The Future of Work: Integrating Emerging and Cross-Cutting Technologies

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CORD
1. Empower community colleges to prepare technicians for the work of the future.

2. Promote regional collaboration between community colleges and industry to determine the technical demands of work of the future.

3. Support ATE Regional Networks focused on technician education for the work of the future.

4. Foster implementation of the cross-disciplinary STEM core to maximize impact on technician education
What’s Happening?

• Nature of work changing at unprecedented speeds
• Technology advancements in machine learning, AI, IoT, and robotics eliminating some jobs, creating others
• Technicians sit at the center of much of this disruption
• Education must keep up
• Our students’ career paths will evolve
Future-proofing STEM Technicians

The Cross-Disciplinary STEM Core:
Skill Area 1: Data Knowledge and Analysis
Skill Area 2: Advanced Digital Literacy
Skill Area 3: Business Knowledge and Processes

By Integrating the Cross-Disciplinary STEM Core into Technical Programs
# A Framework for a Cross-Disciplinary STEM Core

## Data Knowledge and Analysis
- Analytics tools
- Computational thinking
- Data analysis
- Data backup and restoration
- Databases
- Data fluency
- Data life cycle
- Data management
- Data modeling
- Data storage
- Data visualization
- Query languages
- Spreadsheets
- Statistics

## Advanced Digital Literacy
- Artificial intelligence/machine learning
- Automation/robotics
- Basic programming
- Cloud literacy
- Digital fluency
- Digital twins
- Edge computing
- Function block diagram programming
- Human-Machine Interface (HMI)
- Internet of Things (IoT)
- Network architecture
- Network communication
- Security controls

## Business Knowledge and Processes
- Business cycles
- Blockchain
- Communication
- Continuous process improvement
- Customer/stakeholder analysis
- Entrepreneurship
- Ethics
- Lean processes
- Supply chains
- Market trends
- Overall Equipment Efficiency (OEE)
- Return on Investment (ROI)
- Risk management
- Supply and demand
- Vertical and horizontal integration
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Overview

The National Electric Vehicle Consortium (NEVC), funded by the National Science Foundation, promotes the interaction of a critical mass of academic, agency, and industry experts across all EV disciplines to help secure the nation’s EV workforce pipeline.
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Thank You, Kevin Cooper
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At the Project Website: Preparingtechnicians.org
Tools and Resources to Help You Take Action

- Read and share *A Framework for a Cross-Disciplinary STEM Core*
- Download, share and implement cross-disciplinary instructional cards in your class
- Listen to podcasts featuring cutting-edge industry interviews
- Share recorded webinars
Cross-Disciplinary Instructional Cards

Data Knowledge and Analysis

**Manipulating and interpreting data to resolve issues and using Excel and other common software proficiently to accomplish tasks**

Instructional Activity Cards:
- Data Visualization
- Data Literacy/Fluency
- Spreadsheets
- Analytics Tools

Advanced Digital Literacy

**Understanding digital communications and networking, cybersecurity, machine learning, sensors, programming, and robotics at a higher than introductory level**

Instructional Activity Cards:
- Network Communications – Internet of Things
- Automation/Robotics/HMI
- Basic Programming—Python
- Digital Twins
- Network Architecture

Business Knowledge and Processes

**Understanding the value chain and business practices of an enterprise and applying principles of ethical adoption of new technologies**

Instructional Activity Cards:
- Entrepreneurship
- Communication
- Lean Processes
- Supply and Demand
Podcasts

Episode 38: Technicians in the New Blue Economy
Podcast Guest: Justin Manley, President of Just Innovation, Inc.
April 2022 | Read More »

Episode 37: Incorporating the Internet of Things
Podcast Guests: Kristine Christensen, Director of Faculty Development, Professor of MIS, Moraine
Read More »

Episode 36: Supply Chain Automation In Transition
Podcast Guest: Phil Gilkes, Regional Maintenance Manager, Dollar Tree Distribution Centers February 2022
Read More »

What Should Educators Know and Do about Preparing Technicians for the Future of Work?
Podcast Interviews Provide Direction
www.preparingtechnicians.org/podcasts

i. Podcasts: Automation, Robotics, and Advanced Manufacturing
ii. Podcasts: Digital Skills, Digital Mastery, Digital Twins, Simulation

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i. Podcasts: Automation, Robotics, and Advanced Manufacturing

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<thead>
<tr>
<th>Topic and Episode(s)</th>
<th>Discovery</th>
<th>Recommended Action</th>
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<tr>
<td>1. A Robot for Every Technician? [PC13] and [PC22]</td>
<td>A robot for every technician is an emerging trend in the workplace.</td>
<td>Ask yourself if it is possible for you to consider something similar in your education and training space? A robot (or an automated system) for every student, in every learning situation?</td>
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Recordings of This Webinar Series

1. Preparing Technicians Using the Cross-Disciplinary STEM Core
2. Professional Development and Instructional Resources
3. Future of Work: Integrating Emerging Technologies

https://www.preparingtechnicians.org/webinars/