Aerospace Engineers Essay, Research Paper

Aerospace engineers examine, analyze, design, produce, and occasionally install components that make up aircraft, spacecraft, high-altitude vehicles, and high-altitude delivery systems (missiles). Satisfaction with the romantic image of rocket building can buoy many engineers through the highly anonymous work environments that many of them face. Individuals don’t assemble rockets; teams do, dozens of teams working in highly supervised coordination. An aerospace engineer plays some part on one of the teams, spending more of her time (roughly 70 percent) in a lab, at a computer, and assembling reports than doing anything else. Not being able to see the “big picture” frustrates some professionals. The path to becoming an aerospace engineer is a rigorous one, but those who manage to survive the difficult lift-off emerge with an above-average degree of career satisfaction. Academic requirements are strict and wide-ranging: Physics, chemistry, computer science, mathematics, materials science, statistics and engineering courses provide the base for any aspiring rocket scientist. Some colleges offer a degree in aerospace engineering; others offer a more generalized engineering degree with some coursework in aerospace engineering. These courses might include aerospace guidance systems, extreme-altitude material science, and the physics of high-altitude radiation. Internships, summer jobs, and any experience in the field are helpful, as entry into this industry is highly competitive. Many aspirants may need to relocate to California, Washington State, or Texas, where the majority of defense industry aerospace work is done, to work for companies such as NASA, Boeing and Lockheed Martin.Two years into their job an aerospace engineer can be planning on being Junior members of research staff are swamped with work, both in the lab and in offices, crunching data and organizing research. More like “lab assistants,” their early years are marked by relatively menial tasks (testing of equipment, tracking results) with little input into the testing or recommendation process. Average hours and pay characterize these environments, but education continues apace. Few people leave the profession during these years; the hours already devoted in school make it easier to tolerate these few extra workplace indignities. And in about five years one will be leading research teams and turn into people managers as well as project managers. This is an unanticipated turn of events for some, as it removes them from the challenging, intellectually rarefied environment they enjoy and places them in a more administrative role. Most significant design and production work is done in these years. Over 25 percent leave, frustrated with the secrecy of the profession and limited opportunity to pursue what they believe to be promising and interesting ideas. And ten years out about 5 percent of engineers start their own aerospace research and development firms, based on patents, contacts, and access to adequate financing. Those who become project and personnel managers have significant input on the direction of research, but little contact with the actual day-to-day functioning of these research and development teams. Budgeting, oversight, and intra-company contacts all become important parts of the ten-year survivor’s life. Hours remain about the same and satisfaction tends to level off; salary increases occur, but after this point, without equity interest in smaller, private companies, administrators can only expect cost-of-living salary increases. The abrasion rate has slowed, but those who leave from this point go back into academia, training programs, or private consulting.