
Gotta Jet?
The Sky's the Limit in Aerospace Manufacturing

AEROSPACE

The DFW Regional Aerospace Cluster is pleased to bring you this important information on aerospace manufacturing careers.

Are you the type of person who likes to:

Problem solve?

Think on your feet? *Troubleshoot?*

Analyze?

Learn systems?

Think "out of the box"

Research?

Then aerospace manufacturing is the career path for you!

What They Do

Every day, assembly workers, engineers and other support staff work together to see the big picture using key math and science skills to solve problems and create complex aviation machinery used to transport consumers and defend our country.

Right here in North Texas, the DFW Regional Aerospace Cluster has been formed to educate students and potential employees about great jobs in this industry.

Who They Are

You may recognize the names – Bell Helicopter, Lockheed Martin and Vought Aircraft. There are many places to start on your career ladder. With some training after high school, you can start as an assembly worker in a high tech, clean environment and work with a team to create precise aviation components. Or, with a four-year degree from a school of engineering, you can use your imagination and math skills to construct computer-aided designs of a new flight control system.

Career Ladder

In fact, an assembly career ladder can take you from a starting salary of $22,000/year to almost $60,000 in seven years – if you have "the right stuff." And the average starting salary for an engineering graduate with a four-year degree is $48,028.*

*Source: U.S. Bureau of Labor Statistics 2003 Salary Survey.

Interested?
Here is what some current employees have to say about their jobs in aerospace manufacturing:

"Recently, I was promoted from being a mechanic on the floor to an engineering position. There is a lot of opportunity in this industry."
LaTonya Holland, Manufacturing Engineer

"We are not sticks in the mud here – we have a good time at work."
Daniel Plata, Simulation Engineer

"Any high school student who is interested in engineering should take as much math and science as they can, especially advanced placement."
Aimee Burnett, Systems Engineer

"My math and science education really paid off – this is a great job! And now, I can take those great vacations on the beach."
Ellie Slack, Senior Electrical Systems Engineer

"I deal with the governments of many different countries and cross-functional teams…having good communications skills is very important in my job."
Ejike Okoli, Manager – Industrial Participation

"We are working on something that has never been tried before…they want the young people coming in and saying 'why not try this?'"
Dustin Webb, Manufacturing Systems Engineer

PEOPLE

DIRECTIONS

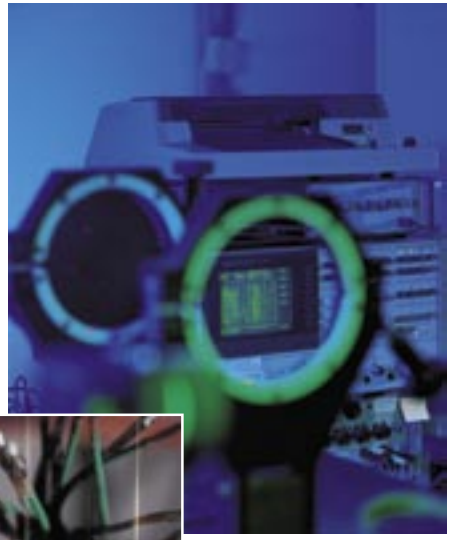
The direction is up. The potential is limitless. Working in the aerospace industry is way more than "just a job."

