IGNITE

Mastering Manufacturing

Mastering the Concepts of Industry 4.0 and Advanced Materials for Next Generation Careers

Powered By AMATROL®

CERTIFIED ISO 9001:2015

IGNITE: Mastering Manufacturing

The Need for New Skills

Advanced materials, the Industrial Internet of Things (IIoT) & other Industry 4.0 technologies have created many new exciting career opportunities but also require a new set of knowledge and abilities. Individuals in today's world must possess state-of-the-art technical skills, systems optimization skills, and employability skills such as teamwork.

IGNITE Outcomes

- Inspiration
- College Credit
- Career Exploration
- Industry-Recognized Certifications
- Collaborative & Creative Thinking

Career Exploration — *blended with* — Skill Development

Career Exploration

IGNITE is a foundational skills development program designed to stimulate student interest in today's Advanced Manufacturing/ Industry 4.0 careers. Students learn about the many careers and experience them firsthand by performing tasks with hands-on Industry 4.0/IIoT technology & virtual environments.

Project-Based Learning

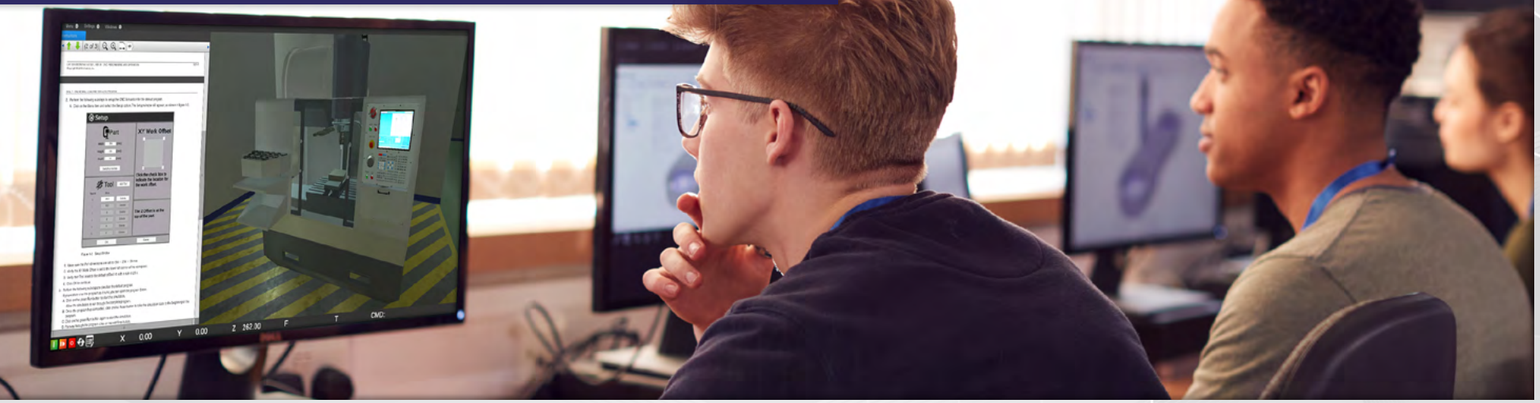
IGNITE's curriculum is the perfect blend of career exploration, creative learning, & skill development. IGNITE develops critical skills in systems-thinking & team problem solving through creative project-based learning activities and a structured curriculum.

Skill Certifications

IGNITE is a competency-based program that develops skills. IGNITE aligns with industry-recognized 3rd party occupational certifications including the Smart Automation Certification Alliance (SACA) & the Manufacturing Skills Standards Council (MSSC).

IGNITE was developed in collaboration with three Manufacturing USA Institutes (LIFT, America Makes, and MxD) and funded in part by the U.S. Department of Defense.

IGNITE: The Elements



eLearning Courses

Technical Skills

Learning Industry 4.0 technical skills becomes an energizing experience for students with IGNITE's state-of-the-art interactive multimedia curriculum.

Employability Skills

IGNITE's courses include eLearning lessons that teach employability skills -- such as teamwork, communication, and professionalism -- which are essential to workplace success.

Virtual Technology

Virtual trainers are simulators embedded in eLearning lessons to provide online skill practice. They replicate hands-on equipment in such great detail that students will feel like they are using the actual equipment as they perform the same industry-based tasks.

