

SUCCESS STORY

5521.002

Digital Engineering Design Centers establish national network for aerospace and defense talent development

Students trained in digital engineering design program

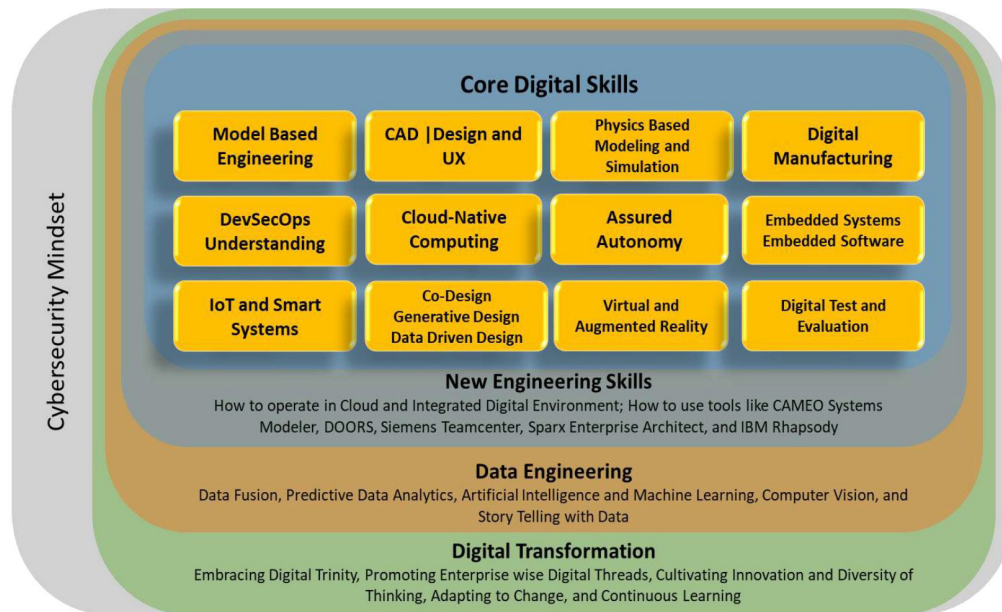


Chart of digital skills for digital engineering in the high-skill workforce.

PROBLEM

Aerospace technology problems such as high-velocity systems are complex, and solutions to these issues need diversity-driven innovation. The aging Aerospace and Defense (A&D) workforce and the lack of supply of fresh domestic talents now critically endanger workforce sustainability. Nearly 27,000 positions are currently open in A&D areas with the demand for security-sensitive, position-qualified aerospace professionals continuously rising as legacy prime contractors and new commercial space exploration companies compete for the same talent pool.

OBJECTIVE

The purpose is to meet the Department of Defense (DoD) digital engineering strategy goals, which are to 1) formalize the development, integration, and use of models to inform enterprise and program decision-making; 2) provide an enduring, authoritative source of truth; 3) incorporate technological innovation to improve the engineering practice; 4) establish a supporting infrastructure and environments to perform activities, collaborate, and communicate across stakeholders; and 5) transform the culture and workforce to adopt and support digital engineering across the lifecycle.



AMERICA MAKES
TECHNOLOGY
DEVELOPMENT
ROADMAP

This project aligns to:



DESIGN

ASTM PROCESS
CATEGORY
N/A

EQUIPMENT
N/A

MATERIAL
N/A

TECHNICAL APPROACH

The project is supported by the Aerospace and Defense Associate Degree Program of Western Tech, El Paso Community School Program, Workforce Solutions Borderplex, El Paso Chamber of Commerce, and Youngstown Business Incubator to provide a comprehensive ecosystem for the design center. Western Tech is training 20 minority and veteran aerospace and defense technicians during the project period. As part of project outreach activities, the El Paso Community School Program will contact 200 participants in grades 9-12. The proposed Digital Engineering Aerospace and Defense Systems Design Center (DEDC) in El Paso, Huntsville, and Youngstown, modeled after the aerospace industry design environment, is providing an 18-month industry-immersive authentic design experience to 48 undergraduate and graduate engineering students.

ACCOMPLISHMENTS

This project enabled the development and demonstration of a robust digital engineering infrastructure solution and powerful training environment to meet elements of the DoD Strategies of the Digital Engineering Transformation. Through the establishment of the Digital Stack, multiple DEDC locations, and close relationships with large original equipment manufacturers (OEMs), this project positioned the DoD with a talent development pipeline to meet future national security demands regarding aerospace, defense, and energy. Project outputs provided a flexible test bed for developing/demonstrating digital engineering processes and methodologies while utilizing a relevant and real-life development environment. The broad reach of this project provided by multiple DEDC locations and a variety of large OEMs such as Lockheed and Bell Flight, offered an opportunity for students to become prepared to join the future-ready workforce.

PROJECT END DATE

September 2023

EXPECTED DELIVERABLES

- Integrated digital environment development (tech stack)
 - Implementation of Siemens PLM toolset for use-inspired product development
- Digital skills development (immersive project-based environment) including SleeperSat, Missile Systems Innovation, Aeronautics Systems, Lunar Lander, Lunar In-Situ Resource Utilization
- Financial report
- Monthly technical update meeting
- Final report

FUNDING

\$4,450,948 total project budget

PROJECT PARTICIPANTS

Project Principal:

University of Texas at El Paso (UTEP) Aerospace Center

Other Project Participants:

Western Tech
El Paso Community School Program
Workforce Solutions Borderplex
El Paso Chamber of Commerce
Youngstown Business Incubator

Public Participants:

U.S. Department of Defense