Flight Crew Equipment

Jessica Nelson

> Hi, Jessica. I believe you are the NASA expert for the evening!

> From my information, you work with flight crew equipment.

<Jessica Nelson> Yes, and I have worked with advanced space suits for 1 year

<Ian Mair> Hi! I'm Ian Mair.

> Do you want to give us a little background about how you came to work for NASA?

<Jessica Nelson> I was a student in the HAS program back in 2002. I got accepted into the NASA Co-op program in the Fall of 2005. I recently became a full time employee at NASA in January.

<Jessica Nelson> I did a total of 5 co-op tours with NASA

<Meera Day> So do you think co-ops are the best way to get a job at NASA?

<Meera Day> By the way, I'm Meera Day

<Jessica Nelson> If you want to work at NASA, then co-oping is the BEST way. Internship is the 2nd best way.

<Meera Day> What's the difference?

<Jessica Nelson> Remember you can also co-op for a contractor like USA or Lockheed Martin

<Rida> Hello

<Jessica Nelson> hi!

<Michael Both> What kind of equpiment does the flight crew use?

<Jessica Nelson> I work on both tools and equipment, so the equipment part would be items like: iPod, power supply, oscilloscope, flowmeter, work light, and more items

<Laura Jean Mueller> what did you study in college?

<Jessica Nelson> Lots of items you would use here on Earth, but we have to certify them to fly on the Shuttle or ISS

<Jessica Nelson> Aerospace Engineering, but I recommend Mechanical and Electrical engineering as well

<Rida Khan> How long did you have to study for this?

<Jessica Nelson> 4 years is normal, but I did 4.5 years

<Meera Day> What college did you attend?

<Rida Khan> Did you also need experience?

<Jessica Nelson> Texas A&M

<Jessica Nelson> Need experience for college or co-op or job?

<Jessica Nelson> (Rida)

<Rida Khan> the job

<Jessica Nelson> Yes, I co-oped with NASA prior to being hired on full time

<Ian Mair> What did you do during your time that you co-oped with NASA?

<Jessica Nelson> Nowadays you REALLY need experience in any engineering field to get the best job and job offer

<Rida Khan> Is NASA the only place where such experience is available?

<Jessica Nelson> As a co-op student, you get to rotate around to

different areas so you can get a lot of different expereinces and figure out what you like best

<Jessica Nelson> No, many companies have a co-op program

<Jessica Nelson> It is very beneficial to both the employer and employee to co-op. You get to know what the company actually does prior to graduation and the company gets to "test" you out before you become a full time employee

<Ian Mair> What is a normal day at your job like?

<Jessica Nelson> I have about 6 different projects that are "mine", so depending on what day it is and deadlines I work on priority items first. Mondays and Wednesdays are almost all filled with meetings.

<Jessica Nelson> The meetings are not boring either and are a nice "break" from my desk

<Michael Both> What are you working on?

<Jessica Nelson> I interact a LOT with a variety of different labs, facilities, and people to get my job done

<Jessica Nelson> I am working on certifying a new electric razor, trying to troubleshoot a "broken" power supply, certifying a 2 part epoxy to be used on ISS,

<Rida Khan> What extracurriculars did you take part in as a student, that arehelping you now?

<Jessica Nelson> a new tools kit for the ISS,

<Jessica Nelson> and much more

<Peter Sassaman> helo

<Jessica Nelson> I did some research for a professor, worked on a satelite project, and was involved in a couple of professional organizations that helped me

<Ian Mair> How did you become interested in flight crew equipment?

<Jessica Nelson> I actually was assigned to this area (I did not co-op in) because they really need more employees.

<Meera Day> So do you just do certification or do you get to design and modify equipment as well?

<Jessica Nelson> I actually REALLY like it because it is fast paced, my co-workers are awesome, and I have alot of DIFFERENT projects so I dont get bored

<Jessica Nelson> Both

<Rida Khan> How long have you been doing this?

<Peter Sassaman> <Peter Sassaman> im sorry i came in late, What do you work on?

<Jessica Nelson> I started full time at the beginning of January

<Jessica Nelson> But I have completed 5 co-op tours when I was in college which is about 1.5 years of experience

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<Laura Jean Mueller> What has been your favorite project to work on?

<Jessica Nelson> The tools kit which will be used on ISS after Shuttle retires

<Ian Mair> Sounds like a great job to me! What is the most challenging part of your job?

<Jessica Nelson> it is a BIG project and I am the lead NASA person which is really awesome

<Jessica Nelson> I am just learning a lot about the whole process through this project

<Laura Jean Mueller> did your co-op help to get you that position?

<Peter Sassaman> Thankyou Ms. Kamas

<Jessica Nelson> Yes it did.

<Jessica Nelson> NASA hires their co-ops first, and then if they have more spaces, they hire the iterns

<Jessica Nelson> Co-oping is a great opportunity and most of the time you get a full time job with the company

<Rida Khan> What schools, besides Texas A&M, would you recommend for an aerospace engineering degree?

