



Sloan Career Cornerstone Center

Profiles in Aerospace Engineering



Melinda Cecacci

**Aerospace Technologist - Flight Control
NASA Johnson Space Center
Houston, TX**

Education:

BS, Mechanical Engineering, University of Akron

Job Description:

Aerospace Technologist, working in mission control as a propulsion systems engineer, and working with astronauts to solve in-flight propulsion problems.

Advice to Students:

"Polish up on your presentation skills, your communications skills. Learn how to learn; work hard while you're in college. It's four or five short years of intense studying and sheer excruciating pain, but it's going to pay you off for the next forty, fifty, or however many years you decide to work after you graduate."

Comments:

Melinda feels that one of the best things in her education was the co-op work program -- in fact, she says that without her co-op experience she wouldn't be at NASA today.

Video Transcript 1:

"We have to sync up with other places in the world that are, of course, at different times. When it's nighttime here it's daytime there. So we have to make sacrifices and maybe work, you know, through the middle of the night or, you know, three days straight, changing off shifts. In addition, during flights, the shuttle's up 24 hours a day, for however many days that mission's supposed to be."

Interview:

Co-oping was an essential part of my professional life. I wouldn't be here at NASA Johnson Space Center without my co-op experience. The event that I'm proudest of in my short time here at NASA was working on the mission of the first joint docking of the Mir and the Space shuttle. That was the first time that we docked with the Russians since the Apollo mission in 1975.

I would advise engineering students who are just starting out or those who are about to graduate, to polish up on your communication and presentation skills. This is important in my job at Johnson Space Center, where I work on a team of flight controllers who come from many different backgrounds -- math and physics majors and engineers from electrical to civil to mechanical to chemical. We are more effective because we can draw upon and share a wealth of knowledge.

Women have unbelievable opportunities today compared to what they had ten or twenty years ago. I think it is important to understand that everyone should be qualified for the job they do, whether they are male or female, black or white, Hispanic, Chinese -- it doesn't matter. If a person is qualified to do the job, they can get to where they want to be.

Q: For the record, please tell me your name, who you work with, what you do, how long you've been there, and your age.

Ceccaci: OK. My name is Melinda Ceccaci. I work for NASA-Johnson Space Center. I am an aerospace technologist, which means I am a flight controller for space shuttle operations. I am 26 years old and my degree was in mechanical engineering.

Q: Thank you, Melinda. You're a young person, you are bright, enthusiastic, you look like you're in good shape, you like your work, you've got a lot going for you. Tell me, in terms of the job market, what do you think are your best qualities or the best you have to offer, and how do you think your particular job with NASA helps bring that out?

Ceccaci: My best qualities probably are my ability to work in a team environment. Working in a team you have to earn the respect of the people you work with, and that's a very important thing to learn. And to earn respect you have to work hard and be diligent, and I think those are the keys. I think that as part of a team you have to earn respect of your peers, and the best way to do that is to do your best always in all things that are given to you -- big or small tasks. Teamwork is always a skill that you want to be able to carry away from any job, because it will be well-used in any other job that you try to attain in life.

Q: Every job, however, can be boring from time to time. Tell me what, if anything, is boring about your job, and how do you deal with that?

Ceccaci: In the position I'm in right now, I have to do a lot of studying. I'm not certified as a flight controller in the systems. I am currently working with a navigation and control system, so I have to spend a lot of time reading workbooks and documentation and flight rules, and that gets to be really monotonous and easy to put you to sleep. It's like when you would read texts in college. The best way to do that is to try to use different media to do your training. Here at NASA we use classroom, flight-controller trainer classrooms where there's a computer interface. We have computer-based trainers where they have lessons on the computer, and those are really neat because they cover a wealth of text, and then break it up with questions to test your comprehension of that material. So, using the computer-based trainer, the flight controller trainer, or even going over to the control center and doing some on-the-job training while a real simulation, or a real flight, is going on, is probably the best way to get out of that monotonous hole of boredom.

Q: OK. I'm a co-worker, and I'm in some ways your superior or supervisor. I come over, we're talking about your work, and I tell you directly to do something that makes absolutely no sense. How do you deal with that?

Ceccaci: It doesn't happen. I'm trying to think of how I would deal with that. I would want to understand why I'm being asked to do the task, so I would ask questions and try to figure out what is trying to be obtained from this task I'm supposed to be performing. If it's a legitimate reason that I'm supposed to be performing this task, I have to put aside my feelings of how menial or how trivial this task may be, and I have to do it. And, like I said before, how you handle small tasks will inevitably affect how you handle big tasks. So, it may be a test on their part to see how willing you are and how well you will do something, no matter how simple or stupid it may seem.

