



ET-2004-10-110-ARC

Educational Topic

Electronics Engineer

Related Job Titles:

Electrical Engineer, Computer Engineer, Computer Scientist

Job Description:

Electronics Engineers design, develop, test and lead the production of electrical and electronic equipment including scientific instruments, motors, wiring in buildings, aircraft, radar, computers, robots and video equipment. Most Engineers work in office buildings or laboratories. Some work outdoors at construction sites. Some must travel to different work sites.

Interests / Abilities:

- Are you good at math?
- Is your work detailed?
- · Do you like to solve problems?
- · Are you interested in how things work?
- Do you like working with computers?
- Do you like to take things apart and put them back together?

Education / Training Needed:

The minimum education required for this position is a bachelor's degree in Electrical or Electronics Engineering from an accredited college or university. To do research, a Ph.D. is highly desired for this position.

Suggested School Subjects / Courses:

- Mathematics (algebra, geometry, trigonometry, calculus)
- Science (physics, biology, chemistry)
- Computers
- Engineering (thermodynamics, fluid dynamics, mechanical, electronics)

Areas of expertise:

- Sensors and transducers: research and develop sensing devices such as lasers that are needed in aerospace research
- *Electronic instrumentation:* research and develop equipment that can detect, record and measure data for aerospace research
- Guidance and navigation systems: research and develop systems used to guide and navigate aerospace vehicles and spacecraft
- *Electromagnetic systems:* research and develop instruments, such as antenna systems, that measure electromagnetics
- Tracking and telemetry systems: research and develop systems and devices that track the flight of aerospace vehicles or that transmit and receive data and commands between space vehicles and the ground
- Computer design: design and develop computers or robots

Additional Resources:

- Accreditation Board for Engineering and Technology, Inc. http://www.abet.org
- Astrobiology Summer Academy http://academy.arc.nasa.gov/
- Careers in Aviation/Aerodynamics http://wings.ucdavis.edu/Careers/index.html
- Earth to Orbit: Engineering Design Challenges http://eto.nasa.gov/
- Graduate Student Researchers Program http://spacelink.nasa.gov/Instructional.Materials/NASA.Educat ional.Products/Graduate.Student.Researchers.Program.Brochure /.index.html
- Institute of Electrical and Electronics Engineers http://www.ieee.org
- Junior Engineering Technical Society http://www.asee.org/jets
- MATHCOUNTS Competition http://mathcounts.org/
- Minority University Research and Education Programs http://mured.nasaprs.com/
- NASA Cooperative Education Program for college students http://spacelink.nasa.gov/Educational.Services/ NASA.Education.Programs/Student.Support/NASA.Cooperative. Education.Program/.index.html
- NASA Jobs http://nasajobs.nasa.gov/
- NASA SHARP Internship Program for highschoolers http://www.mtsibase.com/sharp/
- NASA Student Employment http://nasajobs.nasa.gov/stud_opps/employment/index.htm

What can I do right now?

- Participate in Bot-Ball or FIRST Robotics competitions (see <u>Robotics Education</u> http://robotics.arc.nasa.gov/)
- Take as many math and science classes as you can.
- · Participate in National Engineers Week.
- Call the American Association of Science and Technology Centers for information on science museums in your area that you might visit (202) 783-7200.
- Order activity books, poster sets and engineering kits by writing to the Society of Manufacturing Engineers, One SME Drive, P.O. Box 930, Dearborn, MI 48121-0930.
- NASA Student Involvement Program student contests http://www.nsip.net/index.cfm
- Order NASA career videos such as "Engineers: Turning Ideas into Reality," "Careers: Aerospace Engineer" or "Reaching for the Stars" from NASA CORE. http://core.nasa.gov
- Revolutionary Vehicle Concepts and Systems student competition http://avst.larc.nasa.gov/competitions.html
- Robotics Education http://robotics.arc.nasa.gov
- Student's Guide to Astrobiology http://www.astrobiology.com/student.html
- Tech-Interns.com http://www.tech-interns.com/





http://quest.nasa.gov/people/index.html

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