

All the information in this section is provided by the Florida Department of Education's website provided by the Bridges' Corporation and can be found at <http://florida.echoices.com>.

Aircraft/Spacecraft Electrician

Description

Lays out, installs, tests, repairs, and maintains electrical systems in aircraft or spacecraft. Spends an increasing amount of time repairing electronic systems such as computerized controls.

Typical Tasks

- Assembles components, such as switches, electrical controls, and junction boxes, using hand tools and a soldering iron.
- Connects components to assemblies, such as radio systems, instruments, inverters, and in-flight refueling systems, using hand tools and a soldering iron.
- Tests components and assemblies, using a circuit tester, oscilloscope, and voltmeter.
- Adjusts, repairs, and replaces electrical and electronic components and assemblies.
- Lays out the installation of assemblies and systems in aircraft, according to blueprints and wiring diagrams.
- Installs electrical and electronic components, assemblies, and systems in aircraft, using hand tools, power tools, and a soldering iron.
- Sets up and operates ground support and test equipment to perform functional tests of electrical and electronic systems.
- Interprets flight test data to diagnose malfunctions and systemic performance problems.

Field of Work

A field of work represents a broad, general area of work activity. Occupations that have similar types of work are assigned to the same field.

• Installation, Maintenance, and Repair Occupations

Occupations that involve maintaining and repairing items such as machines, cars, or appliances.

Career Pathways

Occupations have been organized into Career Pathways to help students with high school course planning.

• Engineering and Industrial Technologies

Occupations related to the technologies necessary to design, develop, install, or maintain physical systems. These may include engineering, manufacturing, construction, service and related technologies.

Career Clusters

The U.S. Department of Education has established 16 broad Career Clusters that contain all entry-level through professional-level occupations in a broad industry area. Clusters consist of grouped career areas with similar skill and education requirements.

• Manufacturing

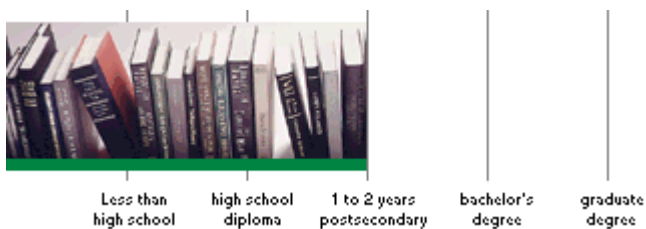
Occupations that include activities such as planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering.

Related Resources

- O*NET-SOC occupation: 49-2091.00 Avionics Technicians
- SOC occupation: 49-2091 Avionics Technicians
- Occupational Outlook Handbook (2002/2003) page 483
- Military Careers (2001 edition) page 82

Education, Training and Work Experience

Education, training, and experience are required at different levels for success in different occupations. The education level for this occupation:



• Post-secondary certificate

Requires specialized training at vocational technical schools, community colleges, 2-year colleges, or private vocational schools. On-the-job training is required.

National information:

The FAA requires at least 18 months of work experience for an airframe, powerplant,

or avionics repairer's certificate. Although a few people become mechanics through on-the-job training, most learn their job in 1 of about 200 trade schools certified by the FAA. About one-third of these schools award 2- and 4-year degrees in avionics, aviation maintenance technology, or aviation maintenance management.

Related Education Programs and Notes (CIP codes shown with programs):

- Aircraft Mechanic/Technician, Airframe (47.0607)
- Aircraft Mechanic/Technician, Powerplant (47.0608)
- Aviation Systems and Avionics Main. Technologist/Technician (47.0609)

Transferable Work Content Skills

Skills used in this occupation that are used in other occupations:



- **Adjusting controls on machines (high level)**
- **Using electrical/electronic testing instruments (high level)**
- **Using electrical repair hand and power tools (high level)**
- **Repairing electrical/electronic objects (high level)**
- **Explaining electrical/electronic operations and problems (medium level)**
- **Observing and diagnosing electrical/electronic problems (high level)**
- **Following manufacturing blueprints and diagrams (high level)**

Basic Skills / Basic SCANS Skills

Basic Skills information comes from O*NET. Basic skills provide the foundation for learning other types of material. Many of these skills are related to SCANS Skills. For each skill, the level needed to perform the occupation is shown. Skills important to the occupation are checked.

