digital twin concepts.
- Evaluate future trends in warehouse automation.

Standard 10: Supply Chain Data Analytics

Students will collect, analyze, and interpret logistics data to improve operational performance.

Performance Indicators

- Utilize spreadsheets for logistics calculations.
- Develop logistics dashboards using Power BI or similar software.
- Interpret supply chain Key Performance Indicators (KPIs).
- Analyze demand forecasting data.
- Recommend operational improvements using data analysis.

Standard 11: E-Commerce Fulfillment

Students will demonstrate the processes used in e-commerce order fulfillment and distribution.

Performance Indicators

- Process customer orders accurately.
- Demonstrate packaging and shipping procedures.
- Manage returns and reverse logistics.
- Analyze fulfillment center performance.
- Explain customer service expectations within e-commerce operations.

Standard 12: Safety, Security, and Regulatory Compliance

Students will apply workplace safety standards and industry regulations within logistics and automated warehouse environments.

Performance Indicators

- Demonstrate OSHA-compliant workplace practices.
- Apply robotics safety procedures.
- Identify hazards associated with warehouse operations.
- Explain hazardous materials procedures.
- Demonstrate emergency response protocols.

Standard 13: Engineering Design and Problem Solving

Students will apply engineering design principles to solve logistics and automation challenges.

Performance Indicators

- Apply the engineering design process.
- Develop solutions to warehouse efficiency problems.
- Evaluate automation alternatives.
- Prototype logistics systems.
- Test and improve engineering designs.

Standard 14: Communication and Professional Skills

Students will demonstrate workplace communication, collaboration, leadership, and professionalism.

Performance Indicators

- Communicate effectively in written and verbal formats.
- Work collaboratively in logistics and robotics teams.
- Demonstrate leadership and ethical behavior.
- Present technical information professionally.
- Apply customer service and workplace communication skills.

Standard 15: Career Readiness and Industry Certifications

Students will demonstrate the employability skills necessary for careers in logistics, supply chain management, robotics, and automation.

Performance Indicators

- Develop a professional résumé and portfolio.
- Demonstrate interview and workplace readiness skills.
- Explain career pathways in logistics, robotics, and automation.
- Prepare for industry certifications including OSHA 10, MSSC Certified Logistics Associate (CLA), MSSC Certified Logistics Technician (CLT), Lean Six Sigma Yellow Belt, and robotics or automation credentials.
- Complete a capstone project demonstrating mastery of logistics, supply chain, and robotics competencies through a real-world industry challenge.