<Jessica Nelson> University of Texas is very good

<Meera Day> What about Rice?

<Jessica Nelson> University of Michigan, Purdue University

<Jessica Nelson> Rice does not have a Bachelors program in Aerospace

<Jessica Nelson> You can get a Mechanical from Rice, and Rice is very good

<Ian Mair> What is the most rewarding part of your job?

<Jessica Nelson> Knowing that I am providing equipment and tools for the astronauts so that they can do their job on the ISS or Shuttle

<Jessica Nelson> Without the items we provide, they would not be able to do a lot of their work or Experiments

<Peter Sassaman> What is the largest project you've worked on?

<Jessica Nelson> The tools kit I mentioned. It is a BIG project and an expensive one as well

<Ian Mair> Do you work closely with the astronauts to get feed back on your equipment?

<Jessica Nelson> Also, when I co-oped, I worked a year on Advanced Space suits

<Peter Sassaman> thanks!

<Jessica Nelson> yes we do get evaluations and feedback from astronauts

<Jessica Nelson> If you have an questions about space suits, feel free to ask

<Peter Sassaman> what parts of the suits did you personaly work on?

<Jessica Nelson> I worked on developing the new space suit that will be used to go back to the moon

<Jessica Nelson> I worked on the tool harness for EVAs, and the helmet

<Rida Khan> Do the astronauts feel comfortable in the space suits?

<Jessica Nelson> I also worked on all the requirements for the new suits

<Josh Abramovitch> What types of advanced space suits are there?

<Jessica Nelson> Not always, their hands are the part of their body that sees the most wear because they use it the most

<Jessica Nelson> We have about 4 different models or prototype units of space suits. IN the end there

will only be one, which will probably be a combination of the 4

<Meera Day> What is the biggest difference between current space suits and space suits that will be used on the moon?

<Josh Abramovitch> What's special about each prototype suit?

<Jessica Nelson> The current space suits are designed for 0G, the suits for the moon will be desiged for 1/6G so they will be more flexible as the astronauts "walk" on the moon instead on floating in space

<Peter Sassaman> Will these space suits have to be cleaned while in space on extended misions to the moon?

<Rida Khan> I know the suits are custom made for each astronaut, but can they be reused?

<Jessica Nelson> They will be cleaned on the moon to prevent the harmful moon dust from getting inside the vehicle

<Jessica Nelson> They are reused and usually only the gloves are custom made.

<Peter Sassaman> How will that be done?

<Jessica Nelson> For the arms and legs we have sizes they pick from

<Jessica Nelson> That is still in work...

<Brook Sell> what is harmful about the moon dust?

<Peter Sassaman> Thank you!

<Brook Sell> are there toxins on the surface?

<Jessica Nelson> The moon dust is like tiny little razor blades

<Jessica Nelson> I am not sure about the toxins

<Josh Abramovitch> To reiterate my previous question, what is each prototype suit's special feature?

<Peter Sassaman> What materials are used to ensure anti-deterioration of the suits

<Jessica Nelson> They use nomex and teflon

<Michael Both> how much time is usually spent working on a project?

<Meera Day> Will space suits need any additional protection to prevent moon dust from harming the suit

<Laura Jean Mueller> Will the astronauts be able to test the suits before flight?

<Jessica Nelson> I am not sure if I can go into that question Josh

<Josh Abramovitch> Classified?

<Jessica Nelson> Usually the projects in my group are anywhere from 2 weeks to 1 year, but average 3 months

<Jessica Nelson> yes they will Meera

<Jessica Nelson> Yes Laura

<Jessica Nelson> Its sensitive information Josh

<Josh Abramovitch> Okay.

<Ian Mair> Which job did you like better.... space suit design or flight crew equipment? and why?

<Brook Sell> how do they "clean" the suits on the surface of the moon?

Jessica Nelson> They are both so different. I feel like I do the flight crew equip job better because it fits me better

<Jessica Nelson> They still have not finalized that yet Brook

<Rida Khan> In what way does it fit you better?

<Jessica Nelson> I have lots of projects to work on, so I get a lot of variety, that helps keep me busy and not bored

<Jessica Nelson> I also work better with my current coworkers

<Jessica Nelson> that helps a lot

<Rida Khan> Do you ever hope to be able to become and astronaut?

<Brook Sell> how many different space suits do you design before one is chosen for the mission?

<Jessica Nelson> I do not do well with confined spaces, so I think it is a no for astronuat for me

<Jessica Nelson> They have already gone through different designs already and one is not final yet so

it is hard to say

<Jessica Nelson> I would say at least 3

<Ian Mair> How did you originally become interested in aerospace?

<Jessica Nelson> I was always fascinated with space

<Brook Sell> High Scool Aerospace scholars :D

<Jessica Nelson> I was part of the program

<Michael Both> Have you worked on the SAFER suit?