Important Skills

	Important Skills	Skill Level		
		low	medium	high
• Reading comprehension	<input checked="" type="checkbox"/>	██████████	██████████	██████████
• Active listening		██████████	██████████	██████████
• Writing		██████████	██████████	██████████
• Speaking		██████████	██████████	██████████
• Mathematics	<input checked="" type="checkbox"/>	██████████	██████████	██████████
• Science	<input checked="" type="checkbox"/>	██████████	██████████	██████████

- Critical thinking 
- Active learning 
- Learning strategies 
- Monitoring 

General Workplace Skills

Information for General Workplace Skills comes from O*NET (Cross Functional Skills). General Workplace Skills are practiced activities that help workers achieve success in various occupations. The significant skills for this occupation are:

Complex Problem Solving Skills

- Problem identification ... (medium level)

Identifying the nature of problems.

Technical Skills

- Equipment selection ... (medium level)

Determining the kind of tools and equipment needed to do a job.

- Installation ... (medium level)

Installing equipment, machines, wiring, or programs to meet specifications.

- Testing ... (medium level)

Conducting tests to determine whether equipment, software, or procedures are operating as expected.

- Operation monitoring ... (medium level)

Watching gauges, dials, or other indicators to make sure a machine is working properly.

- Operation and control ... (medium level)

Controlling operations of equipment or systems.

- Product inspection ... (medium level)

Inspecting and evaluating the quality of products.

- Equipment maintenance ... (medium level)

Performing routine maintenance and determining when and what kind of maintenance is needed.

- Troubleshooting ... (medium level)

Determining what causes an operating error and deciding what to do about it.

- Repairing ... (medium level)

Repairing machines or systems using the needed tools.

Systems Skills

- Visioning ... (medium level)

Developing an image of how a system should work under ideal conditions.

Suggested School Courses






A course plan is available for the Career Pathway listed below:

- [Engineering and Industrial Technologies](#)

Aptitudes

Aptitudes reflect a person's ability to acquire skills and knowledge. Significant aptitudes for this occupation are checked.

	Significant Aptitudes	Aptitude Level				
		bottom 10%	bottom 1/3	middle 1/3	top 1/3	top 10%
General learning ability	<input checked="" type="checkbox"/>					
Verbal aptitude	<input checked="" type="checkbox"/>					
Numerical aptitude	<input type="checkbox"/>					
Spatial perception	<input checked="" type="checkbox"/>					

Form perception	<input checked="" type="checkbox"/>				
Clerical perception					
Eye-hand coordination					
Finger dexterity					
Manual dexterity	<input checked="" type="checkbox"/>				

Career Areas and GOE

Career Areas relate to basic types of interests that people have.

• **Mechanical ... (Career Area 05)**

Here workers use tools and machines, or apply the ideas and principles of machines and tools in their work. Their jobs are in many settings, but not factories. People with this interest are in a wide range of occupations. They range from highly skilled engineers to operators of simple machines.

• **Craft Technology ... (GOE 05.05)**

Craft Technology is highly skilled custom hand and machine work requiring mastery of a process or technique. Food preparation is also included in this group. Some workers provide mechanical services to people and businesses.

Work Values

Work values may be thought of as aspects of work that are satisfying to you. It is important to remember that a specific job with a particular employer may not support the work value to the same degree as for the occupation in general. Work value information is obtained from O*NET.

• **Support ... (often characteristic of this occupation)**

Occupations with this work value satisfy the need to know the company stands behind its workers and has competent, considerate and fair management.

• **Working Conditions ... (often characteristic of this occupation)**

Occupations with this work value satisfy such needs as good pay, job security, and work style preferences (e.g., working alone, staying busy all the time, or having variety in your work tasks).

Interests

O*NET uses six categories to describe work environments and interests (compatible with Holland's Model). The following codes reflect the categories which best describe

this occupation:

- **Realistic**

You are a "doer". You usually prefer physical activities, games and projects rather than socializing. You like to find concrete solutions to problems by trying out various possibilities. You often avoid situations that involve a lot of discussion with other people, and you usually want to go further than working out a problem in theory - you want to see how your solutions work.