Q: Let's say I'm from Shell Oil. I meet you, I like what you do. You tell me about your job, what you're doing. I say, "Melinda, you're making X dollars a year working for NASA. I'm going to offer you twice as much, and if you're not happy after a year, you can go back to NASA." What do you tell me?

Ceccaci: I am a person who takes pride and takes value in what I do. If I'm not happy with what I'm doing, all the money in the world isn't going to change that. I'm extremely happy in my job right now. I am doing a job that is an opportunity of a lifetime, and if I leave this job I may never have the opportunity to do it again. Right now I'm very happy with what I'm doing. I think the experience I will gain here will only make me better in the future. So I would probably turn that job down. Money is not everything.

Q: True, thanks. Do you think that advancement opportunity in the world of mechanical engineers in general, and at NASA, is as open to women as it is to men?

Ceccaci: Women have unbelievable opportunities today compared to decades ago. However, I think it's important to understand that everyone should be qualified for the job they do, whether they be male or female, black or white, Hispanic, Chinese, it doesn't matter. If that person is qualified to do the job, they will get to where they want to get. It seems like the government has made a huge effort in making sure that there is no discrimination. I would like to think the people get their jobs because they're qualified.

Q: You've obviously studied a lot of things about mechanical engineering. Looking back on your work in the university or college, was there anything that you studied that has almost no value to you today?

Ceccaci: There are a lot of things that I studied that I am not using today. But the idea in school, looking back, I think the key was to learn how to learn. What people do here at Johnson Space Center, or any of the other NASA centers, are tasks that they learn on the job. They are things that they will learn how to do from the peers that they work with, from the specific documentation that's developed at that company, and I think that's true of any corporation. There are going to be many skills, if you're in design or manufacturing, that I'm sure, I'm certain you're going to use from your studies and the texts and the classes that you took in college. However, in my current job I don't use many of those, but the basic

foundations that I learned through those four years of college very much apply to my understanding of the systems that I work on in the shuttle.

Q: When you came to speak to someone at NASA about working with them, what do you think the three most important things you wanted to get across to your prospective employer were during that interview that you thought would make you an attractive employee here?

Ceccaci: I'm hardworking, I'm reliable, and I love my job. And the way you feel about your job will directly reflect on the work you produce. So, those were probably the three things I would have pushed when I talked to my prospective employer.

Q: Are there any -- and if there are, tell me about them -- personal sacrifices you feel that you're making, willingly or not willingly, to be an active and valuable professional at NASA?

Ceccaci: There are going to be sacrifices in any job you take, whether it be traveling across the world for any amount of time, working crazy hours, etc. Here at JSC, the one that we're probably most faced with is the odd hours, particularly with the joint operations, with the European Space Agency, the Russians. We have to "sync up" with other places in the world which are, of course, at different times. When it's nighttime here, it's daytime there. So we have to make sacrifices and maybe work, you know, through the middle of the night or three days straight, changing off shifts. Of course, somebody's going to have to work in the middle of the night. So that's probably the biggest sacrifice we have to make. In addition, during flights, the shuttle's up 24 hours a day, for however many days that mission's supposed to be. That may be, for example, 17 days long. Well, you're pretty much out of commission for 17 days as far as doing anything in the real world because you're expected to be here. Somebody has to be here 24 hours a day, and those are split into three shifts. So, you may be on one of those shifts that aren't the most pleasant hours. So there are some sacrifices that have to be made, but when you like what you're doing, the sacrifices don't seem so big.

Q: Do you have friends on the job that you made here?

Ceccaci: Just about everyone I work with has become a friend in some capacity, some more than others. And it is very much like a family environment.

Q: What do you look for in co-workers that makes you feel a part of this work, together as opposed to apart from? What signs are you looking for, to feel integrated with your fellow workers?

Ceccaci: You always want to have the respect of your peers and your fellow workers, and the way that you know you have their respect is that they will bring you assignments and they will bring you tasks to do, and they will expect you to do them right, and to do them well. And if they keep coming back to you, you know that you've done well, so you always want to be pleasing them as much as they are pleasing you. We have to use each other to teach each other. People who have been here longer than me are responsible for training me as well as people who have come in after me. So, when they help you out and they teach you something, they expect you to become more proficient and to be able to pass that knowledge

