Engaging STEM Students During a Pandemic

Orangeburg-Calhoun Technical College
TRANSPORTATION, DISTRIBUTION AND LOGISTICS
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ADVANCED MANUFACTURING TECHNOLOGIES
About OCtech

Opened in 1968
Located in Orangeburg, SC
Member of the American Association of Community Colleges
Accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC)
A Predominately Black Institution
The NSF-ATE Grant

Transportation, Distribution, and Logistics
- The backbone of the supply chain
- Planning, management and movement of people and goods
- Facilitate the operation of the supply chain

Mechatronics
- Electronics, mechanics, robotics, and information systems
- Manufacture goods in the supply chain
- Guarantee the smooth operation of the supply chain


Funded by The National Science Foundation’s Advanced Technological Education Program
Overview

Advanced manufacturing doesn’t happen in a vacuum

There are business processes running behind the scenes

Supply Chain and Operations Management
- Planning, execution and control

Shipping and Receiving
- Receiving raw materials and shipping finished goods
This project is unique in that it exposes the student to more than TDL and Advanced Manufacturing. The student will learn that manufacturing is a part of a larger supply chain.

Logistics/Supply Chain Technologies
Oracle NetSuite
Geographic Information Systems (GIS)
Advanced manufacturing technologies
Mechatronics
Robotics
Graphic design
Precision manufacturing
Everyone involved in this project will learn how their work affects each other, and how they fit into the enterprise that employs them.

Advanced Manufacturing students will be able to collaborate with students in other areas: business management and logistics. Students in Business and TDL will collaborate with students in Advanced Manufacturing.

Business management
Quality management
Product development
Transfer Opportunities

- Coastal Carolina University
- Savannah State
- University of South Carolina - Upstate
Outreach (pre-pandemic)

On site
Summer camps
Field trips

Life was good
Supply chain management
Geographic Information Systems (ArcGIS)
Warehouse and Distribution
Transportation, distribution, and logistics
Automated Guided Vehicles
Robotics
Advanced manufacturing
Mechatronics
3D Printing/Product Design
CNC Plasma Cutting
Virtual; just like an online class
Creativity is key
Translate what we are doing in the classroom
Leverage our existing technology and online resources
Considerations

Equity concerns/technology access
No need for transportation or classroom capacity limits – expanding reach and access in that way
Translating hands-on instruction and activities for a virtual environment
Synchronous vs. asynchronous instruction and activities
Working through the issues

Technology survey
Partner with public schools to provide technology
Partner with industry to secure software
Platforms used

- Zoom
- Schoology
- Self-CAD
- ArcGIS
- VEXcode VR
- Code.org
- YouTube
Lessons learned

Issues with video access
A few technology problems with school-issued computers
Great reviews from the kids
Easily adapted for other outreach
Thank you!

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