- **Investigative**

You like to analyze situations and work with ideas to find creative solutions. You prefer to work on your own and usually don't like having to persuade other people to accept your ideas.

- **Conventional**

You are an "organizer". You feel comfortable working with details in structured situations and like to keep things neat and organized. You like working with forms, charts, and reports. You are self-controlled and identify strongly with status, authority and power.

Myers-Briggs Types

The MBTI uses four letters to represent how people like to look at things and how they like to go about deciding things. **E** Extraversion or **I** Introversion, **S** Sensing or **N** Intuition, **T** Thinking or **F** Feeling, and **J** Judging or **P** Perceiving. This occupation is part of the career field:

- **Labor Trades & Services -- Electrical**

in which the type assessment was done. Types commonly found in this field are:

- **INFP**

Characteristics frequently associated with INFP (Introversion/Intuition/Feeling/Perceptive): Idealistic, loyal to their values and to people who are important to them. Want an external life that is congruent with their values. Curious, quick to see possibilities, can be catalysts for implementing ideas. Seek to understand people and to help them fulfill their potential. Adaptable, flexible, and accepting unless a value is threatened.

- **ESTP**

Characteristics frequently associated with ESTP (Extraversion/Sensing/Thinking/Perceptive): Flexible and tolerant, they take a pragmatic approach focused on immediate results. Theories and conceptual explanations bore them -- they want to act energetically to solve the problem. Focus on the here-and-now, spontaneous, enjoy each moment that they can be active with others. Enjoy material comfort and style. Learn best through doing.

• **ENFP**

Characteristics frequently associated with ENFP (Extraversion/Intuition/Feeling/Perceptive): Warmly enthusiastic and imaginative. See life as full of possibilities. Make connections between events and information very quickly, and confidently proceed based on the patterns they see. Want a lot of affirmation from others, and readily give appreciation and support. Spontaneous and flexible, often rely on their ability to improvise and their verbal fluency.

• **ENTP**

Characteristics frequently associated with ENTP (Extraversion/Intuition/Thinking/Perceptive): Quick, ingenious, stimulating, alert, and outspoken. Resourceful in solving new and challenging problems. Adept at generating conceptual possibilities and then analyzing them strategically. Good at reading other people. Bored by routine, will seldom do the same thing the same way, apt to turn to one new interest after another.

• **ENFJ**

Characteristics frequently associated with ENFJ (Extraversion/Intuition/Feeling/Judging): Warm, empathetic, responsive, and responsible. Highly attuned to the emotions, needs, and motivations of others. Find potential in everyone, want to help others fulfill their potential. May act as catalysts for individual and group growth. Loyal, responsive to praise and criticism. Sociable, facilitate others in a group, and provide inspiring leadership.

National Employment and Outlook

Annual number of job openings (2000 to 2010): Very Small.

Job Openings	very small number	Less than 1000 average annual openings are expected for this occupation between 2000 and 2010. (The National average for all occupations is 8,371 openings.)
Outlook	stable	The employment change from 2000 to 2010 is estimated to be +9.8%. (The National average for all occupations is +13.6%.)
Employment	very small occupation	This was a very small occupation in the United States, employing 15,534 workers in 2000. (The National average for all occupations is 209,487 workers.)
Industries	Large concentrations of this occupation are found in these industries: <ul style="list-style-type: none"> • Airports, flying fields, and services (SIC 458) (29%) • Aircraft and parts (SIC 372) (20%) • Federal government, except Postal Service (SIC 910) (16%) 	

	<ul style="list-style-type: none"> • Telephone communications (SIC 481) (7%) • Air carriers (SIC 451) (6%)
OES Occupation	4920910858 Avionics technicians

Average growth. Good job prospects will result from fewer workers entering these occupations from the U.S. Armed Forces and the need to replace the large number of workers retiring or leaving the occupations permanently.

