Mechanical Engineering

Job Description

-Mechanical engineers design and maintain equipment and even buildings at SNS. They use computer 3D design software to design different components and then send those designs to contractors or machinists who actually create the building or part needed.

Education

-Bachelor's degree in mechanical engineering

Approximate Salary Range

-The approximate salary range for a career in Mechanical Engineering is about $60,000-$140,00.

What can I do now to prepare?

-Enroll in physics/chemistry courses in high school

-Focus on your math and science courses, you will need the basic knowledge learned in the high school classes to build on that background in college courses.

-Research universities with mechanical engineering programs and determine the qualifications needed to get into those programs.

Career Spotlight

Mike Dayton: Target and Mechanical Systems Section Head

Mike Dayton works with the group that is in charge of operating the target system where the beam strikes the liquid mercury. He leads a team of about 40 engineers and technicians to safely operate and maintain the Spallation Neutron Source mercury target systems, cooling systems, and vacuum systems. The engineers and technicians are responsible for the maintaining of existing equipment and the design of new equipment to make the systems run better. Before becoming a section head, Mike had a few other jobs in engineering. After obtaining his bachelor's degree in mechanical engineering, he worked for a commercial nuclear plant. Then, he started working for an aerospace company where he worked on designing and maintaining systems in space shuttles. After getting some experience in various engineering fields, Mike came to SNS to work with the accelerator. Mike describes mechanical engineering in its most basic sense as advanced problem solving. As a child, he was always fascinated by how mechanical things worked. He enjoyed taking things apart and figuring out how to put them back together. The logical career choice based on his interest in the function of mechanical things was mechanical engineering. In addition to knowledge in math, science, and engineering fields, Mike says that communication skills and being able to explain ideas effectively is extremely important in his career. At the SNS, everyone works together to make sure the equipment is working properly, so employees must work well with many types of people.

Interview Questions

- What is your job title?

Target and Mechanical Systems Section Head (Research Accelerator Division)

- Describe your job as if you were talking to a middle schooler.

My section is in charge of operating the target system where the beam strikes the liquid mercury and also the cooling water and the systems that surround target. We maintain the existing systems and problem solve when issues arise. Solving those problems can involve designing new equipment or manipulating the already existing equipment.

- Did you have any role in any of the equipment (design/operation/maintaining/ control) in the injection region shown in the Lego model? Can you explain that role?

My section deals with the liquid mercury target side of the SNS.

- When did you become interested in perusing a job in this field?

As a kid, I was always fascinated with how mechanical things worked and how to make them better. I would often take things apart to see if I could figure out how to put them back together. Logically, engineering seemed like the closest career to figuring out how things work and making them even more efficient.

- What does a typical workday look like for you?

Mostly, I am managing other people at this point. When I was in previous positions, I was more involved in the actual designing of equipment but now I help other people with finding solutions to problems in their projects.

- How long have you been doing this job?

I have been in this position as a section head for almost 4 years. Previously I did mechanical engineering here and my projects were focused on using robots to actually work on the machine. Because of radiation, people can't just go up to the machine and use tools to work on it, we have robots that are controlled to do those things.

- What qualifications or education are necessary in order to begin a career in this field? What other jobs did you have that got you to this position?

Bachelor's degree in mechanical engineering. Had multiple jobs in engineering including working at a commercial nuclear plant, then working in aerospace working on space shuttles, and finally coming to SNS to work with the accelerator.

- What can a middle school/high school student do now to prepare for a career in your field?

Be curious about how things work and try to learn about it. Of course, develop skills in math and science too.

- What aspects of your job do you enjoy the most?

Helping everyone when issues come and feeling like I helped come up with a solution is a really fulfilling part of my job.

- What tools or technology do you use most in your job?

3D modeling software

- What skills (besides the background knowledge) do you think are essential in your job in order to be successful?

Communication and being able to get your ideas across to other people is extremely important. Just enjoying science and being fascinated by how things work helps

- Why is your job important to the Spallation Neutron Source?

We make it possible for the scientists to come in and use the accelerator to solve the worlds problems.

“Could you email us a picture and a brief description of your job in your own words”