Projects

Team-Based Projects

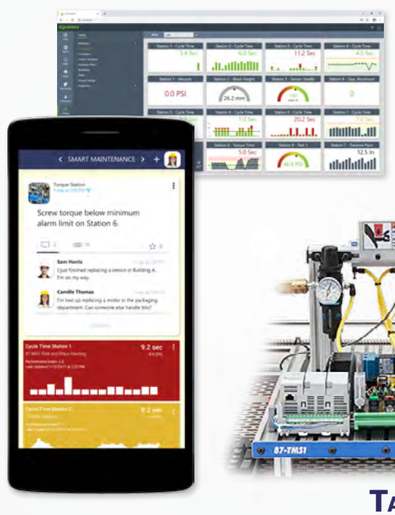
IGNITE students apply their technical and employability skills to real world problems through fun, creative team-based thematic projects where students design, fabricate, and analyze working prototype devices.

Mini-Projects

Mini-Projects are embedded throughout the hands-on workstation activities to engage students and reinforce concepts. Mini-Projects are individual hands-on projects that focus on a specific technology.

Hands-On Technology

IGNITE features hands-on workstations with state-of-the-art Industry 4.0 technologies, such as the Industrial Internet of Things (IIoT) smart sensors and Additive Manufacturing. Students safely master industry-relevant technical skills using IGNITE's detailed step-by-step curriculum.



Smart Data Analytics Software

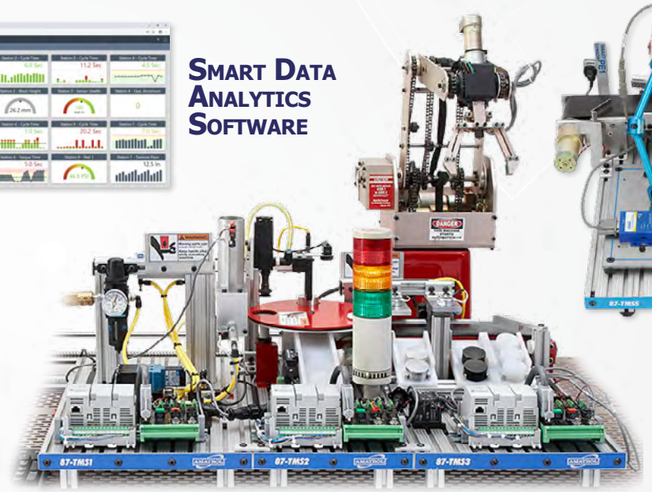
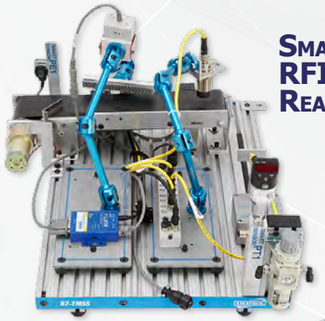
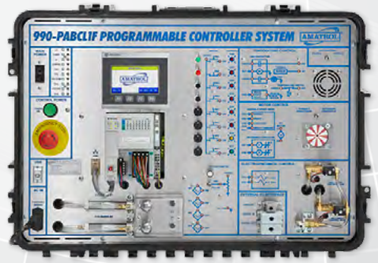


Table Top Smart Factory

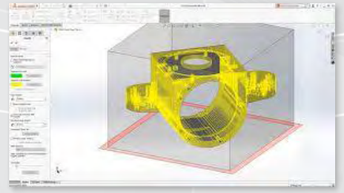


Smart Sensors, RFID & Barcode Readers

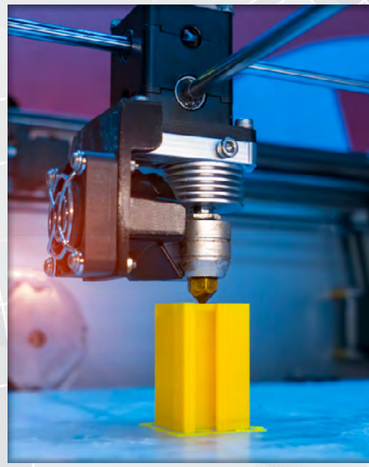


HMI & PLC

Ethernet Networking



CAD/CAM



3D Printing

IGNITE: Inspiring the Next Generation

IGNITE's innovative curriculum supports a modular 6-course Advanced Manufacturing program with additional materials science activities for science courses. Each course can be completed in one semester, providing flexibility for 1-, 2-, or 3-year programs.

All IGNITE courses include stimulating interactive eLearning lessons, computer simulations, design projects, and hands-on workstations using Industry 4.0 technologies.