Florida Employment and Outlook

	2002 to 2010 Outlook	2002 Employment	Average Annual Growth Rate	Average Annual Openings due to Growth	Average Annual Openings due to Separations
Florida Statewide	• Stable	1,055	0.92%	10	21

In Florida, large concentrations of this occupation are found in these industries:

- Federal Government (18.24%)
- Aircraft And Parts (9.27%)
- Airports, Flying Fields, & Services (8.69%)

Military Career Opportunities

Avionics Technicians (Enlisted)

Opportunities: The military has over 25,000 avionics technicians. Each year they need new technicians due to changes in personnel and the demands of the field. After job training, avionics technicians perform maintenance and routine repairs under close supervision. With experience, they are assigned more complicated troubleshooting and repairs and may supervise other electricians. In time, they may become supervisors of aircraft maintenance shops. To inquire about opportunities with the National Guard and Reserves, click on the hyperlink below.

Training Provided: Job training consists of 18 to 25 weeks of classroom instruction, including practice in repairing avionics systems. Training length varies depending on specialty. Course content typically includes:

- Electronics and electrical theory
- Troubleshooting procedures
- Installation techniques
- Avionics and electrical system maintenance

Further training occurs on the job and through advanced courses.

Earnings: Military pay and benefits are set by Congress, which normally grants a cost-of-living pay increase once each year. Enlisted members can progress through nine enlisted pay grades during their careers. In 2000, most enlisted personnel started as recruits at Grade E-1 (\$12,067/year basic pay); however, those with special skills or above average education started as high as Grade E-4 (\$14,915/year basic pay). In addition to pay, the military provides many of life's necessities, such as food, clothing, and housing, or pays allowances for them. Other benefits include health care, 30 days paid vacation, legal assistance, recreational programs, education assistance, and military store privileges.

Services offering this occupation

- Army
- Air Force
- Coast Guard
- Marines
- Navy

The National Guard and Reserves may have opportunities in this career field as well. Click on the hyperlink below to connect to their web sites for further information.

Military Career Opportunities Web Sites www.bridges.com/mcows/military.htm

Other military websites: <http://www.todaysmilitary.com> or <http://www.careersinthemilitary.com>

National Earnings: \$30,000 to \$50,000.

Annual earnings range for middle 50% of all workers in this occupation ... (all information from 2001 OES survey)	\$34,694 to \$49,816
Average annual earnings	\$41,720
Average hourly earnings	\$20.06

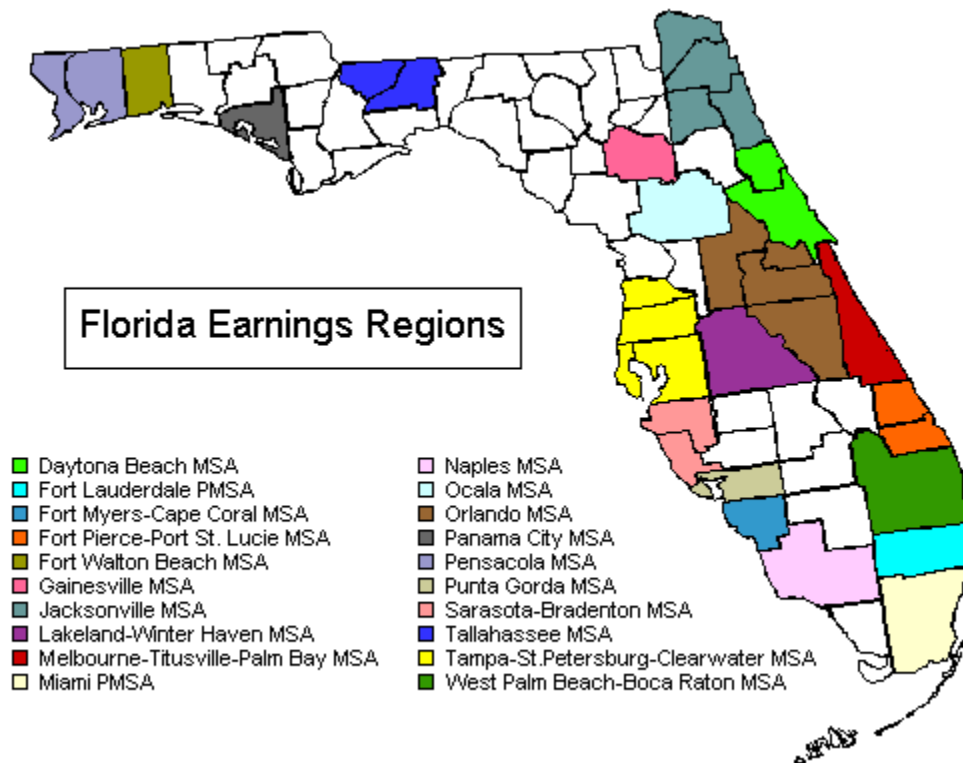
Those who work on jets for the major airlines generally earn more than those working on other aircraft. Airline mechanics and their immediate families receive reduced-fare transportation on their own and most other airlines.