Job Titles	Job Descriptions	Potential Starting Salary	Educational Requirements	Examples of Applicable Engineering Degrees	Institutions Offering Training
Aircraft Assembler (Structural Assembly, Hydraulics, Electrical)	Utilizing detailed work instructions combined with engineering drawings and specifications, performs any complicated assembly, installation or modification necessary to manufacture aircraft and major assemblies to complete aircraft. Installs fluids systems components and test major aircraft fluids systems. Performs a variety of sealing operations on aircraft. Ensures that complicated electrical harnesses, packages and components of an aircraft electrical system are installed properly as well as conducts mechanical repairs and replacements as necessary. Checks work performed by group against blueprints and related information sources for quality and accuracy.	$22,000/ year	High School or GED	n/a	n/a
Tooling Specialists	Creates tools, dies and models to form parts and components. Plans, develops, lays out and fabricates tools, models and mock-ups. They work from blueprints, sketches, and engineering information and other specifications.	$40,000/ year	High School Plus Experience	n/a	On the Job
Composites Bonder/ Fabricator	Creates composite parts through various levels of manual and automated lay-up techniques. Uses composites engineering drawings and manufacturing planning as work instructions to manufacture advanced composite parts.	$30,000/ year	High School Plus Experience	n/a	On the Job
Computer Numerical Control Machinist	Makes very advanced multi-axis parts on state-of-the-art, computer-controlled machinery. Utilizes very detailed setup and run instructions that require a high level of precision. Responsible for expensive parts that are difficult to manufacture.	$41,000/ year	High School Plus Experience	n/a	On the Job
Electrical Assembler	Works with detailed engineering drawings and precise work instructions to manufacture a variety of electrical components and assemblies. Uses state-of-the-art tools and assembly techniques to create wiring harnesses, components that are installed in next-generation aircraft.	$33,000/ year	High School Plus Experience	n/a	On the Job
Manufacturing Production Planner	Interprets engineering drawings and specifications to create detailed work instructions for both fabrication of components and assembly of aircraft. Actively involved in advanced problem solving on the factory floor to resolve technical issues.	$35,000/ year	High School Plus Experience	n/a	On the Job
Systems Engineering	Responsible for ensuring that all systems are verified and validated including pilot/vehicle integration and flight safety. Ensures that all systems are functioning properly. Specific structural engineering specialties may include dynamics and loads, stability and stress fatigue, and thermal analysis. Tools utilized include CATIA, IDEAS, ProEngineer and a variety of software applications.	$48,028/ year*	Bachelor's Degree	Electrical Engineering, Systems Engineering Mechanical Engineering, Aerospace Engineering, Electronics Engineering Technology, Mechanical Engineer Technician,	2, 4, 5, 12, 13, 14, 15, 16, 20, 22, 23, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35
Software Engineering	Oversees the installation and implementation of various software packages including information and sensor processing, mission software including avionics systems, ground systems such as customer operations support, and mission planning and modeling and simulation software.	$48,028/ year*	Bachelor's Degree	Computer Science/Computer Engineering	1, 2, 5, 9, 12, 13, 16, 20, 22, 25, 26, 28, 29, 30, 31, 33
Air Vehicle Systems Engineering	Performs requirements analysis, design, development test and evaluation for utility subsystems, performs weight/balance/inertia analyses and the actual weight measurements of parts, components, assemblies and the total aircraft to support both flight test and operational aircraft activities. Designs flight controls and vehicle management systems, performs dynamic propulsion modeling, computational fluid dynamics, and aerodynamics and electrical systems.	$48,028/ year*	Bachelor's Degree	Electrical Engineering, Mechanical Engineering, Aerospace Engineering, Computer Science/Computer Engineering, Manufacturing Engineering Technology	1, 2, 4, 5, 9, 12, 13, 14, 15, 16, 20, 22, 23, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35
Mission Systems & Avionics Engineering	Oversees the installation and implementation of all avionics (navigation) systems including controls and displays, radar and operations support.	$48,028/ year*	Bachelor's Degree	Electronics Engineering Technology, Computer Science/Computer Engineering Electrical Engineering,	2, 4, 12, 14, 15, 16, 20, 22, 23, 25, 27, 28, 29, 30, 31, 32, 33, 34,
Airframe & Installation Design	Creates and supports Build-To-Packages from conceptual to detail design allowing the company to build, assemble and install primary and secondary aircraft structure. Performs structural analysis on composite and metallic airframe structure. Plans, lays out, draws and revises part, assembly and installation engineering drawings from basic layouts, established references, notes and discussions with engineers and standard data. Utilizes computer-aided design tools to produce aircraft drawings.	$48,028/ year*	Bachelor's Degree	Mechanical Engineering, Manufacturing Engineer, Manufacturing Engineering Technology	2, 8, 12, 13, 16, 22, 23, 27, 30, 33, 34, 35
Flight Test Engineer	Plans and implements test program(s) and coordinates test program activities with manufacturing, test site resources, engineering system specialists and other organizations. Ensures proper configuration of the test article, as well as proper test fixtures, sites, specialized equipment and personnel available to support the planned tests. Creates the test cards, conducts pre- and post-test briefings, and directs and conducts the actual test mission from the control room.	$48,028/ year*	Bachelor's Degree	Electrical Engineering, Mechanical Engineering, Manufacturing Engineering Technology, Electronics Engineering Technology	2, 4, 5, 12, 13, 14, 15, 16, 20, 22, 23, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35