<Brook Sell> really?

<Jessica Nelson> Yes back in 2002 (HAS)

<Ian Mair> How was your experience with HAS?

<Jessica Nelson> No that was before my time (SAFER)

<Rida Khan> Was it different then?

<Jessica Nelson> AMAZING

<Michael Both> ah

<Jessica Nelson> I had a BLAST that week I was there

<Brook Sell> what did you do?

<Rida Khan> Wow, that is really inspiring.

<Laura Jean Mueller> Thats awesome

<Jessica Nelson> I was on the grey team

<Peter Sassaman> have you had an astronaut or a specific person at NASA who was a specific inspiration for you?

<Jessica Nelson> No not really Peter

<Peter Sassaman> ok

<Peter Sassaman> thank you

<Jessica Nelson> I have met a lot of interesting people at NASA though

<Jessica Nelson> sure

<Peter Sassaman> whos the most interesting?

<Brook Sell> how did you prepare for your job [college]... sorry If this has been previously answered

<Jessica Nelson> There are some great stories from Flight Directors and Astronauts

<Jessica Nelson> I started with HAS, then co-oped in college, also did research in college and worked on a student satelite project.

<Jessica Nelson> Was involved with 2 professional academic organization

<Jessica Nelson> s

<Laura Jean Mueller> You mentioned that you work with all different labs and facilities. Do most jobs at NASA have the same collaboration?

<Jessica Nelson> all of the labs and facilites are onsite at NASA. In my past experience with my other jobs at NASA (co-oping) I have worked with other facilities and labs

<Jessica Nelson> It is that way because everyone/each group specializes in something so you go to the experts for that area

<Rida Khan> I imagine that your work keeps you very busy, do you get any downtime?

<Peter Sassaman> what do you do on your spare time?

<Jessica Nelson> I do. I work my 40 hours each week and I go home and have my free time

<Jessica Nelson> I volunteer, hang out with my friends, church, bible study, etc

<Jessica Nelson> travel

<Ian Mair> What skills are necessary to be successful in your occupation?

<Brook Sell> Do you ever get to travel through work?

<Jessica Nelson> Communication skills are SO important

<Brook Sell> If so, where have you gone?

<Jessica Nelson> leadership, time management, responsibility,

<Jessica Nelson> Brook, no I have not

<Joanna Schiefelbein> I know you've probably answered this dozens of times, but what kind of a degree do you have?

<Rida Khan> Are there lots of opportunities for advancement?

<Jessica Nelson> Aerospace Engineering

<Brook Sell> do you ever get to work with people outside the United States?

<Jessica Nelson> there are Rida

<Jessica Nelson> I do: Russians, Japanese, Canadian, and European

<Brook Sell> do you speak more than just English?

<Meera Day> Do you also get to work with private contractors?

<Jessica Nelson> All the time

<Jessica Nelson> of the 10000+ people that work at NASA, only about 25% work for the government

<Jessica Nelson> the rest are contractors

<Jessica Nelson> like USA, Lockheed, Boeing, Raytheon, and more

<Ian Mair> What advice would you have for someone just getting started in this field?

<Jessica Nelson> Experience is essential.

<Jessica Nelson> Go to a good college and make sure to intern, co-op or do research while in college

<Peter Sassaman> with youre career do you see any robots? just curious.

<Jessica Nelson> One of my friends works in the robotics area

<Jessica Nelson> So I can go visit

<Peter Sassaman> cool

<Joanna Schiefelbein> Are you enrolled in the space program?

<Jessica Nelson> I have to get going in the next couple of minutes, any last minute questions?

<Jessica Nelson> I am not sure I understand your question Joanna

<Brook Sell> what were youre strengths in High school

<Jessica Nelson> Very strong in math and science. I was also a good leader

<Richard Penshorn> What is one part of your job that makes it diffrent from all the others?

Brook Sell> National Honor Society?

<Jessica Nelson> If anyone wants to contact me for additional questions or information my work email address is Jessica.L.Nelson@nasa.gov

<Jessica Nelson> no Brook

<Laura Jean Mueller> Thank you for your time!

<Joanna Schiefelbein> You were in Girl Scouts? Cool! I just got my Gold Award.

<Jessica Nelson> No problem

<Meera Day> Thank you for answering our quiestions!

<Brook Sell> thank you

<Ian Mair> Thank you so much Jessica!

<Jessica Nelson> Congrats Joanna

<Peter Sassaman> Thank you for answering my questions!

<Joanna Schiefelbein> Thanks for your time!!

<Jessica Nelson> I got my gold as well

<Joanna Schiefelbein> Wow!!

<Jessica Nelson> Have a good night and email me if you have ANY questions!

<Jessica Nelson> Bye guys!

<Rida Khan> Bye

<Peter Sassaman> Bye

<Joanna Schiefelbein> Bye!! :)