IGNITE's Pathway to Success

Course 1

Introduction to Advanced Manufacturing

Introduces fundamental concepts in advanced manufacturing, designed to ignite interest and develop basic skills. Technical Highlights: Smart Automation, CNC, Robotics, CAD, Additive Manufacturing, and Safety.

Course 2

Introduction to Systems

Projects applying team concepts and problem solving to basic systems. Expands on Course 1 technical topics in Smart Automation.

Course 3

Mechatronic Systems

Projects in mechatronic systems combining computer-based controllers with electrical, mechanical, and fluid technologies. Introduces Programmable Controller (PLC) programming and applications.

Course 4

Digital Manufacturing Systems

Projects in Digital Enterprise Systems combining PLCs, Robotics, and Cloud Technologies. Introduces Networking, CAM, Cloud-Based Data Collection, and Lean Manufacturing.

Course 5

Advanced Materials & Design

A capstone course that deepens technical skills in advanced manufacturing processes, materials, and design while completing an advanced team project. Features CAD/CAM, CNC, welding, plastics, and materials engineering.

Course 6

IIoT, Data Analytics, & Networking

A capstone course that enriches technical skills in Industry 4.0 systems and the Industrial Internet of Things using managed networks, data analytics software, cybersecurity, variable frequency drives, RFID, barcode, and smart sensors.

Materials Science

IGNITE includes additional project-based learning activities to connect advanced manufacturing to materials science and the engineering design cycle.

College & Career Success!

IGNITE: Administration

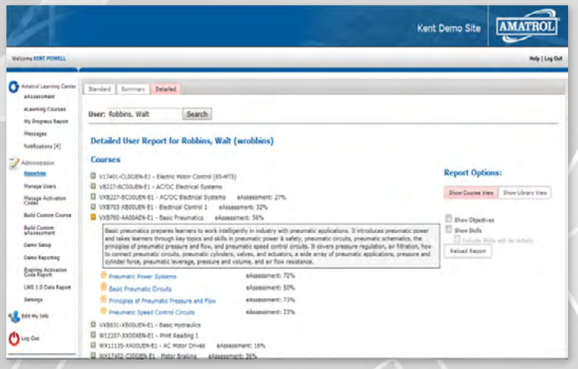
Turnkey Instructor Resources & Support

IGNITE is a turnkey system with extensive instructor resources and support. IGNITE instructor guides and program evaluation guides provide class schedules, syllabi, teaching tips, classroom management methods, and assessment rubrics.

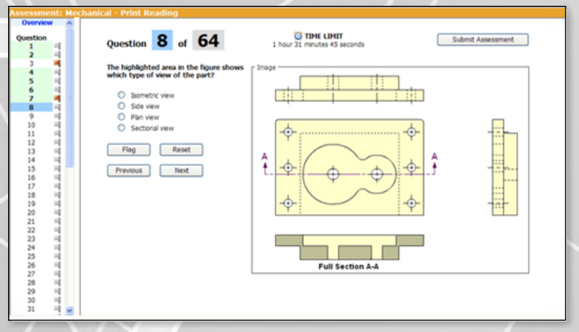
IGNITE also offers comprehensive teacher professional development through a series of week-long instructor classes taught by master instructors.

Online Course Management

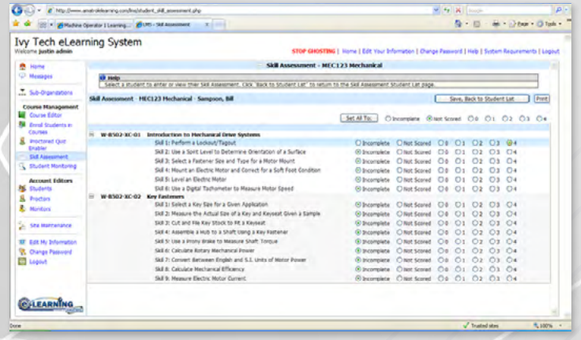
— WITH REMOTE LEARNING —



Customized Learning Plans



Pre- & Post-Test Assessments



Hands-On Skill Tracking

IGNITE students can learn anywhere, anytime they can connect to the Internet. eLearning courses are accessed online through Amatrol's powerful Learning Management System (LMS). Students can even practice their hands-on skills, making IGNITE the perfect solution for remote learning.

Amatrol's LMS also provides a highly flexible assessment with pre-tests, post-tests, and hands-on skill assessment tracking. The LMS also includes a student diagnostic tool that creates customized student learning plans.

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