Florida Earnings

(2003) Statewide average annual earnings	\$44,803
(2003) Statewide average hourly earnings	\$21.54
(2003) Statewide entry level annual earnings	\$34,653
(2003) Statewide entry level hourly earnings	\$16.66

(2003) Statewide experienced level annual earnings	\$52,728
(2003) Statewide experienced level hourly earnings	\$25.35

Florida Major City Pay By the Year	2003 Average Annual Earnings	2003 Entry Level Annual Earnings	2003 Experienced Level Annual Earnings
Daytona Beach MSA	\$32,843	\$18,720	\$42,806
Jacksonville MSA	\$41,662	\$34,174	\$45,053
Lakeland - Winter Haven MSA	\$44,325	\$35,818	\$50,274
Melbourne - Titusville - Palm Bay MSA	\$44,262	\$39,853	\$46,862
Miami PMSA	\$48,277	\$35,651	\$57,616
Orlando MSA	\$46,342	\$42,120	\$49,525
Pensacola MSA	\$40,435	\$31,762	\$46,030
Tampa - St. Petersburg - Clearwater MSA	\$47,424	\$37,773	\$55,640
Florida Major City Pay By the Hour	2003 Average Hourly Earnings	2003 Entry Level Hourly Earnings	2003 Experienced Level Hourly Earnings
Daytona Beach MSA	\$15.79	\$9.00	\$20.58
Jacksonville MSA	\$20.03	\$16.43	\$21.66
Lakeland - Winter Haven MSA	\$21.31	\$17.22	\$24.17
Melbourne - Titusville - Palm Bay MSA	\$21.28	\$19.16	\$22.53
Miami PMSA	\$23.21	\$17.14	\$27.70
Orlando MSA	\$22.28	\$20.25	\$23.81
Pensacola MSA	\$19.44	\$15.27	\$22.13
Tampa - St. Petersburg - Clearwater MSA	\$22.80	\$18.16	\$26.75



Physical Demands

Physical Demands reflect the overall strength generally needed to work in this occupation.

- **Medium (20 lbs to 50 lbs)**

You would often handle loads up to 20 lbs., sometimes up to 50 lbs. You might do a lot of lifting, carrying, pushing or pulling.

Physical Abilities

Physical Abilities information comes from O*NET. Only those factors that are a significant part of the occupation are listed.

- **Extent flexibility ... (medium level)**

Bending, stretching, twisting, or reaching.

- **Near vision ... (medium level)**

Seeing clearly up close.

- **Color discrimination ... (medium level)**

Identifying color and seeing differences in color, including shades and brightness.

Work Conditions

Work conditions are taken from O*NET and refer to characteristics of the physical environment for an occupation. The following factors are frequently found in the work setting for this occupation:

- **Handling**

Work in this occupation involves using your hands to hold, control, and feel objects more than one-third of the time.

Work Hours and Travel

- Rotating shift work

The time of work changes. You might work days one week, evenings or nights the next.

- Overtime work

Extra hours are needed sometimes. They may or may not be paid.

The following information is a list of Florida and other US Post-Secondary Schools that offer Avionics educational programs.

[Click a school to see its report.](#)

A [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#)

[Aims Community College \(2YR\) Greeley, CO](#)
[Andrews University \(4YR\) Berrien Springs, MI](#)
[Antelope Valley College \(2YR\) Lancaster, CA](#)
[Atlanta Metropolitan College \(2YR\) Atlanta, GA](#)
[Averett University \(4YR\) Danville, VA](#)

In Florida, Avionics is only taught at George T. Baker Aviation School in Miami, Florida, Embry-Riddle Aeronautical University in Daytona Beach, Florida and Florida Community College at Jacksonville, Florida.