



Educational Topic

Aeronautical Engineer

Related Job Titles:

Aerospace Engineer, Mechanical Engineer, Aviation Systems Engineer, Fluid Dynamics Researcher, Computational Fluid Dynamicist

Job Description:

Aeronautical Engineers design, develop, test and oversee the building of aircraft, aircraft propulsion systems, airframes and control surfaces. When designing a new aircraft, engineers first define the purpose of such a vehicle. Based upon previous research and the design parameters, Aeronautical Engineers then design the prototype or model section. They design the test procedures and then run the test using a small team of experts. The engineer examines the results and generates a report that identifies whether the design should be continued as is, modified as per the results or completely redesigned. All of the research is performed in an office building or aeronautical lab facility using sophisticated computer workstations and computer visualization tools. When models are tested they can be tested in a wind tunnel facility or "flown in a computer" using sophisticated computational fluid dynamics visualization software. Aeronautical Engineers spend a lot of time researching information, working with complex equations, using computers and discussing possibilities with colleagues.

Interests / Abilities:

- Do you enjoy working with mechanical devices as well as solving problems with paper and pencil?
- Are you good at solving difficult mathematical equations in your head?
- Are you always finding new ways to use old machines by making changes in their design?
- Do you enjoy drafting designs of futuristic vehicles?
- Do you enjoy solving problems using a computer?

Suggested School Subjects / Courses:

- Physics
- Aeronautics
- Chemistry
- Auto shop/engine repair
- Database software programs
- Mathematics: *Geometry, Trigonometry, Calculus*
- English composition

Education / Training Needed:

The minimum education required for this position is a bachelor's degree in Aeronautics, Aeronautical Engineering, Aerospace Engineering, Mechanical Engineering, Fluid Dynamics, Thermal Dynamics, Computer Science or another appropriate subject from an accredited college or university. To perform research, master's level to Ph.D. in Aeronautics, Aeronautical Engineering, Aerospace Engineering, Mechanical Engineering, or Fluid Dynamics is necessary. A pilot's license is also helpful for this position.

Areas of expertise:

- *Aerodynamics*
- *Aeronautics*
- *Computational Fluid Dynamics (CFD)*
- *Aircraft structure and function*
- *Aircraft propulsion systems*