*The average starting salary for an engineering graduate with a four-year degree is $48,028. Source: U.S. Bureau of Labor Statistics 2003 Salary Survey.

Learning centers, colleges and universities offering opportunities to soar.

1	Amarillo College	Amarillo, Texas	www.actx.edu
2	Baylor University	Waco, Texas	www.baylor.edu
3	Community Learning Center*	Fort Worth, Texas	www.clcinc.org
4	Grayson County College	Denison, Texas	www.grayson.edu
5	Kilgore College	Kilgore, Texas	www.kilgore.edu
6	Lamar University	Beaumont, Texas	www.lamar.edu
7	LeTourneau University	Longview, Texas	www.letu.edu
8	Midwestern State University	Wichita Falls, Texas	www.mwsu.edu
9	Mountain View College (DCCC District)	Dallas, Texas	www.mvc.dcccd.edu
10	Paris Junior College	Paris, Texas	www.parisjc.edu
11	Paul Quinn College	Dallas, Texas	www.pqc.edu
12	Prairie View A&M University	Prairie View, Texas	www.pvamu.edu
13	Rice University	Houston, Texas	www.rice.edu
14	Richland College (DCCC District)	Dallas, Texas	www.rlc.dcccd.edu
15	Saint Mary's University of San Antonio	San Antonio, Texas	www.stmarytx.edu
16	Southern Methodist University	Dallas, Texas	www.smu.edu
17	Tarleton State University	Stephenville, Texas	www.tarleton.edu
18	Tarrant County College – Northwest Campus	Fort Worth, Texas	www.tccd.edu
19	Tarrant County College – Southeast Campus	Fort Worth, Texas	www.tccd.edu
20	Texas A&M University – College Station	College Station, Texas	www.tamu.edu
21	Texas A&M University – Commerce	Commerce, Texas	www.tamu-commerce.edu
22	Texas A&M University – Kingsville	Kingsville, Texas	www.tamuk.edu
23	Texas Christian University	Fort Worth, Texas	www.tcu.edu
24	Texas State Technical College	Waco, Texas	www.tstc.edu
25	Texas Tech University	Lubbock, Texas	www.ttu.edu
26	University of Houston – Clear Lake	Houston, Texas	www.uhcl.edu
27	University of Houston	Houston, Texas	www.uh.edu
28	University of North Texas	Denton, Texas	www.unt.edu
29	University of Texas at Arlington	Arlington, Texas	www.uta.edu
30	University of Texas at Austin	Austin, Texas	www.utexas.edu
31	University of Texas at Dallas	Dallas, Texas	www.utdallas.edu
32	University of Texas at El Paso	El Paso, Texas	www.utep.edu
33	University of Texas – Pan American	Edinburg, Texas	www.panam.edu
34	University of Texas at Tyler	Tyler, Texas	www.uttyler.edu
35	West Texas A&M University	Canyon, Texas	www.wtamu.edu



*Entry level training provided to qualified applicants. Contact CLC for more information.

FROM HERE

What Do I Do Now?

Check out this great Web site – www.careercruising.com. The Go Center or counseling office at your school should be able to provide you with a login and password. There you can learn everything you need to know about a career in aerospace manufacturing – from the kind of classes you should take in high school to available scholarships.

Parents – here are some ways you can be involved in your son's or daughter's career path. Ask about the following ways they can get college credit while still in high school.

Advanced Placement

Advanced Placement (AP) classes are college level classes taught by high school teachers who have their master's degree and at least 18 hours in the subject matter taught. Students must take and pass the AP test for that subject in order to receive college credit. Students may be limited to the number of AP credit classes they can take in a semester. For more information about advanced placement, contact your school counselor.

