

CTE: THE KEY TO ECONOMIC DEVELOPMENT

U.S. aerospace and defense:

Accounts for more than **half** of global revenues in this sector¹

Generated
\$219 billion
in sales in 2013²

Pays **double**
the national average³

What is the pathway to these fulfilling and essential careers?

Career and Technical Education!



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Association for Career and Technical Education
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Aerospace & Defense

The aerospace and defense sector:

- includes commercial and military aircraft, space systems, and missiles and armaments, as well as search, detection, navigation and guidance systems
- plays a vital role in the economy of many states
- requires highly skilled workers

What jobs are available in aerospace and defense?

The United States has the largest aerospace and defense sector in the world.⁴ Conservative estimates place employment at around 600,000, while estimates that include federal government employees reach closer to 2 million.⁵ Jobs will continue to be available in aerospace and defense owing to retirements, and outsourcing is unlikely as workers often need security clearances.⁶ Many IT occupations are relevant to this sector; these jobs are projected to grow by 18 percent through 2022.⁷ In addition, Federal Aviation Administration approval of commercial drones could create 100,000 new jobs by 2025 for employees with skills in building, piloting and monitoring these vehicles.⁸

Careers in this sector pay well: The average annual salary for the aerospace and defense industry in 2010 was \$80,175.⁹ Aerospace engineering and operations technicians make about \$61,500, on average, while information security analysts who protect vital systems from cyber attack earn \$86,000.¹⁰

Jobs in aerospace and defense typically require postsecondary education.¹¹ Licenses and industry-recognized certifications are also assets for employability in this sector. Workers in aerospace and defense use technical, academic and employability skills to design, build, operate, maintain and support aircraft, spacecraft and missiles as well as search, detection, navigation and guidance systems. What follows is a small sampling of jobs in aerospace and defense:

- aerospace engineering and operations technicians
- public safety communications specialists
- project managers
- aircraft electronics technicians
- network administrators
- UAV operators
- web developers
- government employees and defense contractors in these and other roles



Endnotes

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How does CTE prepare the aerospace and defense workforce?

Career and technical education prepares high school, postsecondary and adult students for careers in aerospace and defense through:

- the national Career Clusters Framework—including Career Clusters and pathways in STEM; manufacturing; transportation, distribution and logistics; and IT—which outlines course progressions that help students explore career options and prepare for college and career success
- CTE courses in aerospace, public safety telecommunications, machining, engineering technology and more, all integrated with rigorous academics
- work-based learning experiences, such as the Aerospace Joint Apprenticeship Committee (AJAC) registered apprenticeship program¹²
- career and technical student organization enrichment experiences, such as SkillsUSA and Technology Student Association competitions in aviation maintenance technology, robotics and more¹³
- Reserve Officer Training Corps (ROTC) and Junior ROTC programs, including Air Force ROTC programs that educate students on air and space power¹⁴
- opportunities to earn stackable credentials, such as the SpaceTEC[®] Certified Aerospace Technician™ certification, which articulates to an associate degree program in aerospace technology at Calhoun Community College in Decatur, Alabama¹⁵

What are promising programs in aerospace and defense?

Washington has invested in a statewide initiative to develop the aerospace and manufacturing workforce. Numerous programs around the state support this effort, including those at **Everett Community College (EvCC)**. EvCC offers stackable certificates beginning with a manufacturing pre-employment certificate and continuing to short-term, high-demand training and certification in areas such as composites technician, CAD and precision machining, including apprenticeship opportunities. Certificates are aligned with industry credentials and developed with input from employers, who recruit students for employment directly out of the programs. Students can go on to earn an associate degree with an option to earn a Bachelor of Applied Science through Central Washington University. In addition, EvCC's Aviation Maintenance Technician School trains airframe and powerplant mechanics, and its Corporate & Continuing Education Center works directly with employers to design and deliver incumbent worker training on-site. EvCC opened a new Advanced Manufacturing Training and Education Center in 2014.¹⁶

The Springfield-Dayton, Ohio region is investing in the UAV industry. To grow the workforce in this emerging area, the **Dayton Regional STEM Center (DRSC)** is partnering with local high schools to pilot the Modeling and Simulation: Surveillance and Response Course, which helps students develop skills in modeling and simulation using UAV interface technologies while exposing them to associated STEM careers. Activities include simulating how an unmanned aircraft monitors natural disasters and creating a mobile application that uses UAV data. DRSC is pursuing partnership with a local postsecondary institution to award dual credit, plus students are working towards industry-recognized certification for the modeling software utilized in the class. A prior course in this curriculum, the Modeling and Simulation: Survey Course, has enhanced interest in and understanding of career opportunities in modeling and simulation, according to student feedback. DRSC, which supports schools and educators with professional development, training and curriculum design for STEM teaching and learning, also offers free online K-12 curriculum and videos.¹⁷

This sector sheet will be the focus of one of ACTE's Microdocs! To learn more, visit www.acteonline.org/microdocs