

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

-Research universities that offer mechanical engineering and determine what qualifications you may need to get into those universities.

Career Spotlight



Chad Helland: Mechanical Engineer (Research Accelerator Division)

Chad Helland is a mechanical engineer for the research accelerator division at SNS. He uses 3D modeling software (CRYO) to model various components that may be needed on different parts of the accelerator. Being a mechanical engineer requires maintaining the equipment and facilities that are already in place, troubleshooting if there is a problem with the equipment and upgrading systems to work even better. Another part of the job is designing new components for projects that the lab plans on implementing. One project that Chad recently worked on was upgrading the injection region by designing new vacuum chambers, magnets, and stands for the magnets. Chad decided on mechanical engineering as a career early, in about the sixth grade. He enjoyed designing and modeling with Legos and mechanical engineering can be seen as a very advanced version of that. He went to college and got a bachelor's degree in mechanical engineering and then worked as a contract engineer for about twenty years. A contract engineer works with multiple cooperations on different projects instead of only working within one certain company. After his experience as a contract engineer, he came to ORNL for this position. In addition to background education in the field, he emphasizes the importance of communication skills as well as being able to effectively research using the internet. Anyone can search for anything on the internet if they know what to search for. Google can be a great tool if you know what websites to trust and what key words to use when researching.

Interview: Chad Helland

- What is your job title?

Mechanical Engineer for the Research Accelerator Division

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

I design instruments and components that help scientists do research for physics and chemistry and engineering purposes.

- Our students will build a model of the injection region of the SNS. Did you have any role in any of the equipment (design/operation/maintaining/ control) in the injection region shown in model? Can you explain that role?

I helped develop the upgrade for that whole region. It required updating the vacuum chambers, the magnets, and the stands for the magnets. We used CRYO 3D modeling software to design the components and then contracted it to actually be created and built.

- What qualifications or education did you need in order to be hired for your position?

BS in mechanical engineering

- Did you have any other jobs before this one that led you to your position?

Contract Engineering for multiple cooperations- all mechanical engineering

- Are there any other types of jobs that work in your field that are on your team or that you work closely with?

Very integrated with many different teams- the radiological, the electrical, the piping, schematics, floor layout. Everyone has to take their specific expertise and come together to make SNS function properly.

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

I decided on mechanical engineering in about 6th grade. Lego kind of brought on the idea because I enjoyed designing and building the models and wanted a career in designing and building.

- What does a typical work day look like for you?

The majority of my work is designing online using CRYO.

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

Creating new things and seeing those inventions come to life.

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

CRYO, Microsoft products for communication, researching effectively on google

- What skills do you think are essential in your job in order to be successful?

Being able to communicate with others. Being able to research effectively to find solutions to problems.

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

If it wasn't for mechanical engineers, this place wouldn't exist. We design the parts and the buildings that make the facility run.