Dual Credit

Dual credit classes are taught either on the high school or college campus. The student must pass the TAKS test or another approved test such as Accuplacer in order to take the class. Once a student successfully completes the class, he/she will receive both high school and college credit for that course. Students may be limited to the number of dual credit courses they can take in a semester. The Texas Higher Education Coordinating Board has approved a ruling that allows two- or four-year postsecondary educational institutions to waive the fee for dual credit classes. For more information about dual credit, contact your school counselor.

Tech Prep

Tech Prep classes are generally part of a six-year pathway beginning freshman year of high school and concluding with an associate's degree. Students take courses that have been approved by both the high school and the partnering two-year college. Upon successful completion, the student receives high school credit as well as an "escrow" credit at the college. The student may be required to take one course in the desired pathway prior to receiving the "escrowed" credit. Students may be limited to the number of Tech Prep courses they can take in a semester. The Texas Higher Education Coordinating Board has approved a ruling that allows two- or four-year postsecondary educational institutions to waive the fee for Tech Prep classes. For more information on Tech Prep, please contact your school counselor.

Summer Camps/Programs for Students Interested in Aerospace Engineering

Southern Methodist University
Engineering Camp for Girls
214-768-1732

Texas Wesleyan University – TexPREP
Prefreshman Engineering Program for 7th–10th grade students.
817-531-4882

University of Texas at Arlington
Engineering and Computer Science Summer Camps
"Gateway" for students in 7th and 8th grades and "Bridge" for students entering the 9th and 10th grades. Partial scholarships available.
817-272-2516 or www.uta.edu/engineering/summercamps

Engineering-Specific Scholarships

Mountain View College and the University of Texas at Arlington
Computer Science, Engineering and Math Scholars Program scholarships available.
214-860-8805

Richland College
Scholarships available through the Academic Connections in Engineering Study program.
972-238-3797 or www.rlc.dcccd.edu/etep/engineering_scholarships.htm

NASA
Science and Technology Scholarship Program
www.tsgc.utexas.edu/stsp/

National Action Council for Minorities in Engineering
Participating schools in Texas include Prairie View A&M University, Texas A&M University, University of Houston, University of Texas at El Paso and University of Texas at San Antonio.
www.nacme.org/scholarships/

National Society of Professional Engineers
Scholarships $1,000–$4,000.
www.nspe.org

Southern Methodist University
School of Engineering scholarships range up to $9,500/year.
www.engr.smu.edu/parents/scholarships.html

University of Texas at Arlington
College of Engineering scholarships range from $500 to $5,000.
www.uta.edu/engineering/scholarships/index.php

General Scholarships

The Gates Millennium Scholars
Scholarships for African-American, American Indian/Alaskan Native, Asian Pacific Islander American and Hispanic American students.
https://www.gmsp.org/gmsp_app/default.aspx

Ron Brown Scholar Program
Scholarships for African-American students.
www.ronbrown.org/p-elig.htm

Elks National Foundation
Academic excellence and community service scholarships.
www.elks.org/enf/scholars/mvs.cfm

Kiwanis Key Club International
Academic excellence and community service scholarships.
www.keyclub.org/keyclub/resources/cna/scholarships.asp

Target All-Around Scholarships
Academic excellence and community service scholarships.
http://target.com/target_group/community_giving/scholarships.jhtml

Tarrant County College Foundation (TCCF)
General scholarship applications are available.
www.tccd.edu

U.S. Department of Education Pell Grants

Financial need grants.
http://studentaid.ed.gov/students/publications/student_guide/2005-2006/english/types.htm

Are you interested in getting some "hands-on" experience in engineering and aerospace? Project Lead the Way is for you! Project Lead the Way is a national effort to introduce middle and high school students to engineering and engineering technology. Hands-on coursework is designed to help students decide if engineering is their career choice.

Ask if your school district offers Project Lead the Way.
To contact Project Lead the Way, go to www.pltw.org.

RESOURCES

For more information, go to these Web sites:
www.workforcesolutions.net and www.fortworthchamber.com, click on "Economic Development"

Funded by Workforce Solutions for Tarrant County